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Office of the Chief Economist

World Agricultural Outlook Board

Long-term Projections Report OCE-2019-1

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USDA Agricultural Projections to 2028

Interagency Agricultural Projections Committee

World Agricultural Outlook Board, Chair
Economic Research Service
Farm Service Agency
Foreign Agricultural Service
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USDA Long-term Projections

Long-term Projections on the Internet

USDA Agricultural Projections to 2028 is available in both pdf and Microsoft Word formats at:

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

and also at:

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:

www.ers.usda.gov/topics/farm-economy/agricultural-baseline-projections/usdas-long-term-projections-process.aspx

USDA Agricultural Projections to 2028. 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-2019-1, 108 pp.

Abstract

This report provides projections for the agricultural sector to 2028. 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 Agricultural Act of 2014 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 July 2018 through February 2019.

While agricultural prices are tending to trend upwards, ongoing U.S. trade disputes with China have dampened expectations for soybeans. These trade disputes are assumed to last the duration of the projection period. Planted acreage drops slightly overall, primarily due to an expected drop in soybean plantings, while corn and wheat plantings are expected to offset the bulk of the loss in soybean acreage. Energy costs are expected to remain relatively low with crude oil import prices remaining below $93 per barrel over the coming 10 years. 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 prices of agricultural products. Although a relatively strong 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 and quality margins. Net farm income is expected to increase a little over 8 billion dollars in 2019 to just over 77.5 billion dollars and remain relatively steady, fluctuating between 75 and 80 billion dollars for the remainder of the decade.

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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Contents

USDA Long-term Projections: Background

USDA's long-term agricultural projections presented in this report are a departmental consensus on a longrun 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 2018 through February 2019, with the Agricultural Act of 2014 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, longrun 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 projections from the October 2018 *World Agricultural Supply and Demand Estimates* report. The macroeconomic assumptions were completed in August 2018.

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 Service Agency; 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 2028

Interagency Agricultural Projections Committee

Introduction and Projections Overview

This report provides long run projections for the agricultural sector to 2028. 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 Agricultural Act of 2014 are assumed to remain in effect through the projection period. 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 discussion of alternative farm-sector outcomes that could result under different domestic or international conditions.

The projections in this report were prepared July 2018 through February 2019 and reflect a composite of model results and judgment-based analyses. Short-term projections used as a starting point in this report are from the October 2018 USDA *World Agricultural Supply and Demand Estimates* report. The macroeconomic assumptions were completed in August 2018.

Over the next several years, the agricultural sector will continue to adjust to the ongoing China-U.S. trade dispute (which is assumed to last the duration of the projection period). This results in an expected shift away from soybean production in the U.S. due to lower prices and towards corn and wheat which are expected to generate relatively higher returns. Despite relatively high carryout in many years, strong global demand will support relatively stable total planted acreage for the major U.S. crops despite the shift from soybeans. As markets are developed 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 are expected to continue to provide economic incentives for expansion.

Developments for global agriculture and U.S. trade reflect income growth in developing countries and a relatively strong U.S. dollar over the coming decade, with steady world economic growth and continued global demand for biofuel feedstocks expected throughout. Those factors combine to support longer run increases in the disappearance, trade, and prices of agricultural products. Global trade competition will continue to be strong and the relatively strong U.S. dollar will continue to dampen growth in U.S. agricultural exports. Nonetheless, the United States remains competitive in global agricultural markets, in part due to efficiencies and quality. Net cash income and net farm income are expected to stabilize over the coming 10 years, recovering from the lower agricultural prices of the recent past.

Key Assumptions and Implications

Major assumptions underlying the projections and selected implications include:

Macroeconomic Overview

- Global macroeconomic conditions reflect economic growth in developing countries that is expected to remain lower than in the 2000-2014 period, a relatively strong U.S. dollar, and relatively low oil prices, which are expected to remain below $100 per barrel over the decade.

Economic Growth

- Global real economic growth is projected to average roughly 2.8 percent annually over the next decade. The United States is expected to have among the highest growth of the developed countries, averaging approximately 2.0 percent annually, while developed countries as a group are expected to experience an average of 1.6 percent annual growth. Meanwhile, growth in the developing countries continues to rise from the 2016 low of 3.7 percent over the first half of the coming decade, and is expected to drop in the second half, averaging just under 4.5 percent annual growth overall.

- The strongest growth remains in developing countries. Although China's economy slows as it transitions to a more consumer-oriented economy, average annual growth still averages 5.5 percent. India is expected to remain among the world's fastest growing economies, averaging almost 7 percent. Asia in general is expected to have strong economic growth–particularly in the Southeast Asian countries. Africa and the Middle East are also anticipated to maintain growth rates of 3 and 3.7 percent, respectively. Latin American growth is expected to rebound in the near term, growing at just over 2.5 percent per year. The growth is marked by recovery in Brazil from its recent deep recession and Argentina's recession in 2018 continuing into 2019, with gradual recovery anticipated over the next decade. U.S. expected growth provides export markets for Mexico, while Venezuela likely remains mired in a deep recession in the near term, with relatively low projected oil prices.

- Relatively weak long-term real growth is expected for the developed countries, especially in Japan (less than 1 percent) and the European Union (EU) (less than 1.5 percent). Inflexible labor laws and an expensive social security system constrain EU growth while Japan's working age population continues to shrink.

- While the U.S. will be among the growth leaders of the developed world, 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 the Ukraine, limiting their growth. However, growth prospects appear to be improving in the short term for both countries.

- 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, with movement away from traditional staple foods and towards increased diet diversification.

Population

- Economic growth over the next decade contributes to the continued slowing of population gains around the world as birth rates decline. Growth in global population is projected to remain at less than one percent per year compared with an average annual rate of 1.2 percent over 2001-10 and 1.4 percent from 1991-2000.

- Population growth rates in most developing countries are projected to average nearly 1.1 percent per year, well below previous decades, although the average remains above the rest of the world. Africa leads the way with a growth rate over 2.2 percent per year. The share of world population accounted for by developing countries continues to rise, accounting for 83 percent in 2028.

- Population gains in developing countries along with economic growth and expansion of the middle class are particularly important for the projected 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, factors that generally lead to the expansion and diversification of food consumption.

Value of the U.S. Dollar

- The U.S. dollar is generally expected to depreciate over the coming ten years. Despite the weakening, the dollar is expected to remain strong throughout the projection period relative to its value earlier in the decade.

- A strong U.S. dollar will keep the relative price of U.S. exports high, thereby 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. However, 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 due to increased global competition.

Energy Prices

- Demand for petroleum is growing fastest in non-OECD countries—in particular, China, India, and Saudi Arabia—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. Nonetheless, the U.S. nominal refiner acquisition cost for crude oil imports is expected to rise to only about $93 per barrel by the end of the projection period due to non-OPEC suppliers being able to respond quickly to changing market conditions.

U.S. Agricultural Policy

- The Agricultural Act of 2014 is assumed to be in effect through the projection period. Similarly, the trade tariffs currently in place are assumed to remain in effect throughout the next 10 years.

- Acreage enrolled in the Conservation Reserve Program (CRP) is assumed at levels at or just below its legislated maximum of 24 million acres under the 2014 Farm Act.

- Recent reductions in crop prices led to higher direct Government payments to farmers through 2018, mostly reflecting payments under the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs of the 2014 Farm Act. Beyond 2018, direct Government payments are expected to be lower and below the average of 2001-10 as recent and projected prices are expected be at levels that will reduce future payment rates.

U.S. Biofuels

- Biofuel projections were completed before the final renewable fuel standards for cellulosic biofuel, advanced biofuel, and total renewable fuel for 2019 were announced by the U.S. Environmental Protection Agency (EPA) on November 30, 2018 (the biomass-based diesel standard for 2019 was set in 2018). Thus, the biofuel projections are based on EPA's earlier proposed rule for these requirements from June 26, 2018.

- Almost all U.S. production of ethanol uses corn as a feedstock. Ethanol production is projected to increase in the initial years of the projection period with domestic use and exports rising, afterwards declining through the rest of the decade with moderate export growth not fully offsetting falling domestic use, and imports remaining mostly flat. Despite an anticipated decline in U.S. ethanol production, 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.

- Projected declines in overall gasoline consumption in the United States and the 10-percent ethanol "blend wall" are 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). Infrastructure and other constraints severely limit growth in the E15 (15-percent ethanol blend) market. The E85 (51 to 85-percent ethanol blend) market remains small.

- The biomass-based diesel use volume requirement, as administered by the EPA, was set at 2.1 billion gallons in 2018 and remained at this level in 2019, but was raised to 2.43 billion gallons for 2020. Projections assume this volume requirement to remain at the proposed-rule level throughout the remainder of the projection period. However, some production of biodiesel and renewable diesel above the biomass-based diesel volume requirement is assumed to meet a portion of the nonspecific advanced biofuel requirement.

- Soybean oil used to produce methyl esters (biodiesel) in the United States is projected to support the annual production of over 1 billion gallons of biodiesel annually over the coming decade. Other feedstocks used to produce biomass-based diesel include corn oil extracted from 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 2018 remain in place throughout the projection period.
- The ban Russia imposed on agricultural imports from Western countries (including the EU, 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 2028 assume these tariffs remain in effect throughout the projection period since there was no indication of when the tariffs would be removed. The projections are based on data compiled before initial impacts of the tariffs became evident during the fourth quarter of 2018. See the discussion in the Agriculture Trade section for more details on China's policies and how the retaliatory tariffs affect projections for some commodities. China also revised many of its agricultural production statistics after projections to 2028 were made, which are not incorporated into these projections.
- The projections reflect the effects of new policies implemented by Argentina to decrease or eliminate export taxes on principal agricultural commodities. For soybeans, soybean oil, and meal, export taxes have been reduced by one-half of a percentage point per month since January 2018. The tax on soybeans is scheduled to be reduced to 18 (15) percent for soybean oil (meal) by the end of 2019, reversing the immediate reduction initially proposed back in 2015 due to fiscal pressure.

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. As a result, demand for biofuel feedstocks is also projected to grow more slowly.
- The world's largest biofuel producers include the United States, Brazil, the EU, and China. Canada is projected to be the world's largest importer of biofuels over the next decade, with most Canadian biofuel imports coming from the United States. Argentina, Brazil, and the United States are the largest biofuel exporters. The biofuel policy announced by China in 2017 has not been adopted or implemented for the baseline projections.

Prices

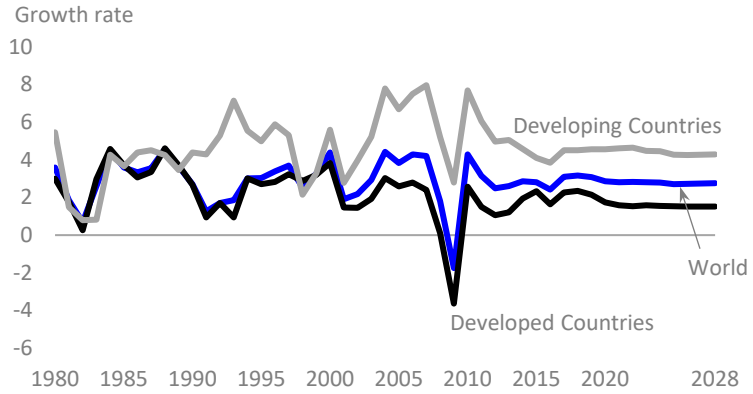
- Prices for most crops continue to remain low relative to the recent past as U.S. and global production responded to the earlier high prices. Prices are expected to rise over the first half of the projection period and thereafter decline moderately, reflecting long-term growth in global demand for agricultural products and continued biofuel feedstock demand.
- Relatively low feed costs continue to improve livestock-sector net returns, providing economic incentives for expansion. Nominal prices for beef cattle and broilers, are projected to decline through most of the next decade as production rises while hog, turkey, and egg prices (after an initial drop) tend to remain steady or increase slowly. Nominal farm-level milk prices are expected to increase over the upcoming decade.
- Lower cattle, hog, and broiler prices result in falling livestock cash receipts throughout the first half of the decade. Crop cash receipts, however, are expected to grow throughout the decade. After 2019, gross cash income begins to rise at almost 0.9 percent per year on average. Net farm income is expected to grow more slowly, at 0.3 percent per year on average, fluctuating between years of growth and decline as expenses continue to climb.

Macroeconomic Assumptions

The macroeconomic assumptions underlying USDA's long-term projections show strong yet declining global growth in the near term, led by a gradual decline in developed country growth coupled with sustained growth in developing countries. Real global gross domestic product (GDP) is projected to increase at an average annual rate of 3 percent over 2018-20. This remains the strongest global growth since the post-financial crisis rebound in 2010-11.

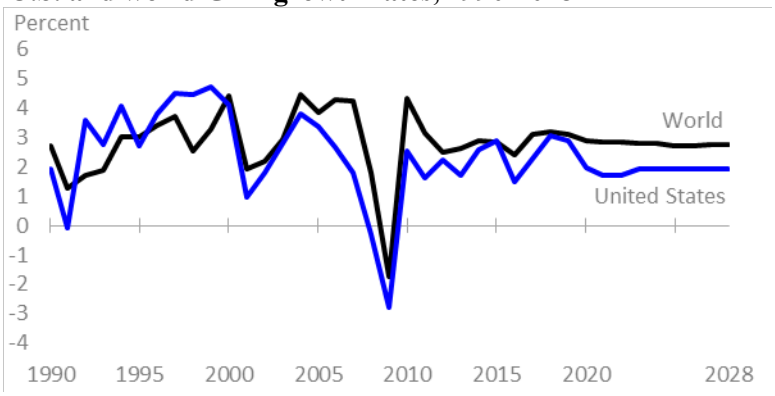
Long-term global trend growth is expected to be slower than the rates that prevailed during much of the early 2000's as the continued maturing of China and other emerging markets implies slower developing country growth rates and aging populations lower potential growth in several large developed and developing economies. Real global GDP is projected to grow at an average rate of 2.8 percent per year over the projection period, below the long-term, pre-financial crisis (1980-2007) average of 3.3 percent, although similar to growth rates prevailing in the 1980s and 1990s.

Real Gross Domestic Product (GDP) Growth Rates



Near-term GDP growth in the U.S. and most other developed countries is expected to exceed long-term trend rates. Labor markets and credit conditions are anticipated to gain and maintain strength that has been building in recent years, which would support strong consumer demand and increased business investment. Monetary policy is expected to continue its tightening path in the near term, with interest rates rising and central banks continuing to phase out the stimulus measures implemented during the global financial crisis and European debt crisis. In the U.S, the effects of the recent fiscal stimulus is projected to conclude soon. Lower long-term trend growth rates generally reflect slowing labor force and productivity growth. Demographic changes drive the bulk of the slowdown in labor force growth, although immigration mitigates this trend in some countries.

U.S. and world GDP growth rates, 1990-2028



Rebounding commodity prices and an improved external environment are expected to support strong near-term growth in most developing country regions. However, growth rates in China and other large developing countries are projected to be significantly slower relative to the historic highs that prevailed from 2000-2014. Nevertheless, developing country growth is expected to outpace that of developed countries as they continue to exploit gains from investments in basic physical and economic infrastructure and improvements in the allocation of resources.

The U.S. dollar is expected to weaken throughout the projection period while remaining relatively strong, supported by the health and safety of the U.S. economy and the pace of monetary normalization relative to other developed countries. Oil prices are projected to rise slowly to nearly $93 per barrel (in nominal terms), although there is significant uncertainty with respect to supply factors – both nationally and globally.

Agricultural Implications

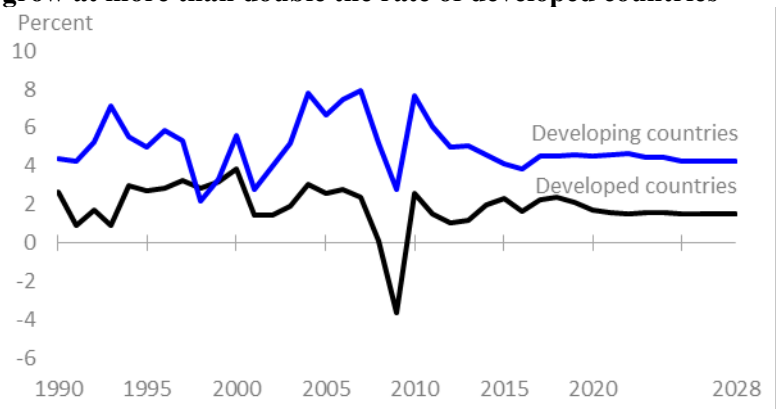
An improved external environment, including a continued increase in trade, supports growing global demand for food and agricultural products, and the U.S. will remain among the most competitive agricultural exporters. However, slowing global economic growth rates and a relatively strong dollar are expected to weigh on 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 which boosts global demand as incomes rise. The notable exception is China, historically one of the main drivers of demand for some of the U.S. exports, but whose imports of U.S. agricultural goods are now severely limited due to the trade tariffs currently in place (and that, as of the time of the writing of this report, are assumed to continue through the projection period). Improved economic conditions in developed country markets will provide additional stimulus to global demand.

- The U.S. dollar is expected to generally weaken over the coming ten years but remain strong throughout the projection period relative to its value earlier in the decade. A strong dollar dampens demand for U.S. agricultural exports over the projection period as it increases the relative price of U.S. goods. The magnitude of the strong currency disadvantage tends to be more significant for bulk commodities. Product quality and market efficiency will remain the important sources of U.S. export competitiveness while the strong dollar persists.

- Although developing country growth rates are expected to decline on average relative to the historic highs of 2000-10, incomes are expected to continue to rise. With growing incomes, diets become more diversified and meat, dairy, and processed foods consumption increases. This shifts developing country import demand towards feed grains for increased livestock production and high-valued food products.

- Low energy prices in the early years of the projection period will continue to curb the costs of production for agricultural producers in the U.S. and elsewhere. In contrast, the expected higher interest rate environment increases borrowing costs for producers.

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



Economic growth in developing countries is projected to average 4.4 percent annually during the projection period. While this represents a growth slowdown compared to recent history, it remains more than twice the projected growth rate of developed countries. As a result, developing countries' share of global real GDP is projected to rise to 45 percent in 2028 from 40 percent in 2019. China, India and Southeast Asian countries are expected to account for the bulk of this increase. The strongest developing country growth is projected among Asian countries at 5.3 percent, followed by African countries at 3.7 percent and Latin American countries at 2.6 percent. The region encompassing the former Soviet Union is forecast to grow most slowly at an average of 2.2 percent per year.

- Despite a slowdown relative to 2000-10, continued strong GDP growth in developing Asia makes this region an increasingly important part of the global economy. Its share of world GDP is projected to rise from 24.2 to 29.9 percent over the projection period. Near term growth is expected to be below the long-term trend. An exception is India, with an average growth rate of 6.9 percent per year, which exceeds that of recent years and outpaces China. This growth is expected to be supported by gains from continued adherence to major economic reforms, including a reshaping of the taxation system, and increased investment in infrastructure.

- China's economic growth is projected to slow from historical highs near 10 percent in 2000-10 to an average of 5.5 percent per year over the next decade. Nevertheless, China is expected to account for over 17 percent of the world economy in 2028, up from just over 13 percent in 2018. Expectations of slower 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. In the near term, trade tensions with the United States and the implementation of relatively tight monetary policy to address the high levels of debt combined with industrial overcapacity present challenges for a smooth transition.

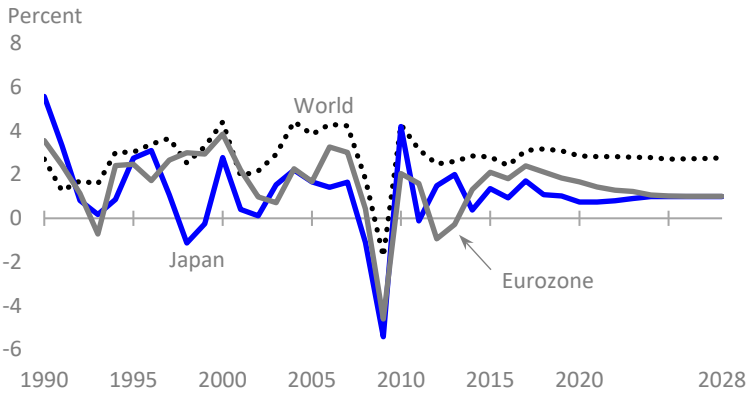
- Latin American GDP growth is projected to rebound in the near term after a recent period marked by very slow growth and recession in some of its largest economies. Growth in Argentina is expected to be above its ten year average throughout the next decade. Brazil's economy is expected to continue to recover from its deep recession of the past few years amid a complicated political environment. Growth in both countries is expected to be slow relative to other developing countries due to difficult economic challenges. Meanwhile, Mexico is expected to benefit from strong growth in its northern neighbor and primary export market, with its own GDP growth expected to hold steady at just over 2 percent for the next decade.

- Economic growth in Sub-Saharan Africa, the poorest region in the world, is projected to average 3.6 percent per year. This growth rate, although well below the 6 percent average during 2000-07, is nevertheless higher than the long-term historical trend rate of roughly 3 percent. Two large Sub-Saharan African countries, South Africa and Nigeria, continue to face significant slower growth relative to the early 2000's due to political and economic challenges. Nevertheless, growth on the continent is generally expected to continue raising standards of living and slowing increases in the poverty rate, although low per capita GDP levels imply significant poverty will persist. The West African Community outside of Nigeria continues to exceed the economic growth of its neighbors and is expected to average over 5.5 percent in the near term, above its long-term trend rate of roughly 4 percent.

- The Middle East and North Africa regions are also expected to grow at an average annual rate of 3 percent over the projection period. Expected commodity prices are driving slightly higher near-term growth in many countries. However, others are experiencing political instability and violence that has brought economic activity to a virtual standstill, and that uncertainty affects prospects in the neighboring countries.

- Growth prospects for the Former Soviet Union region are starting to improve, expected to range between 2.1 and 2.4 percent over the coming decade. Nevertheless, this still remains a significant drop from recent history when these countries averaged 4.5 percent growth over the 2000-15 period. Increased financial stability in Russia and its command of oil resources will likely allow the Russian economy to continue to grow. In Ukraine, the economy has started to slow due to a weakening of the hryvnia. A recent agreement with the IMF is expected to help with the government's finances and increase investor confidence. However, tensions between Russia and Ukraine continue, which are expected to dampen the potential for growth in the area.

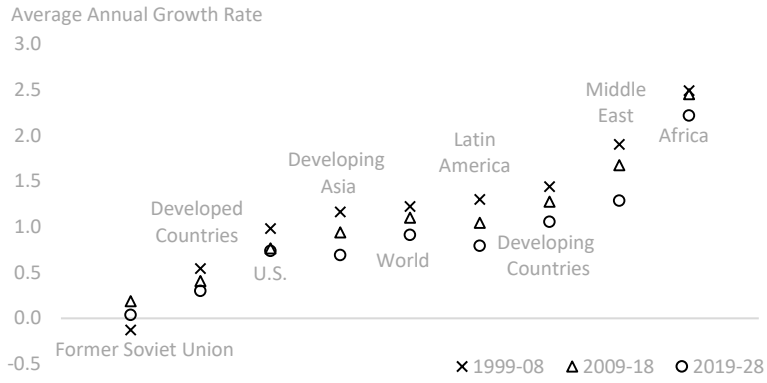
Growth in gross domestic product (GDP) for developed countries, European Union, and Japan



Developed country growth is expected to be robust in the near term with 2018 growth already generating an improved external environment for exporters and strong fundamentals suggesting continued above-trend growth in the near term, tapering to an expected 1.5 percent growth by the end of the decade. The U.S. remains a growth leader, while growth in the Eurozone was strong in 2018 but is expected to slow by the end of the decade to levels closer to Japan. Meanwhile, Japan's growth reverted to its long-run trend of roughly 1 percent per year after the higher than expected growth it achieved in 2017. Long-term growth in developed countries is expected to be lower than in the past as aging populations imply slower labor force growth and productivity growth rates continue to decline.

- U.S. economic growth is expected to continue to outpace most of the rest of the developed world throughout the projection period. Domestic economic fundamentals are healthy and expectations of an improving international environment combined with some relief from a strong dollar could help to boost export demand. Nevertheless, growth in export markets will likely be hindered by the continued escalation of trade tariffs currently being imposed. As the labor force ages and dwindles and productivity is expected to slow down, long-term growth is projected to be slower than the historical average. Inflation is also expected to remain at just over 2 percent in the United States. Furthermore, the Federal Reserve is expected to continue to tighten monetary policy, with interest rates projected to increase over the next ten years.
- Accommodative monetary policy has contributed to a continued strong economic growth in the Eurozone in 2018 at just under 2.2 percent, the second strongest year of growth (after 2017) since before the global financial crisis. However, expectations are for growth to fall to roughly 1 percent growth by the end of the decade. Rising populism and political fragmentation complicate efforts by EU leaders to enact economic and political reforms.
- Japan is expected to return to its long-run average growth of around 1 percent per year, following an unexpected higher-than-average year in 2017. The economy benefited from the positive external economic environment in 2017 and the central bank's asset purchases aimed at lowering interest rates and encouraging consumer and business expenditures. However, inflation has remained quite low and is expected to remain well below 2 percent.
- The Canadian economy underwent a substantial recovery in 2017 and is expected to continue to grow but at a slower pace. Energy related commodities remain a strong export opportunity for Canada. Like other developed countries, relatively strong growth is expected to be sustained in the near term, moving to a long-run growth rate of under 2 percent thereafter.

Average annual population growth rates by decade show declines over time, with the exception of the Former Soviet Union



World population growth is projected to continue slowing over the next decade, growing just under 1 percent per year for the projection period compared to an annual rate of 1.4 percent over the decade 1991-2000 and 1.2 percent in 2001-10.

- Developed countries have very low projected population growth rates, growing slower than 0.3 percent per year over the coming decade. U.S. population growth is projected to more than double the developed country average, growing over 0.7 percent per year on average, in part reflecting the importance of immigration. Only small population increases are expected for the European Union, averaging just under 0.1 percent over the next decade. In contrast, the population in Japan is projected to continue falling between 0.3 and 0.4 percent per year.

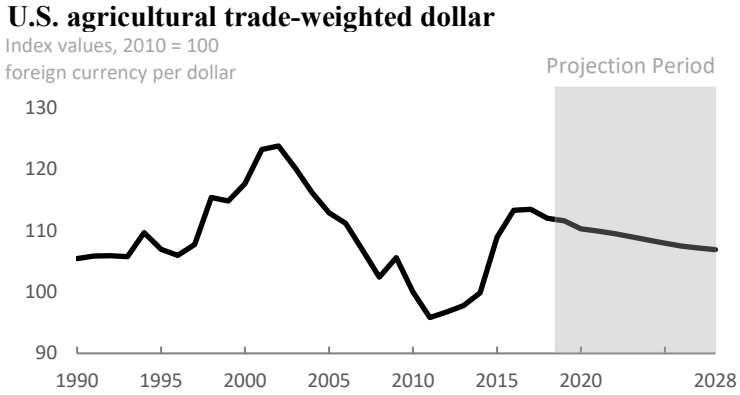
- Population growth rates in developing countries will likely be lower than in previous decades due, in part, to rising incomes and higher levels of life expectancy. Growth rates are expected to remain above those in the rest of the world at nearly 1.1 percent per year over the projection period. As a result, developing countries' share of global population is projected to increase to 83 percent by 2028, compared to 79 percent in 2000.

- Africa has the highest population growth at over 2.2 percent per year with Sub-Saharan Africa leading the way at 2.4 percent per year. Although population growth has fallen compared to history, the decline is modest relative to the declines seen in Latin America and Asia. Latin America is expected to grow at just under 0.8 percent per year over the next decade, less than half the rate experienced from 1991-2000. Asia is expected to grow at roughly 0.7 percent per year, also less than half the rate experienced from 1991-2000.

- China and India together accounted for over 36 percent of the world's 2018 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 0.05 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 population in this region.

- Population growth in the Middle East is forecast to exceed the world average at nearly 1.3 percent.



The average value of the U.S. agricultural trade-weighted dollar in 2018 dropped relative to its 2017 value—the highest it has been since 2004—portending an expected continued decline in the dollar over the next ten years. While the dollar is expected to remain strong relative to the early years of the decade throughout the projection period, the currencies of many key trading partners are expected to continue to regain value lost during the dramatic dollar strengthening in 2015. Expectations for a strong dollar are supported primarily by a relatively optimistic outlook for U.S. economic growth combined with anticipated increases in interest rates while monetary policy elsewhere remains more accommodative.

- In 2018, the dollar dropped more than 4 percent in real terms in the Eurozone and declined nearly 1.5 percent relative to the Japanese yen while gaining strength against the Australian dollar (over 1 percent), and a modest 0.3 percent appreciation relative to the Canadian dollar. In the near term, it is expected that the dollar will appreciate relative to the Canadian and Australian dollar and the Japanese yen based on the relative strength of the U.S. economy, while the dollar is expected to depreciate against the Eurozone. In the long run, the U.S. dollar is expected to decline in value relative to these economies.

- The dollar generally depreciated modestly in real terms in most developing country regions in 2018, with country-specific factors producing a mix of exchange rate movements. The dollar dropped by nearly 4 percent on average relative to Latin American currencies; modestly decreased by roughly half a percentage point relative to Southeast Asian countries, and increased by almost 3.5 percent relative to Middle Eastern currencies. Relative to African countries, on average, the dollar depreciated by almost 5 percent. On average, the real exchange rate is expected to be relatively steady with a trend toward modest depreciation in developing country regions through the remainder of the projection period. Country- and region-specific economic conditions affect the expected magnitude and timing of currency movements.

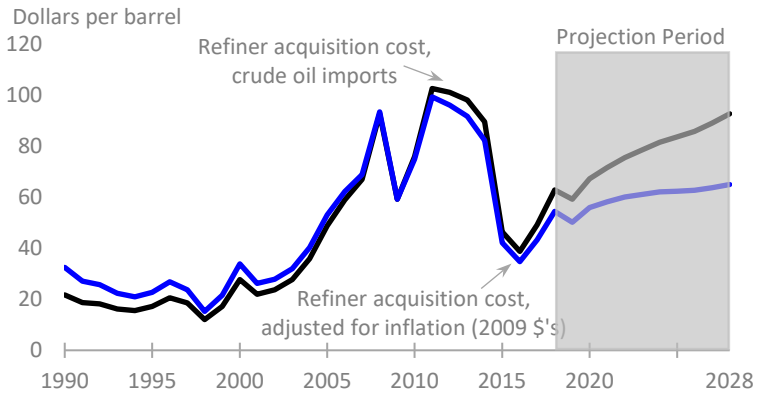
- The dollar is expected to weaken against the Mexican peso, by more than 3 percent in 2019 and 2020, tapering off in 2021 and followed by very slow appreciation over the remainder of the decade. Against the Argentine peso, the dollar is expected to appreciate by more than 8 percent in real terms in 2019 as the major economic reforms help the economy to gain

strength. The U.S. dollar is expected to appreciate more than 2 percent in each of 2019 and 2020 against the Brazilian real, followed by less than 0.2 percent appreciation over the remainder of the projection period.

- It is expected that the dollar will hold relatively steady in the first years of the projection period against the Chinese yuan. Dollar appreciation in 2016 and 2017 has occurred in spite of Chinese government intervention intended to mitigate losses in the yuan's value. In the long run, as the Chinese economy adjusts to a more consumer-oriented and market-driven economy, the dollar is expected to begin to depreciate against the yuan.

- The dollar is expected to depreciate in real terms against a trade-weighted basket of currencies in the former Soviet Union region over the projection period. After dramatic strengthening in both 2014 and 2015, the trend toward a weaker dollar that began in 2016 continued. While the dollar strengthened against the Russian ruble in 2018, it is expected to depreciate thereafter, settling into a roughly 1 percent decline in value per year. Against Ukraine's hryvnia, the dollar's real value is expected to drop almost 8 percent in 2019, more than 6 percent in 2021, and slowly eases down to a roughly 3 percent decrease per year for the remainder of the projection period as the Ukrainian economy benefits from economic reforms.

U.S. crude oil prices



The projections reflect continued low crude oil prices in the near term, rising to almost $93 per barrel in nominal terms by the end of the projection period.

- Demand for petroleum continues to grow fastest in emerging market countries that are not part of the Organization for Economic Cooperation and Development (OECD)—in particular, China, India, and Saudi Arabia—regions with the fastest growing populations and economies. In OECD countries, oil demand is expected to remain relatively stable as increased energy efficiency offsets growth in transportation and industrial activity. However, with global economic growth expected to grow at a slower pace over the projection period; combined with higher oil prices and currency devaluations in several non-OECD countries, oil demand is expected to grow slowly over the long term.

- Despite an expected slowing of demand, oil prices continue to rise due to OPEC supply management strategies, the loss of supplies from Venezuela (economy) and Iran (sanctions), and strong U.S. refinery demand coupled with slowing U.S. exploration.

- As oil prices rise, however, exploration becomes more attractive, and non-OPEC suppliers can respond relatively quickly to changing market conditions. This places a price ceiling on how high oil prices are expected to rise.

Table 1. U.S. macroeconomic assumptions

Item	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Gross Domestic Product												
Nominal, billion dollars	19,391	20,362	21,364	22,238	23,114	24,024	25,019	26,055	27,107	28,203	29,342	30,527
Real, billion 2009 chain-weighted dollars	17,096	17,617	18,121	18,475	18,789	19,109	19,472	19,842	20,219	20,603	20,994	21,393
percent change	2.3	3.0	2.9	2.0	1.7	1.7	1.9	1.9	1.9	1.9	1.9	1.9
Disposable personal income												
Nominal, billion dollars	14,380	14,999	15,674	16,348	17,067	17,818	18,602	19,420	20,255	21,086	21,950	22,850
percent change	2.9	4.3	4.5	4.3	4.4	4.4	4.4	4.4	4.3	4.1	4.1	4.1
Nominal per capita, dollars	44,114	45,640	47,318	48,968	50,729	52,559	54,463	56,444	58,450	60,420	62,467	64,596
percent change	2.2	3.5	3.7	3.5	3.6	3.6	3.6	3.6	3.6	3.4	3.4	3.4
Real, billion 2009 chain-weighted dollars	12,765	13,071	13,398	13,693	13,994	14,302	14,617	14,938	15,267	15,572	15,884	16,201
percent change	1.2	2.4	2.5	2.2	2.2	2.2	2.2	2.2	2.2	2.0	2.0	2.0
Real per capita, 2009 chained dollars	39,158	39,775	40,448	41,016	41,595	42,188	42,795	43,417	44,054	44,621	45,202	45,800
percent change	0.5	1.6	1.7	1.4	1.4	1.4	1.4	1.5	1.5	1.3	1.3	1.3
Personal consumption expenditures												
Real, billion 2009 chain-weighted dollars	11,891	12,208	12,546	12,831	13,075	13,324	13,577	13,835	14,112	14,394	14,682	14,975
percent change	2.8	2.7	2.8	2.3	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0
Inflation measures												
GDP chained price index, 2009=100	113.4	115.6	117.9	120.4	123.0	125.7	128.5	131.3	134.1	136.9	139.8	142.7
percent change	1.8	1.9	2.0	2.1	2.2	2.2	2.2	2.2	2.1	2.1	2.1	2.1
CPI-U, 1982-84=100	245.1	251.1	256.5	262.3	268.3	274.5	280.8	287.3	293.9	300.6	307.6	314.6
percent change	2.1	2.5	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3
PPI, finished goods 1982=100	198.0	205.8	212.4	217.8	222.9	228.2	234.2	240.6	247.1	253.8	260.6	267.7
percent change	3.2	3.9	3.2	2.5	2.3	2.4	2.6	2.7	2.7	2.7	2.7	2.7
PPI, crude goods 1982=100	190.8	186.1	197.3	203.0	208.0	211.8	215.6	218.1	220.8	224.7	228.8	232.6
percent change	10.0	-2.5	6.0	2.9	2.5	1.8	1.8	1.2	1.2	1.8	1.9	1.7
Crude oil price, $/barrel												
EIA refiner acquisition cost, imports	49.1	62.9	59.2	67.3	71.7	75.6	78.6	81.6	83.6	85.8	89.1	92.7
percent change	26.8	28.0	-5.9	13.7	6.5	5.5	4.0	3.8	2.5	2.6	3.8	4.1
Real 2009 chain-weighted dollars	43.3	54.4	50.2	55.9	58.2	60.1	61.2	62.1	62.4	62.7	63.8	65.0
percent change	24.6	25.6	-7.8	11.4	4.2	3.2	1.7	1.6	0.4	0.5	1.7	1.9
Labor compensation per hour												
nonfarm business, 2005=100	118.0	122.1	126.9	131.9	137.4	142.9	148.7	154.6	160.8	167.2	173.9	180.9
percent change	1.7	3.5	3.9	4.0	4.2	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Interest rates, percent												
3-month Treasury bills	0.94	1.90	2.7	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9	2.9
Bank prime rate	4.10	4.89	5.5	5.9	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
10-year Treasury bonds	2.33	3.00	3.4	3.5	3.6	3.7	3.7	3.7	3.7	3.7	3.7	3.7
Labor and population												
Civilian unemployment rate, percent	4.4	3.8	3.3	3.6	4.1	4.3	4.4	4.4	4.5	4.5	4.5	4.5
Nonfarm payroll employees, millions	146.6	149.0	151.4	152.7	153.0	153.3	153.8	154.4	155.1	155.8	156.6	157.4
percent change	1.6	1.6	1.7	0.8	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.5
Total population, millions	326.0	328.6	331.2	333.8	336.4	339.0	341.6	344.1	346.5	349.0	351.4	353.7
percent change	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.7

Domestic macroeconomic assumptions were completed in August 2018.

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, 2018	GDP share 2016-18	Per capita GDP, 2018	2018	2019	2020	2021	2022	2023	Average 1999-2008	Average 2009-2018	Average 2019-2028
	Bil. 2010 dollars	*Percent*	*2010 dollars*	*Percent change in real GDP*								
World	81,987	100.0	11,073	3.2	3.1	2.9	2.8	2.8	2.8	3.3	2.5	2.8
North America	19,755	24.2	54,197	3.0	2.8	1.9	1.7	1.7	1.9	2.6	1.8	1.9
Canada	1,923	2.4	53,600	2.1	1.9	1.8	1.8	1.8	1.8	2.9	1.8	1.8
United States	17,832	21.8	54,262	3.0	2.9	2.0	1.7	1.7	1.9	2.6	1.7	2.0
Latin America	5,876	7.3	9,239	1.3	1.9	2.2	2.5	2.7	2.8	3.2	1.6	2.6
Mexico	1,314	1.6	10,434	2.3	2.3	2.4	2.3	2.3	2.3	2.3	2.2	2.3
Cuba	77	0.1	6,907	1.8	2.0	3.5	4.5	5.0	5.0	6.1	2.2	4.5
Caribbean & Central America	442	0.5	5,754	1.3	2.8	2.7	2.8	3.0	3.1	3.4	2.0	3.0
South America	4,044	5.0	9,577	1.0	1.6	2.1	2.6	2.7	2.9	3.4	1.4	2.7
Argentina	470	0.6	10,505	1.3	1.9	2.6	3.0	2.7	2.5	2.8	1.4	2.3
Brazil	2,316	2.9	11,091	1.6	2.3	2.0	2.3	2.5	2.8	3.4	1.2	2.7
Other	1,258	1.6	7,457	-0.4	0.3	2.1	2.9	3.1	3.2	3.7	1.7	2.8
Europe	20,414	25.1	37,296	2.1	1.9	1.8	1.6	1.5	1.4	2.3	1.0	1.4
European Union	19,152	23.6	37,026	2.1	1.9	1.8	1.6	1.5	1.4	2.3	1.0	1.4
Other Europe	1,262	1.6	41,933	2.3	1.8	1.8	1.8	1.7	1.7	2.5	1.3	1.7
Former Soviet Union	2,330	2.9	8,156	2.2	2.2	2.4	2.4	2.4	2.3	7.1	1.3	2.2
Russia	1,709	2.1	12,022	1.7	1.8	1.9	2.0	2.0	1.9	6.9	0.8	1.9
Ukraine	131	0.2	2,984	3.2	3.3	3.5	3.8	4.0	4.0	6.2	-1.3	3.6
Other	490	0.6	4,922	3.7	3.4	3.7	3.6	3.3	3.2	8.7	4.2	3.1
Asia and Oceania	27,314	32.8	6,764	4.6	4.6	4.4	4.4	4.4	4.2	4.6	4.7	4.3
East Asia	19,321	23.3	12,100	4.3	4.2	4.0	4.0	4.1	3.8	4.4	4.5	3.9
China	10,832	12.8	7,822	6.6	6.4	6.0	6.0	6.0	5.5	10.2	8.0	5.5
Hong Kong	291	0.4	40,273	3.6	2.4	2.2	2.2	2.1	2.0	4.7	2.9	2.1
Japan	6,222	7.7	49,317	1.1	1.0	0.8	0.8	0.8	0.9	1.0	0.8	0.9
South Korea	1,382	1.7	26,883	2.7	2.6	2.5	2.4	2.3	2.2	5.7	3.1	2.3
Taiwan	544	0.7	23,107	2.4	2.3	2.5	2.4	2.3	2.0	4.6	2.9	2.0
Southeast Asia	2,917	3.5	4,475	5.1	5.0	5.0	4.9	4.8	4.7	5.2	5.0	4.7
Cambodia	19	0.0	1,181	7.0	6.9	6.7	6.5	6.5	6.5	9.7	6.3	6.4
Indonesia	1,146	1.4	4,363	5.1	5.1	5.3	5.2	5.2	5.0	4.7	5.4	5.1
Malaysia	384	0.5	12,058	5.3	5.2	5.1	5.0	4.8	4.6	5.6	4.8	4.7
Burma	71	0.1	1,272	6.8	7.3	7.5	7.2	7.0	6.7	12.4	7.6	6.8
Philippines	323	0.4	3,054	6.6	6.5	6.3	6.0	5.8	5.5	4.6	5.9	5.4
Thailand	440	0.5	6,418	4.1	3.7	3.5	3.2	3.3	3.1	4.8	3.3	3.3
Vietnam	187	0.2	1,928	6.7	6.8	6.4	6.3	6.0	6.0	6.6	6.1	6.0
South Asia	3,386	4.0	1,932	7.0	7.2	7.1	7.0	6.9	6.8	6.5	7.0	6.6
Bangladesh	191	0.2	1,201	7.1	7.2	6.4	6.2	6.0	5.7	5.5	6.4	5.9
India	2,810	3.3	2,167	7.3	7.5	7.5	7.2	7.2	7.1	6.9	7.4	6.9
Pakistan	250	0.3	1,203	5.5	5.2	5.4	5.4	5.4	5.3	4.6	4.1	5.3
Oceania	1,690	2.1	44,930	2.8	2.4	2.7	2.7	2.5	2.5	3.5	2.6	2.5
Australia	1,472	1.8	62,737	2.8	2.5	2.8	2.8	2.6	2.5	3.5	2.5	2.5
New Zealand	186	0.2	40,957	2.6	2.2	1.9	2.0	2.0	2.1	3.2	2.7	2.1
Middle East	3,821	4.7	11,916	2.8	2.6	2.9	3.0	3.0	3.0	4.2	3.5	3.0
Iran	580	0.7	6,989	2.1	1.0	1.4	2.0	2.5	3.0	4.4	2.5	2.7
Iraq	218	0.3	5,413	2.5	5.0	5.1	5.0	5.0	5.0	6.0	5.7	5.0
Saudi Arabia	697	0.9	24,057	1.8	1.9	1.9	1.9	1.9	1.9	3.3	3.2	1.9
Turkey	1,254	1.5	15,432	4.0	2.9	3.4	3.2	3.0	3.0	4.1	5.4	3.0
Other	1,072	1.3	12,292	2.6	3.1	3.2	3.6	3.4	3.3	4.7	2.2	3.3
Africa	2,477	3.0	2,046	3.7	3.6	3.7	3.7	3.7	3.7	5.3	3.4	3.7
North Africa	716	0.9	3,696	5.0	4.5	4.4	4.1	4.0	3.9	4.6	2.8	3.9
Egypt	280	0.3	2,816	5.1	5.4	5.5	5.0	4.7	4.5	5.0	3.7	4.5
Morocco	123	0.1	3,592	3.1	3.9	4.1	4.0	4.0	4.0	4.5	3.7	3.8
Sub-Saharan Africa	1,762	2.2	1,732	3.1	3.3	3.4	3.5	3.6	3.7	5.7	3.6	3.6
South Africa	433	0.5	7,821	1.5	2.0	2.2	2.2	2.2	2.2	4.0	1.6	2.2
Nigeria	470	0.6	2,405	2.0	1.7	2.4	3.0	3.5	4.0	8.3	3.9	3.5
West African Community	192	0.2	1,098	6.6	5.9	5.5	5.2	4.6	4.3	3.7	5.7	4.5
Other Sub-Saharan Africa	667	0.8	1,127	4.1	4.4	4.3	4.3	4.2	4.1	6.3	4.4	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 2018.

Table 3. Population growth assumptions

Region/country	Population in 2018	2017	2018	2019	2020	2021	2022	Average 1999-08	Average 2009-18	Average 2019-28
	Millions				*Percent change*					
World[1]	7,404	1.1	1.0	1.0	1.0	1.0	0.9	1.2	1.1	0.9
North America	365	0.7	0.8	0.8	0.8	0.8	0.8	1.0	0.8	0.7
Canada	36	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.6
United States	329	0.7	0.8	0.8	0.8	0.8	0.8	1.0	0.8	0.7
Latin America	636	1.0	0.9	0.9	0.9	0.9	0.8	1.3	1.0	0.8
Mexico	126	1.1	1.1	1.1	1.0	1.0	1.0	1.3	1.3	0.9
Cuba	11	-0.3	-0.3	-0.3	-0.3	-0.2	-0.2	0.2	-0.1	-0.2
Other Caribbean & C. America	77	1.1	1.1	1.1	1.1	1.0	1.0	1.5	1.2	1.0
South America	422	0.9	0.9	0.9	0.8	0.8	0.8	1.3	1.0	0.7
Argentina	45	0.9	0.9	0.9	0.9	0.8	0.8	1.0	1.0	0.8
Brazil	209	0.7	0.7	0.7	0.7	0.7	0.6	1.3	0.8	0.6
Other	169	1.1	1.1	1.0	1.0	1.0	1.0	1.4	1.2	0.9
Europe	547	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.3	0.1
European Union	517	0.2	0.2	0.2	0.2	0.1	0.1	0.3	0.2	0.1
Other Europe	30	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.4	0.2
Former Soviet Union	286	0.2	0.2	0.2	0.2	0.1	0.0	-0.1	0.2	0.0
Russia	142	-0.1	-0.1	-0.1	-0.2	-0.2	-0.2	-0.4	0.0	-0.2
Ukraine	44	-0.4	-0.2	0.0	-0.1	-0.3	-0.5	-0.8	-0.5	-0.4
Other	100	0.8	0.7	0.7	0.7	0.7	0.6	0.7	0.8	0.6
Asia and Oceania	4,038	0.8	0.8	0.8	0.8	0.7	0.7	1.1	0.9	0.7
East Asia	1,597	0.4	0.3	0.3	0.3	0.2	0.2	0.5	0.4	0.1
China	1,385	0.4	0.4	0.4	0.3	0.3	0.2	0.6	0.5	0.2
Hong Kong	7	0.3	0.3	0.3	0.2	0.2	0.2	0.7	0.2	0.1
Japan	126	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	0.1	-0.1	-0.3
South Korea	51	0.5	0.5	0.4	0.4	0.3	0.3	0.6	0.5	0.3
Taiwan	24	0.2	0.2	0.1	0.1	0.1	0.1	0.5	0.2	0.0
Southeast Asia	652	1.0	1.0	1.0	0.9	0.9	0.9	1.4	1.1	0.8
Cambodia	16	1.5	1.5	1.5	1.4	1.4	1.3	1.6	1.7	1.3
Indonesia	263	0.9	0.8	0.8	0.8	0.8	0.7	1.4	1.0	0.7
Malaysia	32	1.4	1.4	1.3	1.3	1.3	1.2	2.2	1.5	1.2
Burma	56	0.9	0.9	0.9	0.9	0.8	0.8	1.1	0.9	0.7
Philippines	106	1.6	1.6	1.6	1.5	1.5	1.5	2.1	1.6	1.5
Thailand	69	0.3	0.3	0.3	0.3	0.2	0.2	0.7	0.4	0.2
Vietnam	97	0.9	0.9	0.9	0.8	0.8	0.8	1.3	1.0	0.7
South Asia	1,752	1.2	1.2	1.2	1.1	1.1	1.1	1.7	1.3	1.1
Bangladesh	159	1.0	1.0	1.0	1.0	1.0	0.9	1.4	1.1	0.9
India	1,297	1.2	1.2	1.1	1.1	1.1	1.1	1.6	1.3	1.0
Pakistan	208	1.5	1.4	1.4	1.4	1.4	1.4	2.1	1.5	1.3
Oceania	38	1.1	1.1	1.1	1.1	1.0	1.0	1.4	1.2	1.0
Australia	23	1.0	1.0	1.0	1.0	1.0	0.9	1.2	1.1	0.9
New Zealand	5	0.8	0.8	0.8	0.7	0.7	0.7	1.0	0.9	0.7
Middle East	321	1.7	1.7	1.6	1.5	1.4	1.3	1.9	1.7	1.3
Iran	83	1.3	1.2	1.2	1.1	1.0	1.0	1.2	1.3	0.9
Iraq	40	2.7	2.6	2.5	2.4	2.5	2.5	2.7	3.6	2.4
Saudi Arabia	29	1.5	1.4	1.4	1.4	1.4	1.4	2.1	1.5	1.3
Turkey	81	0.7	0.5	0.5	0.5	0.6	0.7	1.3	1.1	0.6
Other	87	2.5	3.0	2.8	2.5	1.9	1.5	3.0	1.9	1.7
Africa	1,211	2.4	2.4	2.3	2.3	2.3	2.3	2.5	2.5	2.2
North Africa	194	2.0	1.9	1.8	1.8	1.7	1.7	1.7	2.0	1.6
Egypt	99	2.5	2.4	2.4	2.3	2.2	2.2	2.1	2.5	2.1
Morocco	34	1.0	1.0	0.9	0.9	0.9	0.9	1.2	1.0	0.8
Sub-Saharan Africa	1,017	2.5	2.4	2.4	2.4	2.4	2.4	2.7	2.5	2.3
South Africa	55	1.0	1.0	1.0	1.0	1.0	0.9	1.3	1.0	0.9
Nigeria	195	2.5	2.4	2.4	2.4	2.4	2.4	2.6	2.5	2.4
West African Community	175	2.6	2.6	2.5	2.5	2.5	2.5	2.7	2.7	2.5
Other Sub-Saharan Africa	592	2.6	2.6	2.5	2.5	2.5	2.5	2.8	2.7	2.4

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

Source: U.S. Department of Commerce, Bureau of the Census (https://www.census.gov/data-tools/demo/idb/informationGateway.php)

The population assumptions were completed in August 2018 based on the August 2018 Census update.

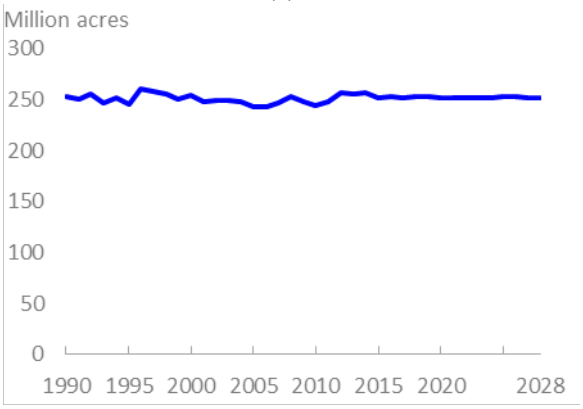
U.S. Crops

With the exception of soybeans, which has been hit hardest by the current trade tensions with China, food and feed grains prices have begun to rise again. As the soybean market adjusts to the current situation, it is also expected to show increasing prices. As China looks to Brazil to supply its demand for soybeans, this shift effectively creates two global soybean prices: 1) the China-Brazil (higher) price; and 2) the rest of the world (lower) price. The lower expected return on soybeans for U.S. producers is anticipated to lead to changes in crop plantings – most notably shifting from soybeans into corn and wheat. As U.S. producers eventually find new markets for soybeans, U.S. soybean exports will begin to grow, with some acreage expected to return to soybean production.

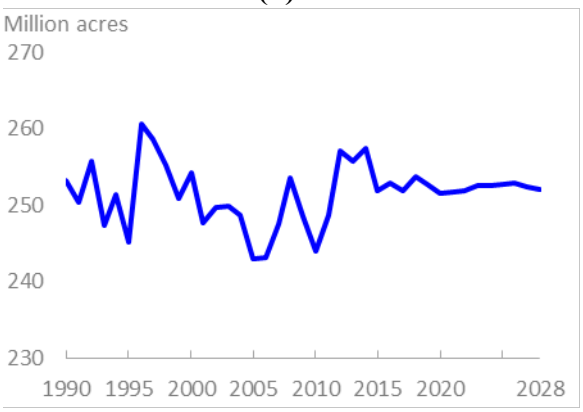
Averaging nearly 257 million acres during the recent peak in 2012-14, the planted acreage of the 8 major U.S. crops (corn, soybeans, wheat, upland cotton, sorghum, rice, barley, and oats) has averaged nearly 253 million acres since, and is expected to remain between 251 and 253 million acres over the next decade. Despite modestly lower levels of planted acres, rising yields help to maintain or increase production for most crops.

U.S. planted area for the eight major crops (corn, soybeans, wheat, upland cotton, sorghum, rice, barley, and oats) has remained relatively flat (a). Closer inspection shows year to year variation (b).

(a)

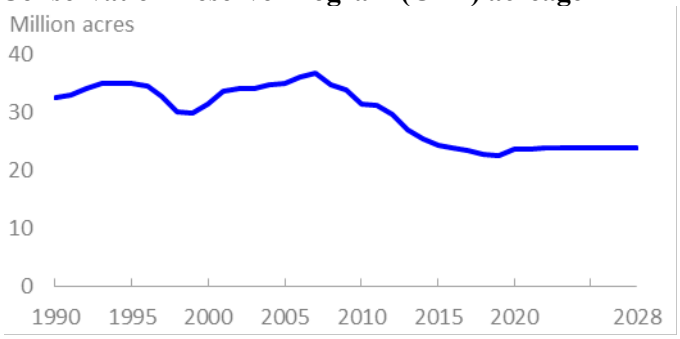


(b)

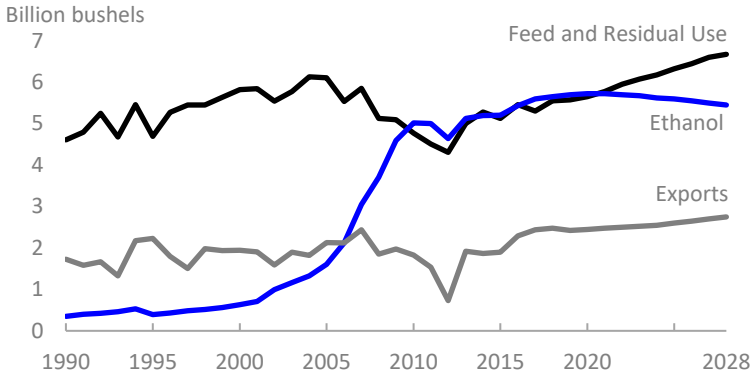


The farm programs of the 2014 Farm Act were in place when generating results for this report, and are therefore assumed to extend through the projection period. Acreage enrolled in the Conservation Reserve Program is assumed to hold near the 2014 Farm Act maximum levels legislated by Congress of 24 million acres.

Conservation Reserve Program (CRP) acreage



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



U.S. corn production is projected to continue to grow over the next decade as trade tensions with China constrain soybean plantings while expanding meat production increases feed usage. Planted area is expected to increase in the near-term and then slowly decline in the second half of the decade as markets adjust to a new trade equilibrium and demand for U.S. soybeans grows again.

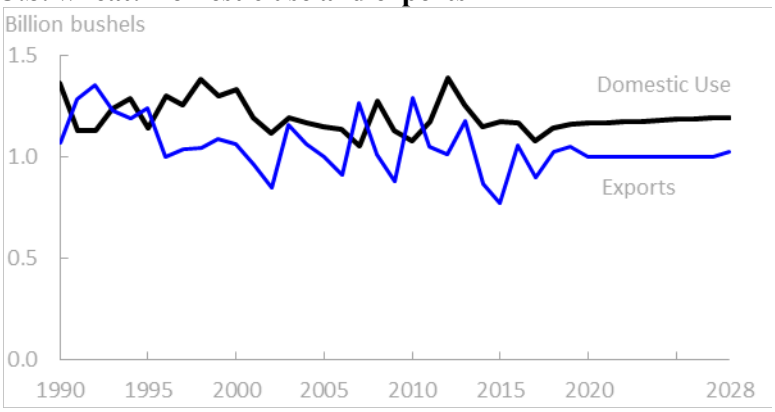
- A large decrease in soybean acreage due to the trade tensions improves the corn outlook as producers look to plant alternative crops. Higher planted acreage combined with increasing yields leads to growing stocks, restraining corn prices. Relatively low corn prices suggest increased feed and residual use, encouraging greater meat production. Corn used for ethanol is expected to rise initially and then decline in later years. Reduced ethanol production results in reduced production of distiller's grains, further supporting the use of corn for feed.

- With little change from previous years, the outlook for corn-based ethanol production is projected to rise slowly over the next few years and then decline to 2016 levels by the end of the decade. Infrastructural, geographical and other constraints for higher level ethanol blends (E15 and E85) and falling U.S. gasoline consumption due to rising fuel efficiency, rising oil costs, and changing consumer lifestyles and urban transport modes all support the expected decline.

- Food and industrial use of corn (other than ethanol production) declines in the second half of the decade after remaining relatively stable. Changing sweetener consumption patterns contribute to the continued decline of the use of corn for high fructose corn syrup (HFCS).

- In 2018/19, U.S. corn exports are expected to be more than double those of Brazil, the next largest exporter. Rising incomes, particularly in emerging economies, increase meat demand and bolster demand for corn for feed. A projected slowly weakening U.S. dollar will improve export prospects while soybean markets are not expected to fully recover due to trade tensions. Continued competition from Brazil, Argentina, and Ukraine, growing domestic feed use, and a steady demand for ethanol production, mean that the U.S. market share of global corn trade will slowly fall to under 36 percent by the end of the decade.

U.S. wheat: Domestic use and exports



U.S. sowings of wheat are projected to average 49 million acres over the next 10 years, with higher levels of plantings in the near-term in part due to lingering trade tensions which are expected to result in reduced U.S. soybean planted area. As producers find new markets for soybeans, wheat plantings are expected to slowly decline. Increased production is expected to meet slowly rising domestic demand, primarily for food use, and contribute to gradually increasing ending stocks. Exports are expected to remain flat as the U.S. share of global wheat trade continues to decline, particularly due to growing competition from the Black Sea region.

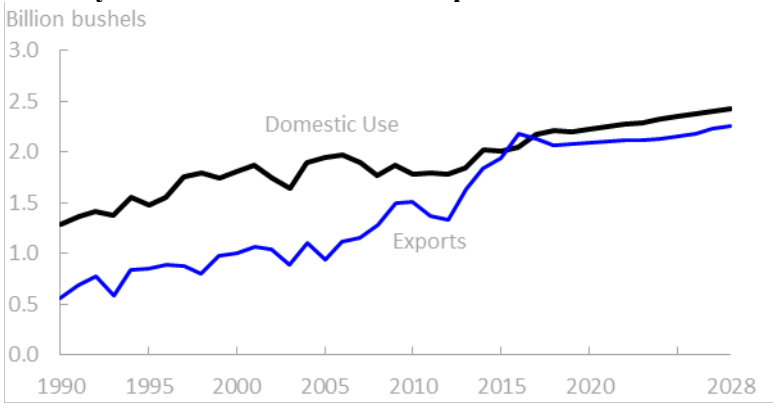
- Food use of wheat is projected to continue to increase at a slightly slower rate than U.S. population growth, reflecting a mature market and long-term per capita trends.

- Wheat-to-corn price ratios remain stable throughout the projection period. Feed and residual levels are projected higher than in recent years, in part due to higher production, and are expected to remain steady.

- Growing domestic supplies and slowly growing demand suggest that U.S. wheat imports will drop gradually over the projection period. In particular, U.S. production of spring and durum wheat is projected to reach levels sufficient to moderately reduce demand for imported wheat from Canada, which had increased sharply in 2017/18 due to smaller U.S. durum and spring wheat production.

- Growing incomes, particularly in emerging economies, serve to increase global demand for wheat as wealthier populations move away from the lower cost staples. However, continued strong competition from Russia, Ukraine, and the European Union inhibit U.S. export growth, primarily due to relatively high transportation costs associated with greater distance from several markets. Therefore, stable U.S. export projections result in a reduction of the U.S. share of world exports over time. When competing exporters have reduced supplies, the U.S. is positioned to readily 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



Rising trade tensions between the U.S. and China create two soybean prices in the world: the China-Brazil (higher) price, as China sources its soybeans from Brazil instead of the U.S., and the rest-of-the-world (lower) price. Lower prices for U.S. farmers reduce incentives to plant, and plantings are expected to drop roughly 6.5 million acres at the start of the projection period. As U.S. producers adjust and find new markets, plantings slowly increase over the decade.

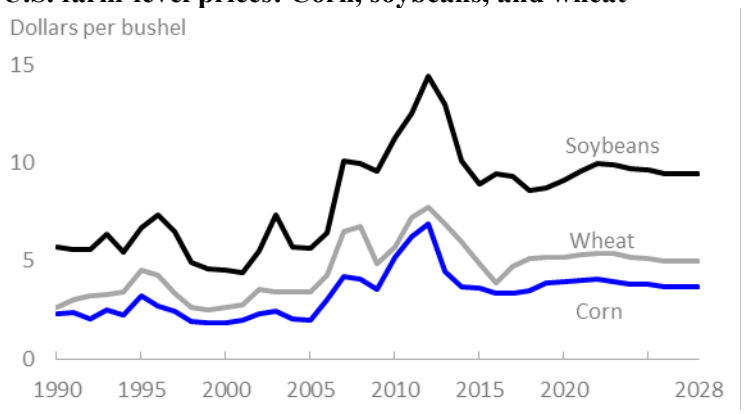
- Domestic demand remains strong for soybean meal and oil, and hence crush, and is projected to continue to increase over the next decade. These gains reflect low expected feed prices, increasing livestock production, a modest rise in biodiesel and renewable diesel production, and steady demand by foreign importers as incomes continue to rise globally – fueled in part by lower soybean prices due to the trade tensions.

- Soybean exports drop in 2018/19 and are not expected to recover to 2017/18 levels until the middle of the projection period as producers adjust to the new trade environment. With little to no expected access to China markets, export growth is expected to slow.

- 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 over 45 percent of the global market by the end of the projection period. Brazil is expected to overtake the U.S. by the middle of the projection period as the second largest exporter of soybean meal, increasing its share of world exports to more than 26 percent. Despite a slowly increasing level of meal exports, the U.S. loses global share, dropping from almost 19 percent to just over 16 percent of the global market by the end of the decade.

- Soybean oil used to produce biodiesel in the United States is projected to increase to 8.3 billion pounds by 2023/24, supporting the annual production of over 1.1 billion gallons of biodiesel. Some additional demand for biodiesel and renewable diesel is also assumed to meet a portion of the RFS'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



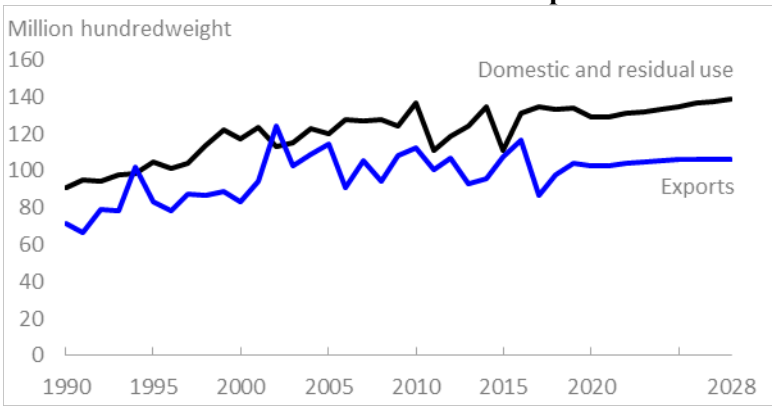
Trade tensions with China have caused soybean prices to fall in the U.S. as China shifted its purchases from the U.S. to Brazil. While soybean prices dropped in 2018/19, nominal prices are expected to rise through the first half of the decade after several years of lower acreage and higher use. Continued global population and income growth, particularly in emerging economies, along with generally steady biofuel demand, are expected to support rising prices for wheat and corn over the first half of the decade. Corn, soybean, and wheat prices are expected to slowly drift lower towards the end of the decade. Despite trade tensions with China, nominal prices are expected to remain above pre-2007 levels over the next decade.

- Excluded from the China market, U.S. soybean shipments to alternative foreign markets and volumes held in in storage increased in the 2018/19 marketing year. Nominal soybean prices dropped in the 2018/19 marketing year but are expected to rise slowly as exporters swap trading partners. With the assumption of continuing trade tensions through the duration of the decade, Brazil is expected to ship nearly all its soybeans to meet China's demand. As a result, the U.S. is expected to supply the bulk of the rest of the world. Demand for soybeans in the rest of the world is not expected to grow as fast as China. Nevertheless, emerging economies will also continue to expand use of soybeans as a feedstock as per capita incomes are expected to continue to rise and food preferences change, generating an increased demand for meat and eggs.

- Modest growth in nominal corn prices is projected over the first half of the coming decade as ending stocks remain high due to low demand growth coupled with rising yields and production. Nominal prices are expected to tail off in the second half as ending stocks continue to grow. 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 first half of the decade. Wheat prices parallel corn prices, dropping in the second half of the decade, in part due to increasing yields combined with relatively stable planted acreage.

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



After increasing nearly 20 percent in marketing year 2018/19 to more than 2.9 million acres, U.S. rice planted area is expected to remain at or below 2.7 million acres over the coming decade. Long grain, grown almost exclusively in the South, is expected to account for nearly all of the area change.

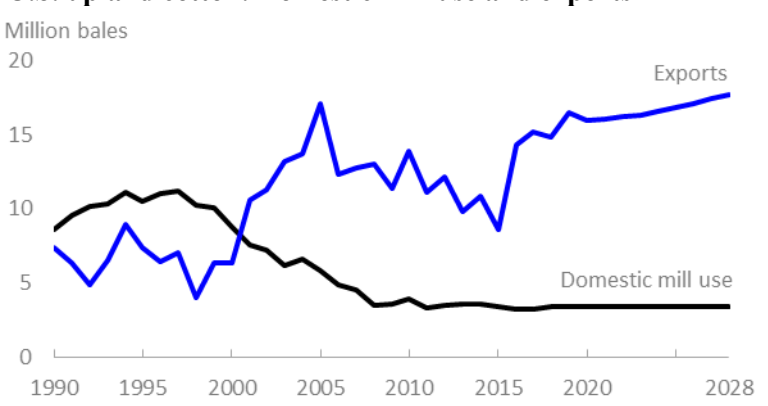
- Domestic and residual use of rice is expected to remain the primary component of demand, increasing at roughly the rate of population growth. Demand for imported rice is expected to continue to grow at a little more than 1.5 percent per year. Imports are primarily Asian aromatic varieties and come almost exclusively from Thailand, India, and Pakistan.

- U.S. exports are projected to grow in 2019/20, decline, and then slowly increase after 2021/22, with exports up barely 2 percent overall by the end of the decade, primarily due to greater expected competition from South American exporters in core U.S. rough rice markets in Latin America. These import markets are nearly all long-grain, with U.S. long-grain exports expected to remain below the 2019/20 level throughout the baseline. The weakness in U.S. long-grain rough-rice exports is expected to be partially offset by increased sales in milled-rice rice markets, primarily in the Caribbean and the Middle East, and increased sales of medium- and short-grain rice to markets in North Africa and the Middle East.

- U.S. sales of medium- and short-grain to East Asia are projected to remain steady. The U.S. is expected to ship very little rice to Sub-Saharan Africa, the largest and fastest growing global import market, and ship virtually no rice to South and Southeast Asia, a result of uncompetitive prices and abundant supplies in the top Asian exporting countries – particularly India and Thailand, with shipments increasing from both countries over the decade. Along with the South American exporters, Burma, Cambodia, China, and Vietnam also expand exports over the next decade, further keeping downward pressure on prices. Although total U.S. rice exports are expected to increase slightly over the next decade, global trade grows at a much faster pace, with the U.S. share of global exports projected to drop below 6 percent by the end of the decade from 6.5 percent in 2019/20.

- U.S. rice prices are expected to grow over the baseline at an average rate of just under 1 percent annually. This modest growth reflects slowly increasing demand, primarily from domestic and residual use, augmented by stronger global demand. Meanwhile, production, due to increasing yields, and imports both grow slowly.

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

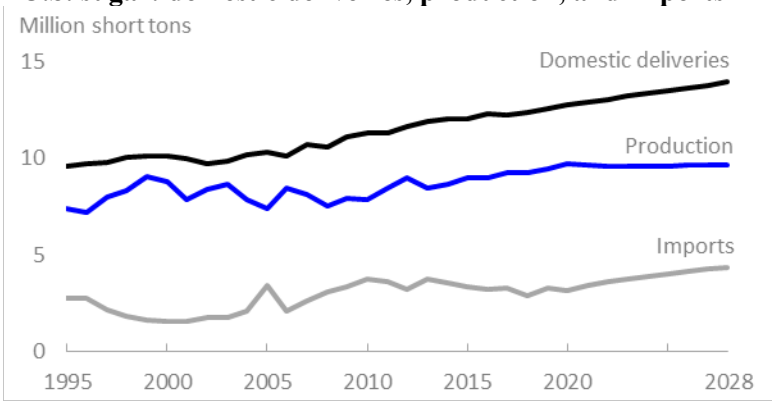


The market year average prices for upland cotton are expected to start the projection period at 70 cents per pound and rise from there to almost 80 cents per pound by the end of the decade. With high prices, farmers are expected to plant 13.5 million acres in the 2019/20 crop year. Roughly, plantings are projected to remain between 12.5 and 13 million acres through the projection period. Domestic mill use is expected to remain flat over this timeframe while exports are projected to remain high, fluctuating between 16 and 18 million bales.

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

- U.S. upland cotton exports are expected to fluctuate early in the projection period and then trend higher. The United States remains the largest exporter of cotton, and is expected to export between 16 and 18 million bales per year over the next decade. With growing international demand and strong growth expected in both Brazil and India, as well as from West African countries, the U.S. trade share is expected to decline. India, Brazil, and the West African countries exported roughly 11 million bales in 2017/18 and are expected to more than double their exports, with almost 27 million bales projected in 2028/29. The U.S. trade share is expected to drop from 39 percent in 2019/20 to under 30 percent by the end of the decade, despite an expected increase in exports of over 1 million bales.

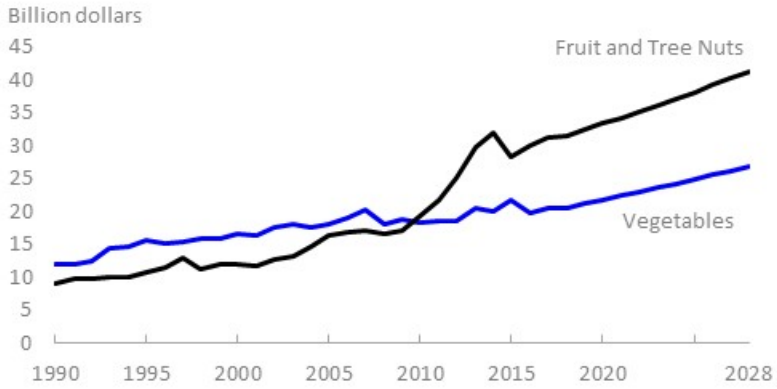
U.S. sugar: domestic deliveries, production, and imports



Domestic demand for sugar is expected to increase steadily over the decade due to a growing population and the continued substitution of refined sugar for corn sweeteners. Meanwhile, U.S. sugar production is projected to increase at a lower rate than deliveries. Sugar imports are therefore expected to increase. Mexico is projected to supply some of the increased demand, but growing Mexican demand for sugar is expected to constrain supplies available for export. Imports under quota programs are therefore expected to fulfill the growing U.S. demand over the coming decade.

- Sugar deliveries for domestic use increase steadily from 12.6 million short tons in 2019/20 to 13.9 million in 2028/29, driven by population growth and a continued substitution of refined sugar for corn sweeteners. Refined sugar is expected to account for a growing share of per capita caloric sweetener use, replacing corn sweeteners, even as overall per capita use is expected to decline. Deliveries for food and beverages constitute the bulk of total use and account for the growth throughout the decade.
- Despite declining acreage in both sugarbeets and sugarcane, sugar production is expected to grow by more than 0.2 million short tons over the coming decade due to increasing crop yields and industrial sucrose recovery. Higher expected costs of production, based on projected oil price increases, are projected to impact planting decisions by farmers – particularly for sugarbeet producers. Despite facing similar cost increases as the sugarbeet sector, multi-year planting cycles make sugarcane growers less responsive to changes in production costs.
- Total sugar imports are expected to increase by more than 30 percent over the coming decade, as projected demand exceeds supply. By 2028/29, imports account for 27 percent of total sugar supply in the United States, compared with 23 percent in 2019/20.
- Projected imports from Mexico follow the terms of the suspension agreements put in place in December 2014 and amended in June 2017 that restrict volumes and prices of sugar entering the United States from Mexico. Imports from Mexico are projected to rise along with increased U.S. Needs for sugar. Projected imports from Mexico in the latter years of the projection period are less than the projected Export Limit, defined by the suspension agreements, due to constrained supplies available for export in Mexico as Mexican domestic demand is projected to grow, as well. Imports from Mexico still increase, however, as projections for 2028/29 are 8 percent larger than projected volumes in 2019/20.
- Imports under quota programs are expected to increase from 1.6 million short tons in 2019/20 to 2.5 million in 2028/29, primarily to accommodate increased use.

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 2.7 percent annually over the next decade, reaching just over $68.2 billion by calendar year 2028, up from just under $53.9 billion in 2019. Fruits contribute roughly 43 percent of the total value, tree nuts approximately 18 percent, and vegetables nearly 40 percent.

- Over the next 10 years, U.S. production of fruit and tree nuts, and production of vegetables, measured by farm weight (in pounds of product), are projected to rise at an annual growth rate of 0.52 and 0.54 percent per year, respectively.

- Overall, fruit and tree nut production is expected to reach roughly 63 billion pounds in 2028. A swift rebound in U.S. citrus production is expected in 2019, following losses the previous year largely from Hurricane Irma, damaging citrus crops in Florida, while most other major citrus-producing States also experienced smaller crops.

- The value of farm production of fruit and tree nuts is projected to grow at roughly 2.7 percent annually, with tree nuts expected to grow 3 percent per year, citrus at just under 3 percent, and non-citrus at 2.5 percent per year.

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

- The vegetables category is split into 5 main categories: fresh, processing, potatoes, pulses, and other. Over the next 10 years, 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 28 percent of total vegetable production while processed vegetables are projected to make up just over 30 percent of total production. Cultivation of pulses, which had expanded greatly in the last couple years, is expected to continue to increase, as is production of both potatoes and "other," which primarily consists of specialty mushrooms and sweet potatoes.

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

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Million acres						
Planted acreage, eight major crops												
Corn	90.2	89.1	92.0	93.0	93.0	93.0	93.0	92.5	92.5	92.5	92.0	91.5
Sorghum	5.6	5.8	5.6	5.6	5.7	5.7	5.7	5.7	5.8	5.8	5.8	5.8
Barley	2.5	2.5	2.6	2.6	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9
Oats	2.6	2.7	2.8	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.5	2.5
Wheat	46.0	47.8	51.0	50.0	49.5	49.0	49.0	49.0	48.5	48.5	48.0	48.0
Rice	2.5	2.9	2.7	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Upland cotton	12.4	13.8	13.5	12.5	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1
Soybeans	90.1	89.1	82.5	82.5	83.0	83.5	84.0	84.5	85.0	85.0	85.5	85.5
Total	251.9	253.7	252.7	251.6	251.7	251.9	252.5	252.6	252.7	252.8	252.4	252.0
CRP acreage assumptions												
Total CRP	23.4	22.7	22.4	23.6	23.6	23.8	23.9	23.8	23.9	23.9	23.9	23.9
Total planted plus CRP	275.3	276.4	275.1	275.2	275.3	275.7	276.4	276.4	276.6	276.7	276.3	275.9
Harvested acreage, eight major crops												
Corn	82.7	81.8	84.6	85.6	85.6	85.6	85.6	85.1	85.1	85.1	84.6	84.1
Sorghum	5.0	5.1	5.0	5.0	5.1	5.1	5.1	5.1	5.2	5.2	5.2	5.2
Barley	2.0	2.0	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4
Oats	0.8	0.9	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
Wheat	37.5	39.6	43.1	42.3	41.9	41.5	41.5	41.5	41.0	41.0	40.6	40.6
Rice	2.4	2.9	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Upland cotton	10.9	10.9	12.1	10.9	10.9	10.9	11.0	11.1	11.2	11.3	11.4	11.5
Soybeans	89.5	88.3	81.8	81.8	82.3	82.7	83.2	83.7	84.2	84.2	84.7	84.7
Total	230.8	231.5	232.5	231.4	231.7	231.7	232.3	232.4	232.6	232.7	232.4	232.0

The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (million acres):												
Planted acres	90.2	89.1	92.0	93.0	93.0	93.0	93.0	92.5	92.5	92.5	92.0	91.5
Harvested acres	82.7	81.8	84.6	85.6	85.6	85.6	85.6	85.1	85.1	85.1	84.6	84.1
Yield:												
Bushels per harvested acre	176.6	180.7	176.5	178.5	180.5	182.5	184.5	186.5	188.5	190.5	192.5	194.5
Supply and use (million bushels):												
Beginning stocks	2,293	2,140	1,813	1,603	1,618	1,653	1,678	1,753	1,823	1,888	1,993	2,023
Production	14,604	14,778	14,930	15,280	15,450	15,620	15,795	15,870	16,040	16,210	16,285	16,355
Imports	36	50	50	50	50	50	50	50	50	50	50	50
Supply	16,934	16,968	16,793	16,933	17,118	17,323	17,523	17,673	17,913	18,148	18,328	18,428
Feed & residual	5,302	5,550	5,575	5,650	5,775	5,950	6,075	6,175	6,325	6,450	6,600	6,675
Food, seed, & industrial	7,054	7,130	7,190	7,215	7,215	7,195	7,170	7,125	7,100	7,055	7,005	6,955
Ethanol and by-products	5,600	5,650	5,700	5,725	5,725	5,700	5,675	5,625	5,600	5,550	5,500	5,450
Domestic use	12,355	12,680	12,765	12,865	12,990	13,145	13,245	13,300	13,425	13,505	13,605	13,630
Exports	2,438	2,475	2,425	2,450	2,475	2,500	2,525	2,550	2,600	2,650	2,700	2,750
Total use	14,793	15,155	15,190	15,315	15,465	15,645	15,770	15,850	16,025	16,155	16,305	16,380
Ending stocks	2,140	1,813	1,603	1,618	1,653	1,678	1,753	1,823	1,888	1,993	2,023	2,048
Stocks/use ratio, percent	14.5	12.0	10.6	10.6	10.7	10.7	11.1	11.5	11.8	12.3	12.4	12.5
Price (dollars per bushel):												
Farm price	3.36	3.50	3.90	3.95	4.00	4.10	3.95	3.80	3.80	3.70	3.70	3.70
Variable costs of production (dollars):												
Per acre	337	341	344	347	351	356	360	365	369	371	375	379
Returns over variable costs (dollars per acre):												
Net returns	256	291	344	358	371	392	369	344	348	334	337	341

Note: Marketing year beginning September 1 for corn.
The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (million acres):												
Planted acres	5.6	5.8	5.6	5.6	5.7	5.7	5.7	5.7	5.8	5.8	5.8	5.8
Harvested acres	5.0	5.1	5.0	5.0	5.1	5.1	5.1	5.1	5.2	5.2	5.2	5.2
Yield:												
Bushels/harvested acre	72.1	75.0	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3	67.3
Supply and use (million bushels):												
Beginning stocks	33	35	37	29	26	24	27	25	28	28	28	28
Production	364	382	337	337	343	343	343	343	350	350	350	350
Imports	2	0	0	0	0	0	0	0	0	0	0	0
Supply	399	417	374	366	369	367	370	368	378	378	378	378
Feed & residual	100	105	95	90	95	90	95	90	100	100	100	100
Food, seed, & industrial	59	125	100	100	100	100	100	100	100	100	100	100
Domestic use	159	230	195	190	195	190	195	190	200	200	200	200
Exports	205	150	150	150	150	150	150	150	150	150	150	150
Total use	364	380	345	340	345	340	345	340	350	350	350	350
Ending stocks	35	37	29	26	24	27	25	28	28	28	28	28
Stocks/use ratio, percent	9.6	9.7	8.4	7.6	7.0	7.9	7.2	8.2	8.0	8.0	8.0	8.0
Price (dollars per bushel):												
Farm price	3.22	3.30	3.65	3.70	3.75	3.85	3.70	3.55	3.50	3.40	3.40	3.40
Variable costs of production (dollars):												
Per acre	127	129	131	132	134	136	138	140	141	143	144	146
Returns over variable costs (dollars per acre):												
Net returns	106	118	115	117	119	123	111	99	94	86	84	83

Note: Marketing year beginning September 1 for sorghum.

The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (million acres):												
Planted acres	2.5	2.5	2.6	2.6	2.7	2.8	2.9	2.9	2.9	2.9	2.9	2.9
Harvested acres	2.0	2.0	2.2	2.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4
Yield:												
Bushels/harvested acre	72.6	77.4	74.6	75.3	76.1	76.8	77.5	78.2	78.9	79.6	80.3	81.0
Supply and use (million bushels):												
Beginning stocks	106	94	88	87	83	83	85	91	94	93	94	97
Production	142	153	164	166	175	177	186	188	189	191	193	194
Imports	9	15	15	15	15	15	15	15	15	15	15	15
Supply	257	263	267	268	273	275	286	294	298	299	302	306
Feed & residual	1	15	20	25	30	30	35	40	45	45	45	50
Food, seed, & industrial	157	155	155	155	155	155	155	155	155	155	155	155
Domestic use	158	170	175	180	185	185	190	195	200	200	200	205
Exports	5	5	5	5	5	5	5	5	5	5	5	5
Total use	163	175	180	185	190	190	195	200	205	205	205	210
Ending stocks	94	88	87	83	83	85	91	94	93	94	97	96
Stocks/use ratio, percent	57.7	50.3	48.4	44.9	43.7	44.8	46.7	47.1	45.4	45.9	47.4	45.8
Price (dollars per bushel):												
Farm price	4.47	4.65	4.75	4.75	4.80	4.90	4.75	4.65	4.65	4.55	4.55	4.55
Variable costs of production (dollars):												
Per acre	172	175	178	180	182	185	188	191	193	195	198	200
Returns over variable costs (dollars per acre):												
Net returns	153	185	196	198	204	215	207	199	200	196	197	198

Note: Marketing year beginning June 1 for barley.
The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (million acres):												
Planted acres	2.6	2.7	2.8	2.8	2.8	2.7	2.6	2.6	2.5	2.5	2.5	2.5
Harvested acres	0.8	0.9	1.0	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
Yield:												
Bushels/harvested acre	61.7	64.9	66.4	66.7	67.1	67.4	67.7	68.0	68.4	68.7	69.0	69.4
Supply and use (million bushels):												
Beginning stocks	50	41	36	36	36	36	35	28	25	23	25	22
Production	49	56	66	67	67	67	61	61	62	62	62	62
Imports	89	95	95	95	95	95	95	95	95	95	95	95
Supply	189	192	197	198	198	198	191	184	182	180	182	179
Feed & residual	68	75	80	80	80	80	80	75	75	70	75	70
Food, seed, & industrial	78	79	79	80	80	81	81	82	82	83	83	84
Domestic use	146	154	159	160	160	161	161	157	157	153	158	154
Exports	2	2	2	2	2	2	2	2	2	2	2	2
Total use	148	156	161	162	162	163	163	159	159	155	160	156
Ending stocks	41	36	36	36	36	35	28	25	23	25	22	23
Stocks/use ratio, percent	27.7	23.1	22.4	22.2	22.2	21.5	17.2	15.7	14.5	16.1	13.8	14.7
Price (dollars per bushel):												
Farm price	2.59	2.70	2.90	2.95	2.95	3.05	3.05	3.00	3.05	2.95	3.00	3.00
Variable costs of production (dollars):												
Per acre	124	126	128	129	131	134	136	138	140	141	143	145
Returns over variable costs (dollars per acre):												
Net returns	36	49	48	44	47	45	47	49	52	55	57	60

Note: Marketing year beginning June 1 for oats.
The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (million acres):												
Planted acres	46.0	47.8	51.0	50.0	49.5	49.0	49.0	49.0	48.5	48.5	48.0	48.0
Harvested acres	37.5	39.6	43.1	42.3	41.9	41.5	41.5	41.5	41.0	41.0	40.6	40.6
Yield:												
Bushels/harvested acre	46.3	47.6	47.8	48.2	48.6	49.0	49.4	49.8	50.2	50.6	51.0	51.4
Supply and use (million bushels):												
Beginning stocks	1,181	1,099	956	933	946	948	939	942	959	953	960	959
Production	1,740	1,884	2,060	2,039	2,036	2,034	2,050	2,067	2,058	2,075	2,071	2,087
Imports	157	140	130	140	135	130	130	130	120	120	120	120
Supply	3,078	3,123	3,146	3,112	3,117	3,112	3,119	3,139	3,137	3,148	3,151	3,166
Food	964	970	975	979	983	987	991	995	999	1,003	1,007	1,011
Seed	63	62	68	67	66	66	66	65	65	65	65	65
Feed & residual	50	110	120	120	120	120	120	120	120	120	120	120
Domestic use	1,078	1,142	1,163	1,166	1,169	1,173	1,177	1,180	1,184	1,188	1,192	1,196
Exports	901	1,025	1,050	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,025
Total use	1,979	2,167	2,213	2,166	2,169	2,173	2,177	2,180	2,184	2,188	2,192	2,221
Ending stocks	1,099	956	933	946	948	939	942	959	953	960	959	945
Stocks/use ratio, percent	55.5	44.1	42.2	43.7	43.7	43.2	43.3	44.0	43.6	43.9	43.8	42.5
Price (dollars per bushel):												
Farm price	4.72	5.10	5.20	5.20	5.30	5.40	5.40	5.20	5.10	5.00	5.00	5.00
Variable costs of production (dollars):												
Per acre	109	111	112	114	115	117	119	121	122	123	125	127
Returns over variable costs (dollars per acre):												
Net returns	110	132	136	137	142	147	148	138	134	130	130	130

Note: Marketing year beginning June 1 for wheat.
The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Soybeans												
Area (million acres):												
Planted	90.1	89.1	82.5	82.5	83.0	83.5	84.0	84.5	85.0	85.0	85.5	85.5
Harvested	89.5	88.3	81.8	81.8	82.3	82.7	83.2	83.7	84.2	84.2	84.7	84.7
Yield: bushels per harvested acre	49.3	53.1	50.0	50.6	51.1	51.7	52.2	52.8	53.3	53.9	54.4	55.0
Supply (million bushels)												
Beginning stocks, September 1	302	438	885	723	565	445	360	318	306	317	323	333
Production	4,411	4,690	4,090	4,135	4,205	4,270	4,345	4,415	4,490	4,535	4,610	4,655
Imports	22	25	25	25	25	25	25	25	25	25	25	25
Total supply	4,734	5,153	5,000	4,883	4,795	4,740	4,730	4,758	4,821	4,877	4,958	5,013
Use (million bushels)												
Crush	2,055	2,070	2,075	2,100	2,120	2,140	2,160	2,190	2,215	2,240	2,265	2,285
Seed and residual	112	137	127	128	129	131	131	133	134	134	134	135
Exports	2,129	2,060	2,075	2,090	2,100	2,110	2,120	2,130	2,155	2,180	2,225	2,255
Total use	4,296	4,268	4,277	4,318	4,349	4,380	4,412	4,453	4,503	4,554	4,625	4,675
Ending stocks, August 31												
Total ending stocks	438	885	723	565	445	360	318	306	317	323	333	338
Stocks/use ratio, percent	10.2	20.7	16.9	13.1	10.2	8.2	7.2	6.9	7.0	7.1	7.2	7.2
Price (dollars per bushel)												
Soybean price, farm	9.33	8.60	8.75	9.15	9.55	9.95	9.90	9.70	9.65	9.45	9.45	9.45
Variable costs of production (dollars):												
Per acre	161	163	165	166	168	171	173	175	177	178	180	182
Returns over variable costs (dollars per acre):												
Net returns	299	294	273	296	320	343	344	337	338	331	334	337
Soybean oil (million pounds)												
Beginning stocks, October 1	1,711	2,206	2,116	1,926	1,921	1,996	2,076	2,081	2,006	1,971	1,971	2,011
Production	23,795	23,910	23,985	24,295	24,550	24,805	25,055	25,425	25,740	26,050	26,365	26,620
Imports	350	300	300	300	300	300	300	300	300	300	300	300
Total supply	25,856	26,416	26,401	26,521	26,771	27,101	27,431	27,806	28,046	28,321	28,636	28,931
Domestic disappearance	21,200	22,100	22,575	22,800	23,025	23,250	23,475	23,650	23,850	24,050	24,250	24,425
Biodiesel[1]	7,100	7,800	8,100	8,150	8,200	8,250	8,300	8,300	8,300	8,300	8,300	8,300
Food, feed, and other industrial	14,100	14,300	14,475	14,650	14,825	15,000	15,175	15,350	15,550	15,750	15,950	16,125
Exports	2,450	2,200	1,900	1,800	1,750	1,775	1,875	2,150	2,225	2,300	2,375	2,450
Total use	23,650	24,300	24,475	24,600	24,775	25,025	25,350	25,800	26,075	26,350	26,625	26,875
Ending stocks, September 30	2,206	2,116	1,926	1,921	1,996	2,076	2,081	2,006	1,971	1,971	2,011	2,056
Soybean oil price (dollars per lb)	0.300	0.300	0.305	0.310	0.315	0.320	0.325	0.330	0.333	0.335	0.335	0.335
Soybean meal (thousand short tons)												
Beginning stocks, October 1	401	400	400	300	300	300	300	300	300	300	300	300
Production	49,199	48,950	49,300	49,850	50,300	50,800	51,300	52,000	52,600	53,200	53,750	54,300
Imports	500	350	300	300	300	300	300	300	300	300	300	300
Total supply	50,100	49,700	50,000	50,450	50,900	51,400	51,900	52,600	53,200	53,800	54,350	54,900
Domestic disappearance	34,800	35,800	36,200	36,650	37,100	37,600	38,100	38,600	39,100	39,600	40,100	40,600
Exports	14,900	13,500	13,500	13,500	13,500	13,500	13,500	13,700	13,800	13,900	13,950	14,000
Total use	49,700	49,300	49,700	50,150	50,600	51,100	51,600	52,300	52,900	53,500	54,050	54,600
Ending stocks, September 30	400	400	300	300	300	300	300	300	300	300	300	300
Soybean meal price (dollars per ton)	345	310	320	337	353	369	366	357	356	348	349	351
Crushing yields (pounds per bushel)												
Soybean oil	11.44	11.55	11.56	11.57	11.58	11.59	11.60	11.61	11.62	11.63	11.64	11.65
Soybean meal	47.34	47.30	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
Crush margin (dollars per bushel)	2.27	2.20	2.38	2.44	2.48	2.52	2.56	2.61	2.66	2.70	2.74	2.79

Note: Marketing year beginning September 1 for soybeans; October 1 for soybean oil and soybean meal. The projections were completed in October 2018.

[1]Reflects biodiesel made from methyl ester as reported by the U.S. Department of Energy, Energy Information Administration.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (thousand acres):												
Planted	2,463	2,943	2,720	2,625	2,625	2,675	2,675	2,675	2,675	2,675	2,675	2,675
Harvested	2,374	2,902	2,687	2,593	2,593	2,643	2,643	2,643	2,643	2,643	2,643	2,643
Yield:												
Pounds per harvested acre	7,507	7,539	7,722	7,771	7,809	7,843	7,881	7,923	7,961	8,002	8,040	8,082
Supply and use (million hundredweight):												
Beginning stocks	46.0	29.4	44.2	41.3	39.3	38.8	40.0	41.1	41.3	41.4	41.1	41.2
Production	178.2	218.8	207.5	201.5	202.5	207.3	208.3	209.4	210.4	211.5	212.5	213.6
Imports	26.9	27.0	27.6	28.0	28.5	28.9	29.3	29.8	30.2	30.7	31.1	31.5
Total supply	251.2	275.2	279.3	270.8	270.3	275.0	277.6	280.3	281.9	283.6	284.7	286.3
Domestic use and residual	134.8	133.0	134.0	129.0	129.0	131.0	132.0	133.5	134.5	136.5	137.5	139.0
Exports	87.0	98.0	104.0	102.5	102.5	104.0	104.5	105.5	106.0	106.0	106.0	106.0
Total use	221.8	231.0	238.0	231.5	231.5	235.0	236.5	239.0	240.5	242.5	243.5	245.0
Ending stocks	29.4	44.2	41.3	39.3	38.8	40.0	41.1	41.3	41.4	41.1	41.2	41.3
Stocks/use ratio, percent	13.2	19.1	17.3	17.0	16.8	17.0	17.4	17.3	17.2	17.0	16.9	16.9
Price (dollars per hundredweight):												
Average farm price	12.60	11.70	11.90	12.00	12.10	12.20	12.40	12.50	12.60	12.70	12.80	12.90
Variable costs of production (dollars):												
Per acre	566	578	586	594	599	606	614	622	629	634	640	647
Returns over variable costs (dollars per acre):												
Net returns	380	304	333	338	346	351	363	368	374	382	389	396

Note: Marketing year beginning August 1 for rice.
The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (thousand acres):												
Planted	1,811	2,200	2,000	1,900	1,900	1,950	1,950	1,950	1,950	1,950	1,950	1,950
Harvested	1,748	2,174	1,978	1,879	1,879	1,929	1,929	1,929	1,929	1,929	1,929	1,929
Yield:												
Pounds per harvested acre	7,314	7,312	7,508	7,545	7,583	7,621	7,659	7,697	7,736	7,774	7,813	7,852
Supply and use (million hundredweight):												
Beginning stocks	31.0	20.3	30.8	28.3	25.5	23.8	24.5	25.3	25.8	26.4	26.2	26.1
Production	127.9	159.0	148.5	141.8	142.5	147.0	147.7	148.5	149.2	150.0	150.7	151.5
Imports	23.3	23.5	24.0	24.4	24.8	25.2	25.6	26.0	26.4	26.8	27.2	27.6
Total supply	182.2	202.8	203.3	194.5	192.8	196.0	197.8	199.8	201.4	203.2	204.1	205.2
Domestic use & residual	98.6	103.0	103.0	99.0	99.0	101.0	102.0	103.0	104.0	106.0	107.0	108.0
Exports	63.3	69.0	72.0	70.0	70.0	70.5	70.5	71.0	71.0	71.0	71.0	71.0
Total use	161.9	172.0	175.0	169.0	169.0	171.5	172.5	174.0	175.0	177.0	178.0	179.0
Ending stocks	20.3	30.8	28.3	25.5	23.8	24.5	25.3	25.8	26.4	26.2	26.1	26.2
Stocks/use ratio, percent	12.6	17.9	16.2	15.1	14.1	14.3	14.7	14.9	15.1	14.8	14.7	14.7
Price (dollars per hundredweight):												
Average farm price	11.70	10.80	10.90	11.00	11.10	11.20	11.30	11.40	11.50	11.60	11.70	11.80

Note: Marketing year beginning August 1 for rice.
The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (thousand acres):												
Planted	652	743	720	725	725	725	725	725	725	725	725	725
Harvested	626	728	709	714	714	714	714	714	714	714	714	714
Yield:												
Pounds per harvested acre	8,048	8,218	8,322	8,364	8,405	8,447	8,490	8,532	8,575	8,618	8,661	8,704
Supply and use (million hundredweight):												
Beginning stocks	11.5	7.6	12.0	11.6	12.4	13.6	14.1	14.4	14.1	13.6	13.5	13.7
Production	50.4	59.8	59.0	59.7	60.0	60.3	60.6	60.9	61.2	61.5	61.8	62.1
Imports	3.5	3.5	3.6	3.6	3.7	3.7	3.7	3.8	3.8	3.9	3.9	3.9
Total supply	67.5	71.0	74.6	74.9	76.1	77.6	78.4	79.1	79.1	79.0	79.2	79.7
Domestic use & residual	36.2	30.0	31.0	30.0	30.0	30.0	30.0	30.5	30.5	30.5	30.5	31.0
Exports	23.7	29.0	32.0	32.5	32.5	33.5	34.0	34.5	35.0	35.0	35.0	35.0
Total use	59.9	59.0	63.0	62.5	62.5	63.5	64.0	65.0	65.5	65.5	65.5	66.0
Ending stocks	7.6	12.0	11.6	12.4	13.6	14.1	14.4	14.1	13.6	13.5	13.7	13.7
Stocks/use ratio, percent	12.8	20.3	18.4	19.9	21.7	22.2	22.6	21.7	20.8	20.5	20.9	20.8
Price (dollars per hundredweight):												
Average farm price	15.00	14.70	14.80	15.00	15.10	15.30	15.50	15.60	15.80	16.00	16.10	16.30
California	16.60	16.30	16.50	16.70	16.90	17.10	17.30	17.50	17.70	17.90	18.10	18.30
Other States	12.10	11.10	11.20	11.30	11.40	11.50	11.60	11.70	11.80	11.90	12.00	12.10

Note: Marketing year beginning August 1 for rice; California marketing year beginning October 1.
The projections were completed in October 2018.

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

Item	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Area (million acres):												
Planted acres	12.4	13.8	13.5	12.5	12.4	12.5	12.6	12.7	12.8	12.9	13.0	13.1
Harvested acres	10.9	10.9	12.1	10.9	10.9	10.9	11.0	11.1	11.2	11.3	11.4	11.5
Yield:												
Pounds per harvested acre	895	887	850	855	860	865	870	875	880	885	890	895
Supply and use (thousand bales):												
Beginning stocks	2,686	4,197	4,806	6,161	6,116	5,871	5,826	5,931	6,036	6,141	6,246	6,351
Production	20,223	18,992	21,400	19,500	19,400	19,700	20,000	20,200	20,500	20,800	21,100	21,400
Imports	1	5	5	5	5	5	5	5	5	5	5	5
Supply	22,910	23,194	26,211	25,666	25,521	25,576	25,831	26,136	26,541	26,946	27,351	27,756
Domestic use	3,198	3,370	3,400	3,400	3,400	3,400	3,400	3,400	3,400	3,400	3,400	3,400
Exports	15,211	14,850	16,500	16,000	16,100	16,200	16,350	16,550	16,850	17,150	17,450	17,750
Total use	18,409	18,220	19,900	19,400	19,500	19,600	19,750	19,950	20,250	20,550	20,850	21,150
Ending stocks	4,197	4,806	6,161	6,116	5,871	5,826	5,931	6,036	6,141	6,246	6,351	6,456
Stocks/use ratio, percent	22.8	26.4	31.0	31.5	30.1	29.7	30.0	30.3	30.3	30.4	30.5	30.5
Price (dollars per pound):												
Farm price	0.68	0.73	0.70	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78
Variable costs of production (dollars):												
Per acre	435	445	448	454	460	467	473	479	485	491	497	504
Returns over variable costs (dollars per acre):												
Net returns[1]	254	282	254	253	262	270	278	285	293	301	308	315

Note: Marketing year beginning August 1 for upland cotton. The projections were completed in October 2018.

[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.

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

Item	Units	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Sugarbeets													
Planted area	1,000 acres	1,131	1,122	1,150	1,197	1,152	1,129	1,105	1,091	1,075	1,063	1,049	1,035
Harvested area	1,000 acres	1,114	1,099	1,128	1,175	1,131	1,108	1,084	1,070	1,055	1,043	1,029	1,016
Yield	Tons/acre	31.7	32.0	32.7	32.9	33.0	33.1	33.3	33.4	33.6	33.7	33.9	34.0
Production	Mil. s. tons	35.3	35.2	36.9	38.6	37.3	36.7	36.1	35.8	35.4	35.2	34.9	34.5
Sugarcane													
Harvested area	1,000 acres	852	871	871	871	867	863	859	857	855	855	855	856
Yield	Tons/acre	36.6	35.9	35.6	35.8	35.9	36.1	36.3	36.4	36.6	36.8	36.9	37.1
Production	Mil. s. tons	31.2	31.3	31.0	31.2	31.2	31.2	31.2	31.2	31.3	31.4	31.6	31.7
Supply:													
Beginning stocks	1,000 s. tons	1,876	2,014	1,587	1,713	1,735	1,757	1,778	1,799	1,820	1,840	1,859	1,878
Production	1,000 s. tons	9,248	9,262	9,463	9,785	9,651	9,615	9,576	9,593	9,603	9,638	9,661	9,688
Beet sugar	1,000 s. tons	5,245	5,236	5,427	5,715	5,563	5,513	5,454	5,447	5,428	5,429	5,415	5,402
Cane sugar	1,000 s. tons	4,004	4,026	4,035	4,069	4,088	4,103	4,122	4,146	4,175	4,209	4,246	4,286
Total imports	1,000 s. tons	3,315	2,801	3,353	3,091	3,385	3,578	3,772	3,906	4,043	4,152	4,270	4,379
TRQ imports	1,000 s. tons	1,664	1,564	1,568	1,572	1,639	1,759	1,941	2,031	2,151	2,246	2,412	2,480
Imports from Mexico	1,000 s. tons	1,269	842	1,420	1,154	1,381	1,454	1,466	1,510	1,528	1,542	1,493	1,533
Other imports	1,000 s. tons	381	395	365	365	365	365	365	365	365	365	365	365
Total supply	1,000 s. tons	14,439	14,077	14,403	14,588	14,771	14,950	15,126	15,298	15,466	15,630	15,790	15,945
Use:													
Exports	1,000 s. tons	170	85	100	100	100	100	100	100	100	100	100	100
Domestic deliveries	1,000 s. tons	12,255	12,405	12,590	12,753	12,914	13,072	13,227	13,379	13,527	13,671	13,812	13,948
Total use	1,000 s. tons	12,425	12,490	12,690	12,853	13,014	13,172	13,327	13,479	13,627	13,771	13,912	14,048
Ending stocks	1,000 s. tons	2,014	1,587	1,713	1,735	1,757	1,778	1,799	1,820	1,840	1,859	1,878	1,897
Raw sugar price:													
New York (No. 16)[1]	Cents/lb.	25.52	26.13	25.69	26.60	27.02	27.17	27.28	27.35	27.39	27.46	27.50	27.56
Raw sugar loan rate	Cents/lb.	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Beet sugar loan rate	Cents/lb.	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09
Grower prices:													
Sugarbeets	Dollars/ton	41.20	51.69	54.89	52.01	54.61	53.84	54.35	53.84	54.20	53.90	53.80	53.84
Sugarcane	Dollars/ton	31.00	30.96	31.38	32.09	32.56	32.90	33.22	33.52	33.81	34.11	34.41	34.71

Note: Data shown are for an October-September year. The projections were completed in October 2018.

[1]Price for July-September quarter.

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

Item	Unit	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Production, farm weight													
Fruit and nuts	Mil. lbs.	58,354	56,190	60,453	60,743	61,039	61,344	61,655	61,974	62,301	62,636	62,978	63,328
Citrus	Mil. lbs.	15,394	12,256	16,074	15,913	15,754	15,597	15,441	15,286	15,133	14,982	14,832	14,684
Noncitrus	Mil. lbs.	36,910	37,279	37,577	37,878	38,181	38,486	38,794	39,104	39,417	39,732	40,050	40,371
Tree nuts	Mil. lbs.	6,051	6,656	6,802	6,952	7,105	7,261	7,421	7,584	7,751	7,921	8,096	8,274
Vegetables[1]	Mil. lbs.	127,531	130,927	133,016	133,783	134,561	135,351	136,153	136,838	137,531	138,232	138,941	139,657
Fresh market	Mil. lbs.	40,167	39,491	39,530	39,570	39,609	39,649	39,688	39,728	39,768	39,808	39,847	39,887
Processing	Mil. lbs.	32,924	35,915	36,203	36,492	36,784	37,079	37,375	37,674	37,976	38,279	38,586	38,894
Potatoes	Mil. lbs.	44,203	45,262	46,160	46,298	46,437	46,576	46,716	46,856	46,997	47,138	47,279	47,421
Pulses	Mil. lbs.	5,750	6,051	6,804	6,988	7,176	7,370	7,569	7,645	7,722	7,799	7,877	7,956
Other	Mil. lbs.	4,486	4,208	4,320	4,435	4,554	4,677	4,804	4,935	5,069	5,209	5,352	5,499
Total fruit, nuts, vegetables	Mil. lbs.	185,885	187,117	193,469	194,526	195,600	196,695	197,808	198,813	199,832	200,868	201,919	202,985
Farm value													
Fruit and nuts	$ Mil.	31,145	31,632	32,540	33,417	34,318	35,243	36,194	37,170	38,173	39,203	40,262	41,349
Citrus	$ Mil.	3,532	3,283	3,526	3,631	3,738	3,849	3,963	4,080	4,201	4,325	4,453	4,585
Noncitrus	$ Mil.	18,589	19,054	19,530	20,019	20,519	21,032	21,558	22,097	22,649	23,215	23,796	24,391
Tree nuts	$ Mil.	9,024	9,295	9,483	9,767	10,060	10,362	10,673	10,993	11,323	11,663	12,013	12,373
Vegetables	$ Mil.	20,442	20,598	21,285	21,859	22,450	23,056	23,679	24,286	24,909	25,548	26,204	26,878
Fresh market	$ Mil.	11,396	11,244	11,561	11,887	12,221	12,564	12,915	13,276	13,647	14,027	14,417	14,819
Processing	$ Mil.	1,708	1,956	2,011	2,068	2,126	2,186	2,248	2,311	2,377	2,444	2,512	2,583
Potatoes	$ Mil.	4,023	4,028	4,142	4,258	4,378	4,501	4,627	4,757	4,891	5,028	5,169	5,315
Pulses	$ Mil.	1,358	1,480	1,650	1,694	1,740	1,787	1,836	1,854	1,873	1,891	1,910	1,929
Other	$ Mil.	1,959	1,890	1,921	1,953	1,986	2,019	2,053	2,087	2,122	2,158	2,195	2,232
Total fruit, nuts, vegetables	$ Mil.	51,587	52,230	53,825	55,276	56,768	58,299	59,872	61,456	63,082	64,751	66,466	68,226

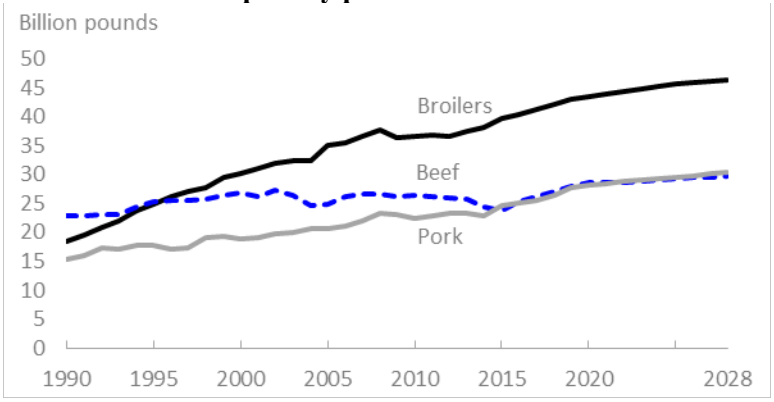
Note: Totals may not add due to rounding. The projections were completed in December 2018.

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

U.S. Livestock

Robust demand provides incentives for 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 lower cattle prices and higher feed prices, suggesting lower returns to production. In the hog industry, the feed price ratio is expected to decline and then recover some of its value by the end of the decade while the broiler industry's feed price ratio is expected to decline in the first part of the decade and gradually increase by the end of the decade. Meanwhile, both domestic and global demand for meats and dairy products are expected to remain strong. Despite expected declining revenues over the next ten years, red meat and poultry production all increase over the projection period.

U.S. red meat and poultry production

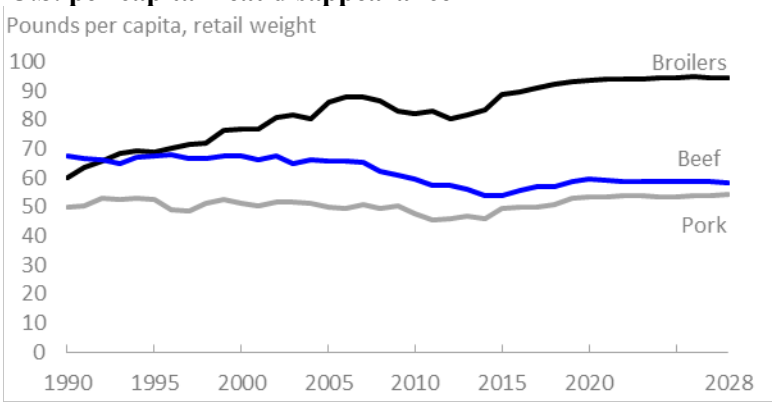


- Rising corn prices early in the period contribute to a decreasing beef cattle feed price ratio. As cattle prices decline, the ratio also drops, reducing production (expansion) incentives for cattle producers. Despite cattle numbers which are expected to decline over the middle part of the forecast horizon, increased slaughter weights support gains in beef production. Overall, beef production levels are expected to rise at less than 1 percent per year, increasing from almost 28 billion pounds in 2019 to nearly 30 billion by 2028.

- Increasing corn prices and lower pork prices in the first half of the decade also lower the hog feed price ratio (hog price/corn price), creating incentives to decrease farrowings. However, increased slaughter weights and the continued commercialization of the industry continue the upward trend in pork production. While pork production trails beef production for most of the decade, by 2028, pork production is expected to edge past beef production at just over 30 billion pounds.

- Much like beef and pork prices, broiler prices also are expected to decline in the beginning of the period and then remain relatively stable. Broiler slaughter is expected to slow over the coming decade, but continued growth in slaughter weights lead to the further expansion of broiler production. Turkey producers are expected to see slowly rising prices over the coming decade, with relatively stable turkey production.

U.S. per capita meat disappearance



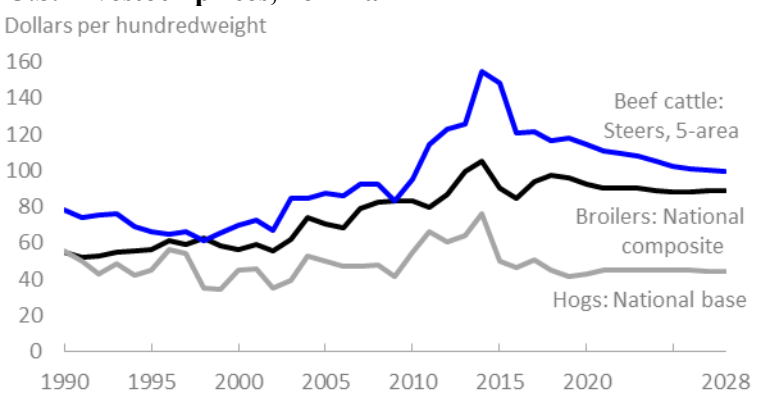
Per capita disappearance of red meat (beef and pork) and poultry (broilers and turkey) is projected to rise from over 214 pounds per person in 2017 to nearly 223 pounds by 2028. In 2019, per capita disappearance is expected to be nearly 222 pounds per person, representing a record level of disappearance.

- Per capita beef disappearance is expected to increase in the first years of the projection period, stabilizing around roughly 58 and 59 pounds per capita for the remainder of the decade. Beef exports are expected to exceed imports in 2018, and that trend is expected to continue through the remainder of the decade as global demand for beef grows.

- Pork production is expected to continue to grow along with per capita pork disappearance in 2019. Disappearance is expected to stabilize between 53 and 54 pounds per capita for the remainder of the decade. Throughout the projection period, pork exports continue to dominate imports, and pork production gains are expected to be sufficient to accommodate both the widening trade surplus as well as increased domestic demand.

- Despite higher production, broiler per capita disappearance is expected to remain relatively stable, growing from roughly 93.5 pounds (retail weight) in the beginning of the decade to just under 94.5 pounds by the end. Per capita turkey disappearance is expected to decline slowly over the decade, dropping to 15.5 pounds per person in 2028 from 16.4 in 2019.

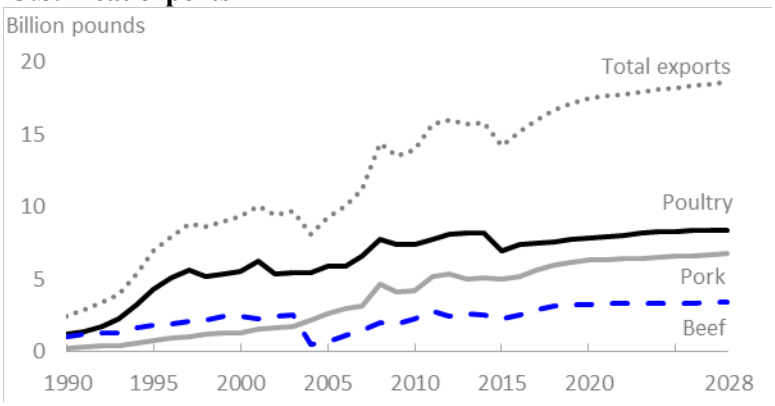
U.S. Livestock prices, nominal



- Production of beef and poultry is expected to outpace demand and, as a result, nominal beef cattle and broiler prices are expected to drop over much of the projection period.

- After an initial increase, nominal hog prices generally remain stable over the next decade.

U.S. meat exports



While the U.S. dollar is generally expected to weaken over the next 10 years, it remains comparably strong relative to its value earlier in this decade. Despite the strong dollar, U.S. red meat and poultry exports are projected to rise over the next 10 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, as production continues to increase and foreign incomes are projected to grow, contributing to higher demand for meat products. The United States, primarily a grain finished beef exporter, remains the fourth largest beef exporter behind Brazil, India, and Australia, which largely ship grass-finished beef products. Despite the modest growth in exports, the U.S. share of global beef exports among the top 11 major exporting regions of the world slowly declines. The United States is projected to remain the largest importer of beef in the world through the first couple years of the projection period, but strong demand growth in China bumps the United States to the second largest by 2021 as import growth remains modest in the United States.

- U.S. pork exports are projected to grow faster than beef exports and on par with poultry exports. Production efficiency gains in the hog sector continue to enhance the sector's international competitiveness. The United States is expected to maintain its position as the second largest exporter of pork behind the European Union while exporting more than twice the third largest exporter, Canada. Over the next decade, the EU is expected to increase its market share as the United States' and Canada's market shares are expected to decline.

- U.S poultry (including broilers and turkey) exports are expected to grow over the next ten years, primarily driven by broiler exports. Turkey exports are expected to remain relatively flat throughout. Broiler export growth is faster in the first part of the projection period, in part due to the continued recovery from the decline associated with avian influenza that took place in 2015. The United States is expected to maintain its position as second largest exporter of poultry behind Brazil while the EU remains a distant third, exporting roughly one-third of U.S. levels. Nearly 75 percent of all exports come from these 3 countries.

Table 17. Per capita meat consumption, retail weight

Item	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Pounds						
Beef	57.0	57.2	58.8	59.7	59.2	58.8	58.8	58.8	58.8	58.7	58.6	58.4
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	50.1	50.8	53.1	53.4	53.5	53.8	53.9	53.7	53.7	53.9	54.1	54.3
Lamb and mutton	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Total red meat	108.4	109.3	113.2	114.4	114.0	113.9	114.0	113.8	113.8	113.9	114.0	114.0
Broilers	90.9	92.4	93.4	93.7	94.0	94.1	94.2	94.5	94.7	94.8	94.6	94.3
Other chicken	1.3	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4
Turkeys	16.4	16.2	16.4	16.2	16.1	16.0	15.8	15.7	15.7	15.6	15.6	15.5
Total poultry	108.6	110.0	111.1	111.2	111.4	111.4	111.3	111.5	111.7	111.8	111.6	111.2
Red meat & poultry	217.0	219.3	224.3	225.6	225.4	225.3	225.3	225.3	225.5	225.7	225.6	225.2

Note: Totals may not add due to rounding.
The projections were completed in October 2018.

Table 18. Beef long-term projections

Item	Units	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning stocks	Mil. lbs.	757	649	685	690	625	625	625	625	625	625	625	625
Commercial production	Mil. lbs.	26,187	26,944	27,910	28,524	28,548	28,575	28,800	29,033	29,208	29,392	29,520	29,638
Change from previous year	Percent	3.8	2.9	3.6	2.2	0.1	0.1	0.8	0.8	0.6	0.6	0.4	0.4
Farm production	Mil. lbs.	63	63	63	63	63	63	63	63	63	63	63	63
Total production	Mil. lbs.	26,250	27,007	27,973	28,587	28,611	28,638	28,863	29,096	29,271	29,455	29,583	29,701
Imports	Mil. lbs.	2,993	3,027	3,100	3,113	3,169	3,150	3,157	3,151	3,181	3,190	3,210	3,220
Total supply	Mil. lbs.	30,000	30,683	31,758	32,390	32,405	32,413	32,645	32,872	33,077	33,270	33,418	33,546
Exports	Mil. lbs.	2,860	3,164	3,245	3,283	3,342	3,322	3,329	3,323	3,354	3,364	3,385	3,410
Ending stocks	Mil. lbs.	649	685	690	625	625	625	625	625	625	625	625	625
Total consumption	Mil. lbs.	26,491	26,834	27,823	28,482	28,438	28,466	28,691	28,924	29,098	29,281	29,408	29,511
Per capita, retail weight	Pounds	57.0	57.2	58.8	59.7	59.2	58.8	58.8	58.8	58.8	58.7	58.6	58.4
Change from previous year	Percent	2.6	0.4	2.8	1.5	-0.8	-0.7	0.0	0.0	0.0	-0.2	-0.2	-0.3
Prices:													
Beef cattle, farm	$/cwt	120.17	115.32	116.80	113.19	110.09	108.55	106.99	104.56	101.78	100.24	99.40	98.45
Calves, farm	$/cwt	165.17	170.36	168.43	163.88	154.19	147.34	143.02	139.84	139.45	138.15	139.33	139.30
Steers, 5-area	$/cwt	121.52	116.29	117.75	114.11	110.98	109.43	107.86	105.41	102.61	101.06	100.21	99.25
Feeder steers, Oklahoma City	$/cwt	145.08	148.20	146.50	142.54	134.11	128.15	124.39	121.62	121.28	120.15	121.18	121.15
Feed price ratio:													
Beef cattle-corn	Ratio	35.8	34.3	33.4	29.0	27.9	27.1	26.1	26.5	26.8	26.4	26.9	26.6
Cattle inventory	1,000 head	93,705	94,399	95,000	95,200	94,801	94,040	93,690	93,326	93,028	92,963	93,266	91,018
Beef cow inventory	1,000 head	31,210	31,723	31,890	31,980	32,001	31,892	31,718	31,534	31,434	31,538	31,817	31,917
Total cow inventory	1,000 head	40,559	41,123	41,300	41,396	41,424	41,322	41,153	40,971	40,880	40,992	41,276	41,382

Note: Totals may not add due to rounding. Cwt = hundredweight.
The projections were completed in October 2018.

Table 19. Pork long-term projections

Item	Units	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning stocks	Mil. lbs.	507	554	550	585	590	595	600	610	620	630	640	650
Commercial production	Mil. lbs.	25,584	26,425	27,810	28,243	28,474	28,784	29,054	29,210	29,443	29,776	30,046	30,413
Change from previous year	Percent	2.6	3.3	5.2	1.6	0.8	1.1	0.9	0.5	0.8	1.1	0.9	1.2
Farm production	Mil. lbs.	14	14	14	14	14	14	14	14	14	14	14	14
Total production	Mil. lbs.	25,598	26,439	27,824	28,257	28,488	28,798	29,068	29,224	29,457	29,790	30,060	30,427
Imports	Mil. lbs.	1,116	1,064	1,060	1,070	1,080	1,090	1,100	1,110	1,120	1,130	1,140	1,150
Total supply	Mil. lbs.	27,221	28,057	29,434	29,912	30,158	30,483	30,768	30,944	31,197	31,550	31,840	32,227
Exports	Mil. lbs.	5,632	5,989	6,200	6,350	6,380	6,400	6,450	6,500	6,575	6,650	6,710	6,800
Ending stocks	Mil. lbs.	554	550	585	590	595	600	610	620	630	640	650	660
Total consumption	Mil. lbs.	21,035	21,518	22,649	22,972	23,183	23,483	23,708	23,824	23,992	24,260	24,480	24,767
Per capita, retail weight	Pounds	50.1	50.8	53.1	53.4	53.5	53.8	53.9	53.7	53.7	53.9	54.1	54.3
Change from previous year	Percent	-0.1	1.4	4.5	0.6	0.2	0.6	0.2	-0.4	0.0	0.4	0.4	0.4
Prices:													
Hogs, farm	$/cwt	53.60	48.61	49.26	45.21	47.07	47.40	47.12	47.19	47.25	46.88	46.82	46.42
National base, live equivalent	$/cwt	50.48	45.23	41.25	43.06	44.83	45.14	44.87	44.94	45.00	44.65	44.59	44.21
Feed price ratio:													
Hog-corn	Ratio	16.0	14.5	14.1	11.6	11.9	11.9	11.5	11.9	12.4	12.3	12.7	12.5
Hog inventory,													
December 1, previous year	1,000 head	71,545	73,445	75,750	75,650	76,003	76,475	76,886	77,124	77,479	77,986	78,397	78,957

Note: Totals may not add due to rounding. Cwt = hundredweight.
The projections were completed in October 2018.

Table 20. Young chicken long-term projections

Item	Units	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning stocks	Mil. lbs.	778	856	885	870	870	870	870	870	870	870	870	870
Federally inspected slaughter	Mil. lbs.	41,662	42,570	43,370	43,882	44,420	44,840	45,244	45,744	46,157	46,484	46,680	46,870
Change from previous year	Percent	2.4	2.2	1.9	1.2	1.2	0.9	0.9	1.1	0.9	0.7	0.4	0.4
Production	Mil. lbs.	41,217	42,115	42,906	43,412	43,944	44,360	44,760	45,254	45,663	45,986	46,180	46,369
Total supply	Mil. lbs.	42,121	43,106	43,928	44,421	44,955	45,373	45,775	46,271	46,682	47,007	47,203	47,394
Change from previous year	Percent	2.2	2.3	1.9	1.1	1.2	0.9	0.9	1.1	0.9	0.7	0.4	0.4
Exports	Mil. lbs.	6,791	6,869	7,045	7,150	7,250	7,350	7,450	7,550	7,600	7,625	7,650	7,675
Ending stocks	Mil. lbs.	856	885	870	870	870	870	870	870	870	870	870	870
Consumption	Mil. lbs.	34,474	35,352	36,013	36,401	36,835	37,153	37,455	37,851	38,212	38,512	38,683	38,849
Per capita, retail weight	Pounds	90.9	92.4	93.4	93.7	94.0	94.1	94.2	94.5	94.7	94.8	94.6	94.3
Change from previous year	Percent	1.2	1.7	1.1	0.3	0.3	0.1	0.1	0.3	0.2	0.1	-0.2	-0.3
Prices:													
Broilers, farm	Cents/lb.	54.6	57.0	60.7	55.5	54.2	54.4	54.0	53.4	53.0	52.9	53.2	53.4
Broilers, National composite	Cents/lb.	93.5	97.1	95.8	92.5	90.3	90.6	90.0	89.1	88.4	88.2	88.7	89.1
Feed price ratio:													
Broiler-feed[1]	Ratio	5.4	5.7	6.3	5.4	5.1	5.0	4.8	4.9	5.0	5.0	5.1	5.1

Note: Totals may not add due to rounding. The projections were completed in October 2018.

[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. Turkey long-term projections

Item	Units	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning stocks	Mil. lbs.	279	310	300	310	310	310	310	310	310	310	310	310
Production	Mil. lbs.	5,981	5,899	5,985	5,978	5,987	5,986	5,979	5,984	6,000	6,017	6,045	6,075
Total supply	Mil. lbs.	6,285	6,234	6,313	6,316	6,325	6,324	6,317	6,322	6,338	6,355	6,383	6,413
Change from previous year	Percent	0.9	-0.8	1.3	0.0	0.1	0.0	-0.1	0.1	0.3	0.3	0.4	0.5
Exports	Mil. lbs.	622	595	585	598	599	599	598	598	600	602	605	608
Ending stocks	Mil. lbs.	310	300	310	310	310	310	310	310	310	310	310	310
Consumption	Mil. lbs.	5,353	5,339	5,418	5,408	5,416	5,416	5,409	5,413	5,428	5,444	5,469	5,496
Per capita	Pounds	16.4	16.2	16.4	16.2	16.1	16.0	15.8	15.7	15.7	15.6	15.6	15.5
Change from previous year	Percent	-1.5	-1.2	1.2	-1.2	-0.6	-0.6	-1.3	-0.6	0.0	-0.6	0.0	-0.6
Prices:													
Turkey, farm	Cents/lb.	64.5	52.6	52.3	52.4	52.3	53.2	53.7	54.1	54.4	54.7	55.3	55.8
Hen turkeys, National	Cents/lb.	96.1	81.1	84.5	84.7	84.4	85.8	86.7	87.4	87.9	88.3	89.2	90.1
Feed price ratio:													
Turkey-feed[1]	Ratio	7.3	5.8	5.8	5.5	5.4	5.3	5.2	5.4	5.6	5.6	5.8	5.9

Note: Totals may not add due to rounding. The projections were completed in October 2018.

[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. Egg long-term projections

Item	Units	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beginning stocks	Mil. doz.	142	88	75	80	80	80	80	80	80	80	80	80
Production	Mil. doz.	8,808	9,001	9,140	9,277	9,398	9,510	9,625	9,740	9,857	9,975	10,095	10,211
Change from previous year	Percent	2.7	2.2	1.5	1.5	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1
Imports	Mil. doz.	34	22	27	27	27	27	27	27	27	27	27	27
Total supply	Mil. doz.	8,984	9,111	9,242	9,384	9,505	9,617	9,732	9,847	9,964	10,082	10,202	10,318
Change from previous year	Percent	2.3	1.4	1.4	1.5	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.1
Hatching use	Mil. doz.	1,035	1,060	1,085	1,096	1,106	1,114	1,121	1,129	1,137	1,144	1,148	1,151
Exports	Mil. doz.	355	336	340	343	346	349	352	355	358	361	364	367
Ending stocks	Mil. doz.	88	75	80	80	80	80	80	80	80	80	80	80
Consumption	Mil. doz.	7,507	7,639	7,737	7,865	7,973	8,074	8,178	8,282	8,388	8,497	8,610	8,719
Per capita	Number	277	279	280	283	284	286	287	289	290	292	294	296
Change from previous year	Percent	1.8	0.8	0.5	0.9	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Prices:													
Eggs, farm	Cents/doz.	86.6	117.5	121.7	99.0	100.9	101.9	102.9	102.9	102.9	103.9	104.9	105.8
New York, Grade A large	Cents/doz.	100.9	141.2	123.8	101.0	103.0	104.0	105.0	105.0	105.0	106.0	107.0	108.0
Feed price ratio:													
Egg-feed[1]	Ratio	10.3	14.0	14.7	11.1	11.1	10.9	10.7	11.0	11.3	11.5	11.8	11.9

Note: Totals may not add due to rounding. The projections were completed in October 2018.

[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. Dairy long-term projections

Item	Units	2017	2018	2019	2020 1/	2021	2022	2023	2024 1/	2025	2026	2027	2028 1/
Milk production and marketings:													
Number of cows	Thousand	9,392	9,400	9,410	9,415	9,425	9,430	9,435	9,440	9,445	9,455	9,460	9,465
Milk per cow	Pounds	22,941	23,200	23,525	23,930	24,175	24,495	24,815	25,210	25,475	25,805	26,130	26,530
Milk production	Bil. lbs.	215.5	218.1	221.4	225.3	227.8	231.0	234.1	238.0	240.6	244.0	247.2	251.1
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.	214.5	217.1	220.4	224.3	226.8	230.0	233.1	237.0	239.6	243.0	246.2	250.1
Supply and use, milkfat basis:													
Beginning commercial stocks	Bil. lbs.	12.7	13.4	13.5	12.5	12.9	13.2	13.6	13.8	14.2	14.5	15.0	15.4
Marketings	Bil. lbs.	214.5	217.1	220.4	224.3	226.8	230.0	233.1	237.0	239.6	243.0	246.2	250.1
Imports	Bil. lbs.	6.0	6.3	6.3	6.2	6.1	6.0	6.0	5.9	5.9	5.8	5.8	5.7
Commercial supply	Bil. lbs.	233.2	236.8	240.1	243.0	245.8	249.2	252.7	256.7	259.7	263.3	267.0	271.2
Domestic commercial use	Bil. lbs.	210.5	212.9	217.5	220.2	222.4	225.2	228.4	231.9	234.4	237.1	240.3	243.7
Commercial exports	Bil. lbs.	9.2	10.5	9.8	9.9	10.2	10.4	10.5	10.6	10.8	11.2	11.3	11.6
CCC donations[2]	Bil. lbs.	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ending commercial stocks	Bil. lbs.	13.4	13.5	12.5	12.9	13.2	13.6	13.8	14.2	14.5	15.0	15.4	15.9
Supply and use, skim solids basis:													
Beginning commercial stocks	Bil. lbs.	9.5	11.8	10.8	10.8	11.2	11.4	11.7	11.9	12.2	12.4	12.7	13.0
Marketings	Bil. lbs.	214.5	217.1	220.4	224.3	226.8	230.0	233.1	237.0	239.6	243.0	246.2	250.1
Imports	Bil. lbs.	6.1	5.6	5.5	5.7	5.8	5.8	5.9	5.9	6.0	6.1	6.1	6.2
Commercial supply	Bil. lbs.	230.1	234.5	236.7	240.8	243.9	247.2	250.7	254.8	257.8	261.5	265.0	269.3
Domestic commercial use[2]	Bil. lbs.	177.6	178.6	181.6	184.2	185.9	187.7	189.8	192.2	193.9	196.0	197.9	200.5
Commercial exports	Bil. lbs.	40.7	45.1	44.1	45.4	46.6	47.8	49.0	50.4	51.5	52.8	54.1	55.5
CCC donations[2]	Bil. lbs.	0.0	0.0	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.	11.8	10.8	10.8	11.2	11.4	11.7	11.9	12.2	12.4	12.7	13.0	13.4
Prices:													
All milk	$/cwt	17.65	16.40	17.30	17.40	17.55	17.80	18.15	18.55	18.85	19.00	19.30	19.65
Cheese	$/lb.	1.63	1.57	1.62	1.66	1.68	1.70	1.73	1.76	1.77	1.78	1.78	1.79
Butter	$/lb.	2.33	2.26	2.27	2.27	2.24	2.27	2.32	2.39	2.43	2.46	2.54	2.60
Nonfat dry milk	$/lb.	0.87	0.79	0.86	0.85	0.88	0.91	0.93	0.96	0.99	1.02	1.05	1.09
Dry whey	$/lb.	0.44	0.33	0.40	0.35	0.35	0.35	0.35	0.34	0.35	0.35	0.35	0.36

Note: Totals may not add due to rounding. Cwt = hundredweight. The projections were completed in October 2018.

[1]Leap year. [2]Including barter adjustments.

U.S. Farm Income

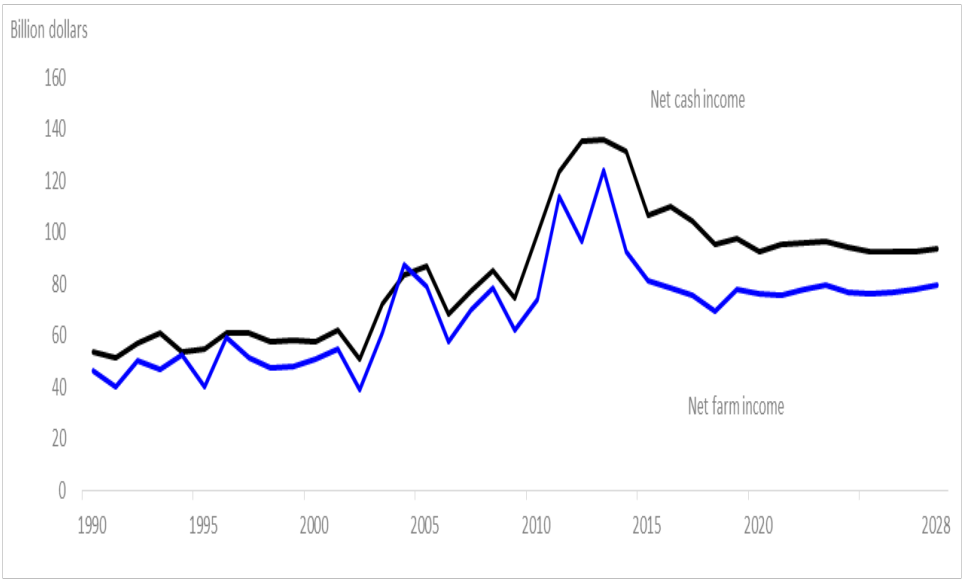
Net farm income fell each year since 2014, including a projected decline for 2018. For 2019, net farm income is forecast to increase, largely due to expected lower total expenses. Net cash income is also projected to decrease for 2018 but increase in 2019.

- Farm cash receipts are projected to modestly increase through 2028, primarily due to increasing crop cash receipts reflecting steady domestic and international economic growth that supports longer term demand for U.S. agricultural products.

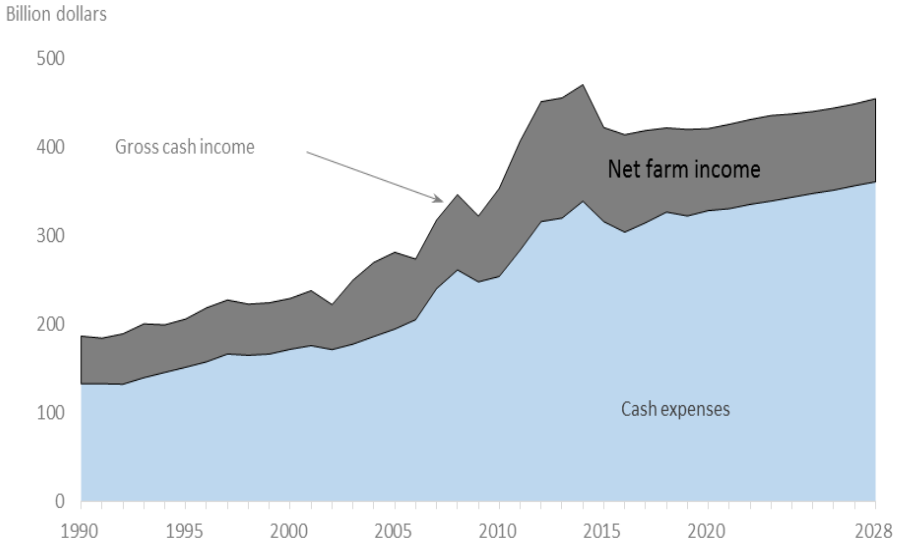
- Total direct Government payments are projected to decline by $2.8 billion in 2019 to $10.2 billion, and to $8.9 billion in 2020, the lowest since 1997, as commodity prices begin to rise. Government payments are then projected to increase in 2021, fall a bit in the next two years, and then slowly increase over the remainder of the projection period. Agriculture Risk Coverage payments are expected to decline from $1.5 billion in 2018 to $215 million by the end of the 10 year period, but this decline is partially offset by a projected increase in Price Loss Coverage payments from $2.0 billion in 2018 to almost $5.9 billion in 2028.

- Total farm production expenses are projected to decline modestly to $360 billion in 2019 due to lower expenditures on feed/livestock purchased, and oilseed purchased. Overall, nominal farm production expenses are projected to increase after 2019 and through the remainder of the projection period as crude oil prices, interest rates, and inflation all are expected to rise.

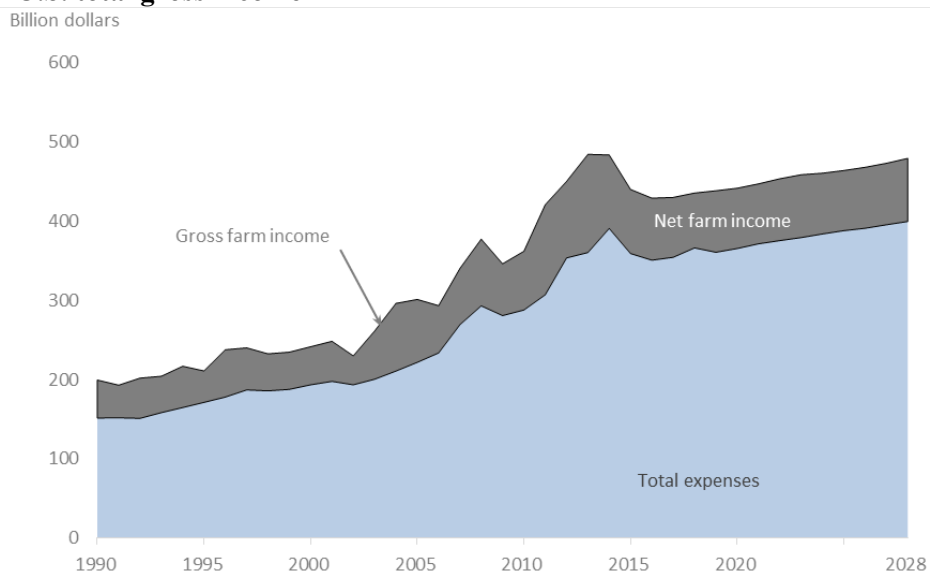
U.S. farm income indicators



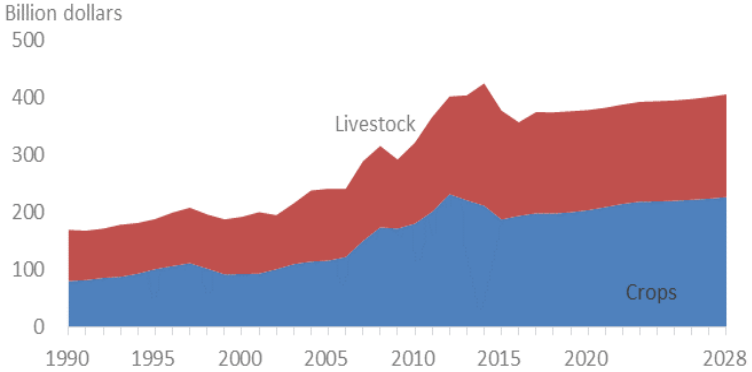
U.S. gross cash income

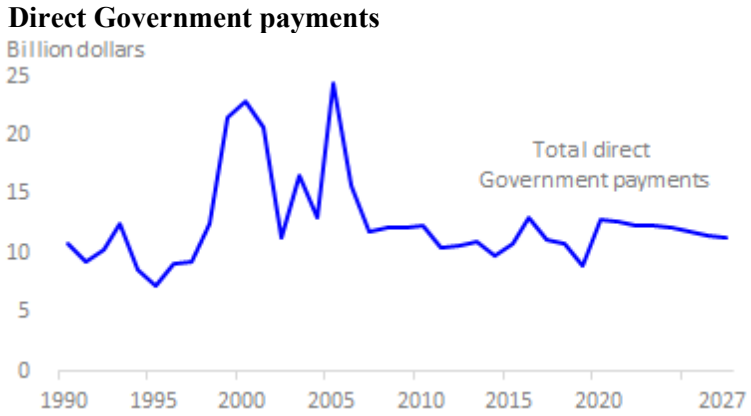


U.S. total gross income



U.S. cash receipts



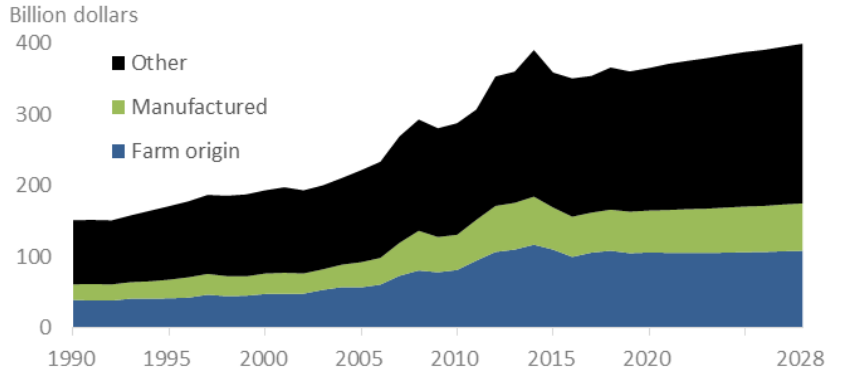


After falling to $8.9 billion in 2019, direct Government payments rise again in 2020 due to an expected shift in producer participation from the ARC to the PLC program. Government payments are subsequently expected to increase to just over $5 billion by 2028. The CRP, ARC, and PLC payments provide the largest direct Government payments to the agricultural sector over the projection period.

- Acreage enrolled in the CRP is assumed to be at or slightly less than its legislative maximum of 24 million acres under the 2014 Farm Act, which was assumed to be in place for the duration of the projection period. As crop prices rise, average rental rates for land in the CRP will also increase, so CRP payments are projected to gradually increase from $2.1 billion in 2018 to $2.4 billion in 2028.

- Payments under the ARC and PLC programs continue to further decline from about $3.5 billion in 2018 to $2.0 billion in 2019 due to projected modest crop price increases from 2018 onwards. While these payments fall as crop prices rise, they jump to nearly $4.1 billion in 2020 as it is assumed that many producers will shift acreage from the ARC program to the PLC program. (At the time of the generation of these values, the 2018 Farm Act was assumed to allow producers to change their base acre election between the ARC and PLC programs.) The ARC and PLC payments continue to increase over the remainder of the projection period to $6.2 billion while overall direct Government payments continue to fall, ending the decade near where they started at $11.3 billion.

U.S. farm production expenses



- Total farm production expenses are expected to fall in 2019 due to decreasing livestock and seed purchases. The rise in production expenses after 2019 is less rapid than the overall rate of inflation through 2028. 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 are expected to rise faster than the general inflation rate during these years.

- Interest costs are also expected to 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 2018 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. Farm receipts, expenses, and income, long-term projections

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Billion dollars						
Cash income statement												
Cash receipts:	374.3	374.0	375.8	377.9	381.9	387.5	392.2	393.3	394.7	397.2	400.6	405.3
Crops	198.3	197.8	200.0	203.7	209.0	214.7	218.6	219.0	220.1	221.9	223.7	226.6
Livestock	176.0	176.2	175.8	174.2	172.9	172.8	173.6	174.3	174.6	175.3	176.9	178.6
Direct government payments	11.5	13.0	10.2	8.9	9.6	9.3	9.0	9.6	10.8	12.0	13.2	14.4
Farm-related income	32.9	34.7	34.1	34.2	34.3	34.4	34.5	34.6	34.7	34.8	34.9	35.0
Gross cash income	418.7	421.7	420.0	420.9	425.8	431.2	435.7	437.5	440.2	444.1	448.8	454.7
Cash expenses	314.8	326.7	322.3	328.4	330.5	335.4	339.2	343.5	347.7	351.5	356.5	360.9
Net cash income	104.0	95.0	97.7	92.5	95.3	95.8	96.5	94.0	92.5	92.6	92.3	93.8
Farm income statement												
Gross cash income	418.7	421.7	420.0	420.9	425.8	431.2	435.7	437.5	440.2	444.1	448.8	454.7
Non-money income	18.6	19.8	19.3	19.9	20.6	21.2	21.7	22.1	22.5	22.9	23.3	23.7
Value of inventory change	-7.8	-6.5	-1.3	0.3	0.2	0.7	0.8	0.5	0.8	0.6	0.5	0.4
Gross farm income	429.6	435.1	438.0	441.2	446.7	453.1	458.1	460.1	463.5	467.6	472.6	478.8
Total expenses	354.1	365.9	360.4	365.1	371.0	375.1	378.9	383.5	387.6	390.7	395.0	399.2
Net farm income	75.5	69.2	77.6	76.0	75.6	77.9	79.2	76.6	75.9	76.9	77.5	79.5

The projections were completed in February 2019. History for 2017 and short-term forecasts for 2018 are from USDA-Economic Research Service, August 30 2018, but include payments under the Market Facilitation Program that was announced in late August.

Agricultural Trade

Global demand and trade for agricultural products are projected to continue rising through 2028/29. Income growth is 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 agriculture trade. Increasing global agricultural imports stems mostly from emerging economies and low- to middle-income countries. 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.

Macroeconomic and population growth

Increasing per capita income and population growth are among the major factors driving increasing global trade in agriculture commodities and products. World economic growth is projected to increase over the next decade, with a market exchange rate-weighted average annual GDP growth rate of 2.8 percent from 2019 through 2028. Real GDP in developed economies is projected to grow at 1.6 percent annually through 2028/29, while the faster growing emerging economies are projected to grow at about 4.6 percent annually. On a real per capita GDP growth rate, the economies projected to grow the fastest are in Asia; Burma, India, Vietnam and Cambodia are expected to grow at annual rates of 6 percent, 5.8 percent, 5.2 percent and 5.1 percent, respectively. South Asia's and Southeast Asia's per capita GDP will rise an average of 5.5 percent and 3.8 percent annually. China's projected economic growth rate averages 5.4 percent. The Middle East and Africa are both expected to grow at 1.7 percent and 1.4 percent, respectively.

The world's population is 7.4 billion in 2018. A projected annual growth rate of 0.9 percent means that roughly 704 million people will be added over the next decade. Population growth is fastest in Sub-Saharan Africa, with a projected annual growth rate of 2.3 percent while North Africa is expected to grow at 1.6 percent annually. Africa is expected to add 297 million people to the world population by 2028/29. The third fastest growing region is the Middle East at 1.3 percent per year. Ukraine, Japan, and Cuba all have projected negative population growth rates at -0.4, -0.3, and -0.2 percent respectively. Meanwhile, the Former Soviet Union and Europe are expected to grow at 0.0 percent and 0.1 percent annually, respectively. The populations of the largest countries—China and India—will grow at 0.2 percent and 1.0 percent, respectively. Population growth has a larger impact on India, which adds 139 million people by 2028/29, while China adds 22 million people.

General International Assumptions

Trade projections to 2028 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 authorized by October 2018. International macroeconomic assumptions used in the projections were completed in September 2018.

Growing global consumption drives trade

Many developing countries are not well-suited for production of specific commodities, as consumption increases faster than domestic production, leading to growing imports of agricultural commodities and products. The developed economies typically maintain stable and steady demand for international agricultural products, even during periods of slightly 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, 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, among the world's most traded commodities, is projected to show an increase in trade of almost 18 percent over the 10-year projection period, reaching nearly 218 million tons by 2028/29. 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 72 percent of the projected increase in world wheat import demand and include Sub-Saharan Africa (27.6 percent) (especially West Africa (10.2 percent)), North Africa (11.1 percent), the Middle East (11.3 percent), and Southeast Asia (22.4 percent). Rice trade is projected to increase by more than 15 percent, increasing to over 58 million tons by 2028/29. Projected rice imports grow the fastest in West Africa, the rest of Sub-Saharan Africa, and the Middle East; these three regions account for 89 percent of the increase in world rice imports through 2028/29. China is the world's largest rice importer through most of the projections, but its rice imports decline at a rate of 1 percent per year throughout the projection period. In 2027/28, Nigeria surpasses China to become the world's largest rice importer at 4.56 million tons. Over the past 5 years, India was the largest rice-exporting country, followed by Thailand, Vietnam, and Pakistan. India, Thailand, and Vietnam together will increase exports by 4.3 million tons over the projection period by 2028/29 and are expected to account for 56 percent of the global increase in exports.

Wheat and Rice Consumption

Wheat is a staple food in many countries and has been used to produce bread and noodles for several centuries, but certain types of wheat products are fairly new to many countries, such as cookies, bread, packaged noodle-based meals, and various desserts. Eight countries account for almost 50 percent of the world wheat consumption, including China, India, Russia, the United States, Pakistan, Egypt, Turkey, and Iran. Over the projection period, wheat consumption increases by more than 11.5 percent above 2018/19 consumption levels. Eight countries account for over half of this increase in consumption: China (19 percent), India (14 percent), Egypt (4 percent), Pakistan (4 percent), and Indonesia, Morocco, Russia and Bangladesh (which account for a combined 12 percent). The increased wheat consumption is driven by uses as a staple food, various wheat-based non-staple foods, livestock feed, and increasing populations. India and China have little impact on wheat trade as consumption increases match the increase in domestic production due to growing yields and slightly higher area. However, in both countries, government policies affect producer planting decisions and may lead to increased area and rising stock levels.

World rice consumption increases by 5.5 percent over the projection period. Six countries account for over 52 percent of this increase: India (29 percent), Nigeria (7.9 percent), Vietnam (4.6 percent), Philippines (4 percent), Bangladesh (3.5 percent) and Egypt (3.4 percent). The regions with the fastest growth in rice consumption are Sub-Saharan Africa (especially West Africa), North Africa, and the Middle East, with an increase of 27.2 percent, 19.3 percent, and 15 percent, respectively, over the projection period. These regions are expected to contribute almost 62 percent to the increase in world rice consumption over the projection period but account for about 90 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 (55.4 percent) in world rice imports, and Nigeria accounts for the largest increase for any single country in the world at 19.4 percent.

Global soybeans, corn, and cotton trade

Global soybean trade is projected to increase by 23.4 percent during the projection period, adding 37 million tons and reaching 196 million tons by 2028/29. China's soybean imports account for 76 percent of this projected increase. Soybean meal trade increases by almost 18.9 percent over the projection period reaching 78.5 million tons by 2028/29. The European Union is the largest soybean meal importer, reaching 19.8 million tons by 2028/29. South East Asia imports almost 30 percent of global soybean meal trade and accounts for 43 percent of the increase in imports over the projection period. Vietnam's imports increase by 43 percent over the projection period, accounting for 18 percent of the increase in global imports. Soybean oil trade increases by 23 percent over the projection period, adding 2.64 million tons to trade, reaching 14 million tons by 2028/29. India is the largest soybean oil importer and accounts for 31 percent of the projected increase in world imports.

Global corn trade increases by almost 32.5 percent over the projection period, adding over 32 million tons to trade, boosting export volume to 195 million tons by 2028/29. Mexico, Vietnam, Egypt, Iran, China, and Saudi Arabia account for a little over 63 percent of this increased import demand. Projected global sorghum trade increases marginally at 5.7 percent to 6.6 million tons by 2028/29. China is projected to be stable at 2 million tons over the projection period. World sorghum trade was largest in 2014/15, at 12.2 million tons, due to increased imports by China, which accounted for 83 percent of world sorghum imports at the time. But recent high tariffs by China on sorghum imports from the United States has greatly reduced trade. Barley trade expands over the projection period by about 23 percent, driven mostly by increasing feed demand in the Middle East and North Africa, accounting almost 50 percent of increasing imports. China increases imports by 30.4 percent over the projection period for both feed and beverage barley. Barley trade is projected to increase to 35.9 million tons by 2028/29, which surpasses the record of 30.8 million tons established in 2015/16. The largest importers are China and Saudi Arabia at 12.4 and 9.6 million tons by 2028/29 respectively, together accounting for over 65 percent of global imports.

Global cotton consumption is projected to increase by almost 25 percent from 2018/19 through 2028/29. China and India increase consumption the most by 44 percent and 20.5 percent through 2028/29. The next five larges countries increasing consumption are Vietnam, Bangladesh, Turkey, Pakistan, and Brazil. Cotton trade increases throughout the projection period and by 2028/29 reaches 62.1 million bales, surpassing the record of 46.3 billion bales set in 2012/13. As China completes its disposal of surplus stocks, the country's cotton imports are projected to increase, reaching 19.8 million bales by the end of the projection period. Vietnam, Bangladesh, Indonesia, Turkey and Pakistan are the next largest cotton-importing countries and are also projected to increase imports.

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. Consumption of poultry meat, the lowest priced of the three major types of meat, increases at the fastest rate—1.9 percent annually. Global pork consumption growth is slightly stronger than beef at an annual rate of 1.2 percent compared to 0.95 percent.

Global per capita meat consumption remains low compared with levels in higher income countries—an indication of the potential for continued growth in world meat consumption. Over the projection period, global meat (beef, pork, and poultry) consumption increases by 47.9 million tons (15 percent), which increases trade by 7.9 million tons (25 percent). Developing and emerging economies account for almost 80 percent of this increased consumption; however, this share drops to 56 percent when excluding China. The five countries accounting for the largest share of increased meat consumption over the projection period are China (23.5 percent), the United States (6.7 percent), India (6.3 percent), Brazil (6.2 percent), and Mexico (4.9 percent). The United States has a low growth rate in consumption, but a large population and already has a large per capita disappearance of meats.

Per capita meat consumption is quite low in the lower-income countries, which helps to account for their faster consumption growth rates. The regions with the fastest annual meat consumption growth over the projection period include Sub-Saharan Africa (2.7 percent) (excluding South Africa), Southeast Asia (2.5 percent), North Africa (2.4 percent), Central America and the Caribbean (2.3 percent), and the Middle East (2.2 percent). Over the projection period, the combined increase in meat consumption in these five regions' accounts for 23.4 percent of the global growth in meat demand. Meat imports by these five regions increase by 2.8 million tons, accounting for about 28 percent of their increased meat consumption. The rest comes from increased domestic production. These five regions account for almost 40 percent of increased global meat imports through 2028/29.

High-income countries consume up to 10-15 times the quantity of meat on an annual per capita basis than many low-income countries, and even up to 25 times more than the lowest income countries in the world. The countries and regions with the projected slowest annual growth in meat consumption include Canada (1.04 percent), Japan (0.95 percent), the Former Soviet Union (0.78 percent), the United States (0.73 percent), Argentina (0.33 percent), the European Union (0.32 percent), and Taiwan (0.43 percent). These countries already have high per-capita rates of meat consumption and slow projected growth in population, urbanization and consumer income. The combined increase in meat consumption of these 7 countries and regions is only 15.1 percent of the world's projected increase in meat consumption.

Three countries—China, Brazil, and India—account for more than one-third of the increase in global meat consumption by 2028/29. The large and growing populations and incomes of these countries significantly contribute to large increases in global meat consumption. China alone accounts for almost 23.5 percent of the increase in world meat consumption over the projection period. However, increasing meat consumption does not necessarily lead to increasing meat imports. In these three countries, increased consumption is mostly matched by increased domestic production. China's meat consumption increases by almost 10 million tons, but imports increase by just 956 thousand tons. By 2028/29 China meat imports are projected to account for 5.3 percent of meat consumption. In Brazil and India, meat production grows faster than consumption, which allows both countries to increase their meat exports and maintain low or almost no meat imports.

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 27.6 percent, reaching almost 15.9 million tons by 2028/29, adding 3.43 million tons over the projection period. Beef exports by the major beef-exporting countries expand by 24 percent, reaching almost 11.75 million tons and adding 2.3 million tons to trade by 2028/29. Major pork exporters expand trade by over 21.3 percent, reaching more than 10.1 million tons by 2028/29, adding almost 1.7 million tons to exports.

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 (3.5 percent annual growth rate), Sub-Saharan Africa (3.0 percent), South America (3.0 percent excluding Brazil and Argentina), the Middle East (2.8 percent), Central America (2.6 percent) and North Africa (2.5 percent). The increase in corn imports for these regions is a combined 24.5 million tons over the projection period. These six combined regions account for 76.4 percent of the growth in world projected corn imports to 2028/29.

Southeast Asia's corn imports are increasing due to its fast growing meat sectors, mostly poultry and pork. Southeast Asia meat production (mostly pork and poultry) is projected to increase annually by 2.4 percent, a 23.7 percent increase over the projection period to 2028/29. Southeast Asia's annual corn imports are projected to increases to almost 23 million tons by 2028/29, an increase of 6.2 million tons over the projection period, which accounts for 19.3 percent of increased world trade by 2028/29. Southeast Asia's projected imports of soybeans and soybean meal for feed use are increasing at annual rates of 2.3 percent and 3.2 percent respectively. Southeast Asia accounts for 47 percent of the increase in global imports of soybean meal over the projection period, reaching 23.5 million tons by 2028/29.

Crop production continues to expand through 2028/29

Growth in global agricultural production is sufficient to meet growing global demand and will sustain commodity prices at relatively low prices throughout the projection period. Agricultural production increases due to both yield growth and area expansion. This is especially true in Brazil, with expanding new area and increasing crop yields due to the introduction of new technologies.

World corn production reached a record level in 2016/17, at almost 1.08 billion tons, which is an increase of 29 percent from 2010/11, or an additional 242 million tons. While world production decreased in 2017/18 by about 4 percent due to lower yields and area, global corn production is projected to increase by almost 16.6 percent over the projection period from 2019/20 to 2028/29, primarily due to increasing yields. Ten countries produce almost 85 percent of the world's corn. The United States and China account for close to 57 percent of global corn production. The next 3 largest corn largest producing countries, Brazil, EU, and Argentina, account for almost 19 percent of global production. Together, the United States, China, Brazil, Argentina, and the European Union accounted for 75 percent of the global corn production over the past decade.

Global production of wheat and rice have consistently established record levels, reaching 758 million tons and 491 million tons in 2017/18, respectively. The European Union, China, and India accounted for a little over 50 percent of the world's wheat production in 2017/18. Russia, the United States, and Canada accounted for an additional 21.3 percent of the world's share in wheat production. Global wheat production is projected to increase a little over 9 percent from 2019/20 to 2028/29. Eight countries accounted for over 80 percent the global rice production in 2017/18. Almost 53 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 30 percent to world rice production. Brazil, the world's ninth largest rice producer, is projected to account for about 2.5 percent of global production. Global rice production is projected to increase almost 6 percent by 2028/29, which is driven mostly by increasing yields, with expanding area in some countries.

Oilseed and palm oil production have exhibited strong growth over the past six years and that growth is projected to continue through the baseline period. Indonesia and Malaysia both significantly increase palm oil production through 2028/29, by 40 percent and 20 percent, respectively. Global soybean production increased from 264.4 million tons in 2010/11 to 348 million tons by 2016/17 -- almost a one-third increase. The United States, Brazil and Argentina accounted for 82 percent of the world's soybean production in 2017/18. Increased production by Brazil and the United States account for 60 percent and 39 percent, respectively, of the increase in global soybean production, since 2010/11 through 2017/18. Global soybean production is projected to increase by 23 percent by 2028/29. Both soybean area and yields increase over the projection period at 12.1 percent and 9.7 percent, respectively, from 2019/20 to 2028/29.

Biofuels

Global expansion of biofuel production is projected to continue during the next decade, although at a significantly slower pace than over the last half decade. As a result, demand for biofuel feedstocks also continues to grow, but more slowly. This slowdown in part reflects no further expansion in the United States, slower expansion in Europe, limits to further blending increases in most other markets, and generally lower crude oil prices.

By a wide margin, the top two biofuel producers remain the United States and Brazil. The EU follows in third position, but at considerable distance behind Brazil. Also among the largest producers, China, Argentina, Indonesia, Thailand, and Canada grow but remain considerably smaller than Europe. Another 15 relatively minor producers account for nearly all remaining production. Reduced use of corn for ethanol production in the United States and potentially the EU is offset by increased production of corn-based ethanol in Brazil, China, Argentina, and Paraguay. Aggregate demand for wheat and other coarse grains as ethanol feedstock, mostly in the EU and Canada, is flat to declining. Expanded use of sugarcane and molasses continues in Brazil, India, Thailand, Argentina, Colombia, the Philippines and several other countries. The growing biodiesel industries of Indonesia, Thailand and Malaysia depend on palm oil. Demand for soybean oil used for biodiesel rises in the United States, Brazil, and Argentina. Growing demand for other food-based, oilseed and starch biofuel feedstock is expected to be relatively modest, while demand growth for waste-stream feedstock (i.e. used cooking oil, bagasse and cellulosic biomass) will remain more robust.

The United States, Brazil, Canada, the EU and Japan remain the world's largest importers of biofuels throughout the projection period. All other countries limit biofuel imports or ban them altogether to protect domestic feedstock industries even though they may be forced to limit blend mandate increases and the contribution biofuels can make to improve air quality, reduce carbon emissions, and lower fossil fuel import reliance. The United States continues to import more biomass-based diesel than ethanol, and much of that demand is driven by low carbon fuel standards in California and a few other states. Canada remains the largest biodiesel supplier to the U.S. market, while imports from Argentina remain curtailed by countervailing and anti-dumping duties. Singapore continues to supply renewable diesel to California.

Brazil does not import biodiesel, but its imports of U.S. ethanol rise as its market grows despite any barriers that may be imposed. Canada continues to import all its ethanol from the United States and all its biodiesel/renewable diesel from the U.S. and Singapore; both have expansion potential. The EU's imports of ethanol are expected to stagnate, but imported biodiesel/renewable diesel from Argentina and Southeast Asia are expected to retain a large presence in the market at least through the mid-2020's. Japan's entire biofuels program continues to rely on ethanol imported as ETBE.

The United States and Brazil remain the world's two largest fuel ethanol exporters by a wide margin. U.S. shipments expand and are diversified across many markets. Brazil, followed by Canada and India, are likely to remain top markets. The United States remains Brazil's top ethanol market. Argentina and Indonesia have been the largest exporters of biodiesel, followed by Malaysia and Canada. Given environmental criteria constraints imposed on palm oil biodiesel by the United States and (in the future) by the EU, the list of major exporters will shrink to include only Argentina and Canada. Singapore remains the largest renewable diesel exporter by a wide margin, and is expected to double exports as production expands.

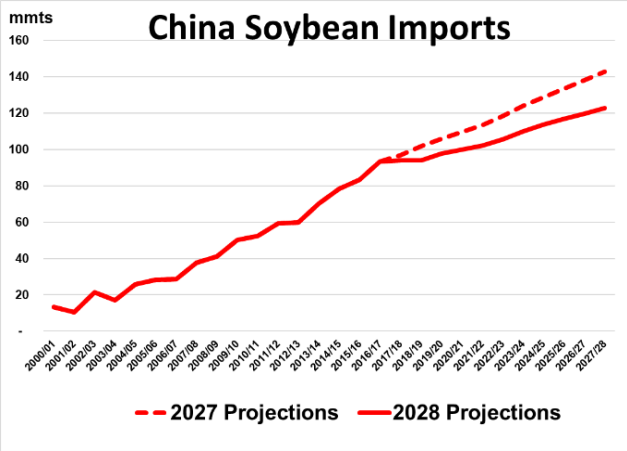
China's retaliatory tariffs affect projections for some commodities

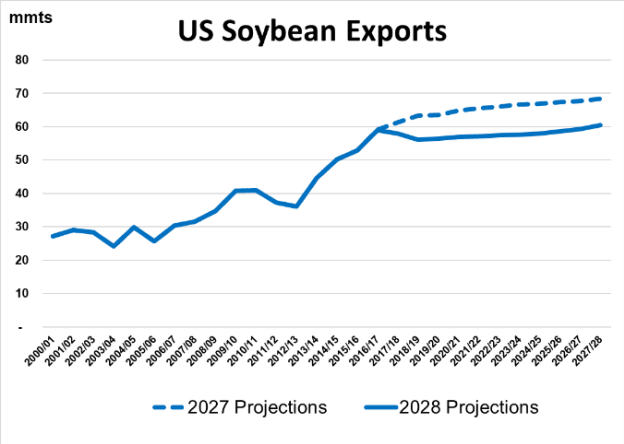
During 2018, China imposed retaliatory tariffs of 25 percent or more on nearly all U.S. agricultural commodities. The projections to 2028 assume these tariffs remain in effect throughout the projection period since there was no indication of when the tariffs would be lifted. The projections are based on data compiled before initial impacts of the tariffs became evident during the fourth quarter of 2018.

China's retaliatory tariffs had short-term impacts on trade for some products that are greater than anticipated in the projections. For example, China cut off most imports of U.S. soybeans and sorghum during the first months of MY2018/19, and USDA's short-term forecasts of China's 2018/19 imports of both commodities were revised downward after the projections in this report were made. For some other products, such as meats, China's tariffs may divert U.S. exports to other growing markets while China imports more from other suppliers.

China also proposed an antidumping investigation of Australian barley that could curb its projected growth in barley imports, but this measure was not in place when projections were made.

Several notable changes are evident in USDA's projections to 2028 compared with the previous year's projections:





- China's soybean imports are projected to rise 32.1 mmt during 2018-28, much slower than the 46-mmt ten-year increase projected for 2017-27 last year. Brazil and Argentina—with combined projected growth in exports of 27.2 mmt during 2018-28—may meet most of China's growing demand for soybeans. U.S. exports of soybeans are projected to rise 5.3 mmt over 10 years.

- China's sorghum imports are projected to remain steady at 2 mmt annually through 2028 in contrast to the previous year's projection of growth from 5 mmt in 2017/18 to 6.8 mmt in 2027/28. U.S. sorghum exports are projected to remain steady at 3.8 mmt annually to 2028, sharply curtailed from the previous year's projections of growth from 5.3 mmt to 7.1 mmt during 2017-27.

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China's retaliatory tariffs affect projections for some commodities -- Continued

- China's imports of barley—used in China largely as a feed grain in place of corn and sorghum--are projected to rise from 9.5 mmt in 2018/19 to 12.4 mmt in 2028/29. This growth is much faster than projected in the previous year. Australia, Russia, Canada, and the European Union are expected to export more barley during 2018-28.

- China is projected to be the top importer of pork (2.099 mmt) and beef (1.887 mmt) in 2028, but retaliatory tariffs will reduce competitiveness of U.S. products.

- In contrast, projected U.S. exports of corn and cotton in 2027 are higher than the previous year's projections, despite China's tariffs. The higher projections may be due to growth in sales to other countries and higher overall global demand, which may offset effects of Chinese retaliatory tariffs on U.S. corn and cotton.

China also revised many of its agricultural production statistics after projections to 2028 were made. The revisions include a 20-percent increase in China's corn output, smaller upward revisions in output of rice (3.5 percent) and wheat (2 percent), and downward revisions of production estimates for potatoes, fruit, vegetables, and rapeseed. Pork output was revised upward by 2 percent, but beef was reduced 13 percent and dairy output was reduced 14 percent. For most commodities the revisions affect estimates of both supply, demand, and stocks but the direct impact on trade projections is unclear.

Brazil and Argentina: Agricultural Policies and Competitiveness

Brazil and Argentina are projected to remain two of the world's leading exporters of oilseeds and oilseed products, food and feed grains, and livestock products. These countries are competitors of the United States in some international markets. At the same time, they complement Northern Hemisphere suppliers of certain similar products going to the same customers in different seasons by virtue of their location in the Southern Hemisphere.

Since 1990 both countries have sharply increased agricultural output and gained global market share, particularly for soybeans and corn. Soybean production in Brazil and Argentina has increased six-fold. Brazil's corn production has increased by 324 percent and Argentina's corn production expanded by 785 percent (USDA, PS&D). The dramatic growth in agricultural output has been driven by cropland expansion, productivity gains, and increasing demand for food and animal feed from China, other Asian countries, and the EU. China is the most important destination market for global soybean trade, and both Brazil and Argentina have made big inroads into that market.

Over the years, the agricultural sector in Brazil and Argentina has withstood severe macroeconomic volatility, including the deep recession that Brazil experienced during 2014-16 and the 2018-19 recession currently underway in Argentina. While both countries are on the path to economic recovery in response to market reforms, the various programs that provide support to farmers through direct financial assistance or tax exemptions in the case of commodity and regional programs, and through premium subsidies in the case of crop marketing and crop insurance remain important for farmers in Brazil and Argentina.

Over the medium term, macroeconomic stability, infrastructure developments, and agricultural policies will determine the speed and intensity of further growth in each country. Moreover, the manner and levels of Government programs that support the farm sector in Brazil and Argentina are likely to influence future agricultural growth and will have implications for exports, world agricultural markets, and competition with the United States.

Brazil

Brazilian agriculture underwent a tremendous transformation over the past four decades from labor-intensive farming on small plots of land to exporting tropical agricultural commodities to large scale commercial-based agriculture. Technological developments and innovations initiated in the mid-1960s to 1970s in crop and animal genetics and farm management have been influential in driving the growth and transformation of agriculture. Government support programs for agriculture have also played an important role. Historically, the principal policy instruments used by the government to support agriculture and to offset the disincentives caused by policies favoring industrialization, have been subsidized credit and minimum support prices.

Producers have access to three kinds of credit through government programs: production, marketing, and investment. These working capital or operational credit resources are offered to Brazilian producers at subsidized interest rates—which vary according to farm size and region—ranging between 3 and 6.5 percent, compared with market rates of 20-35 percent (BCB, 2019).

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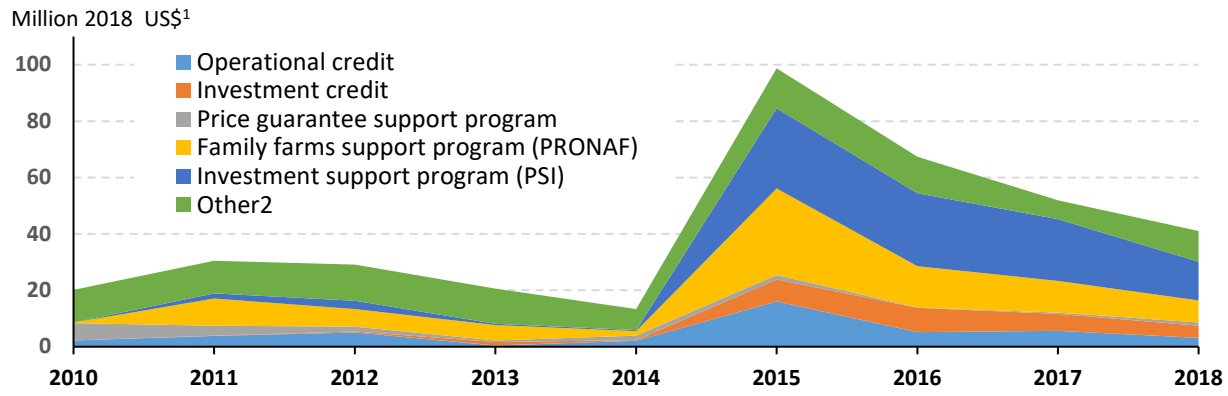
Brazil and Argentina: Agricultural Policies and Competitiveness -- Continued

Marketing credit programs have been generally available to farmers when domestic market prices fall below minimum prices announced by the Government. Investment credit is provided through a variety of programs administered by the Brazilian National Development Bank (*Banco Nacional de Desenvolvimento Econômico e Social*, BNDES). The largest is the *Moderfrota* program for agricultural machinery, aimed at medium- and large-scale producers; this program has been an important factor behind the opening of the Center-West production areas in Brazil (BCB, 2019).

Government-subsidized credit in Brazil declined from 2011 to 2014 in response to tighter credit policies, but has risen since then (fig. 1). In an effort to maintain production incentives during the 2014-16 recession, Brazil's Government payments for producers of certain agricultural products, including soybeans and corn, increased in real terms. As inflation accelerated above administered interest rate adjustments, the subsidy element grew even more rapidly (fig. 1). These programs, through direct financial assistance to farmers in commodity programs and through premium subsidies paid for marketing of the crop and for crop insurance, provided a total of $25.8 billion in assistance to Brazilian producers during 2015-18 (Tesouro, 2019).

Figure 1. Brazil's government payments by program for 2010-18



[1]Deflated with the gross domestic product (GDP) chain-type price index.
[2]Crop insurance subsidies, marketing loan benefits, agricultural debt refinancing, commodity direct payments (coffee, cocoa, ethanol).
Source: Brazil Ministry of Finance, National Treasury budget expenditures 2010-2018.

The increased availability of subsidized credit to Brazilian farmers partially offset rising production costs in agriculture and strengthened the ability of farmers to invest in their operations during the 2014-16 recession. Rising production costs span the agricultural sector. Costs ranging from interest expenses to labor, seed, fuel, and credit will rise in tandem with growth in production. Since 2014, production expenses for soybeans in Brazil have been at their highest level (fig. 2). Fertilizer and pesticide expenses for soybean production in particular rose 35 percent and 300 percent, respectively. About 60 percent of the intermediate raw materials used for the production of fertilizers and 30 percent of pesticides in Brazil are imported. The more rapid devaluation of the *Real* since 2014 has resulted in higher fertilizer and pesticides costs. Soybean producers are Brazil's main consumers of pesticides.

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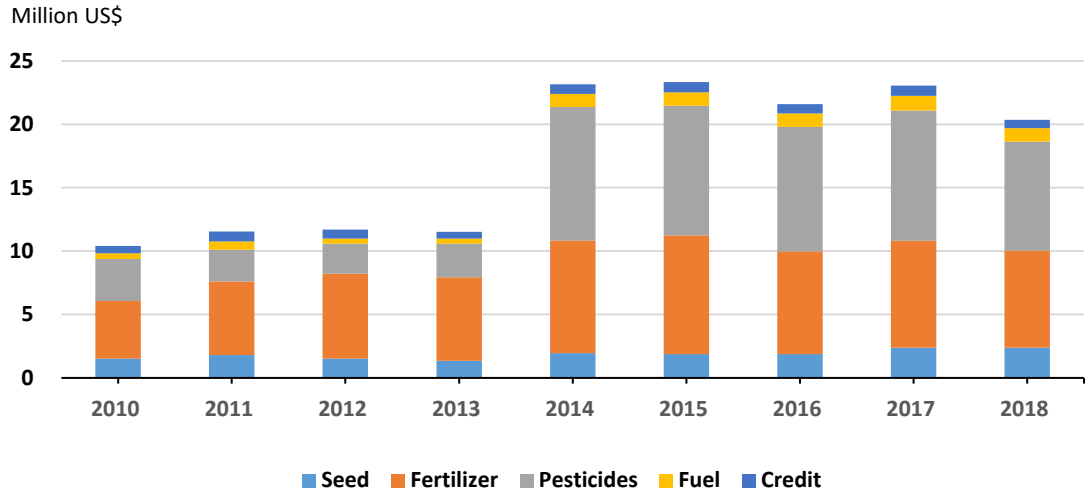
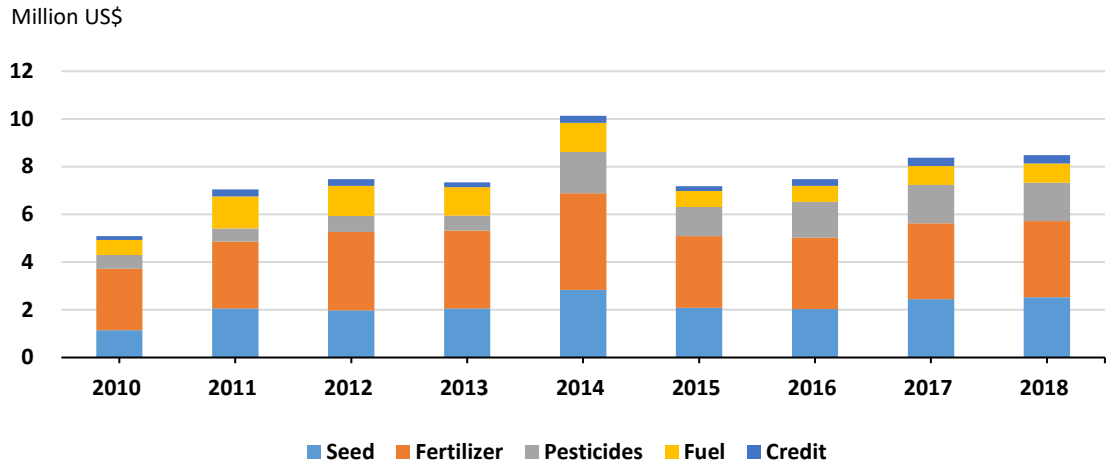
Figure 2. Brazil's soybean production expenses, 2010-18



Source: CONAB (Brazil Ministry of Agriculture Marketing Agency).

As in the case of soybeans, partially offsetting the rise in corn production expenses is a rise in government programs, but low prices and lower returns to producers have resulted in less area planted to corn, particularly for first-crop corn, continuing the decline of the past decade. Relatively higher soybean prices and higher returns to production have encouraged farmers in the Center-West region of Brazil to plant corn only as a second crop after the soybean harvest (FAS/USDA, 2018). Since government support programs for corn guarantee a minimum price, Brazilian farmers are able to reduce inputs to reduce the cost of production (fig. 3) (FAS/USDA, 2018).

Figure 3. Brazil's corn production expenses, 2010-18



Source: CONAB (Brazil Ministry of Agriculture Marketing Agency).

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Brazil and Argentina: Agricultural Policies and Competitiveness -- Continued

Continuing trade expansion and diversification of markets and products remain at the core of Brazil's agricultural growth strategy. However, several constraints could hinder further long-term growth of Brazilian agriculture. Supply-side constraints include adverse macroeconomic shocks, ongoing transportation and marketing bottlenecks, financial constraints, and a slowdown on the expansion of agricultural land.

Argentina

Argentina has been a major exporter of agricultural commodities for many decades, is the world's leading exporter of soybean products—soybean oil and soybean meal—and ranks third behind the United States and Brazil as a producer and exporter of soybeans. The country has also a long history of taxing agricultural exports to ensure cheap supplies for domestic processing industries, in support of its import substitution industrialization strategy. Export taxes on soybeans have been particularly high relative to other agricultural products and are traditionally an important source of government revenue. 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, with the goal of increasing fiscal revenues and limiting the impact of the currency devaluation on inflation (USDA, FAS 2015). Initial rates were set at 13.5 percent for soybeans and 5 percent for soybean oil. In the years that followed, the government increased export tax rates to 23.5 percent for soybeans and 19.3 percent for soybean oil in 2005-06. By 2007, the rates on soybeans and soybean oil had peaked 35 percent and 32 percent, respectively, on account of the rise in global prices and further devaluation of the currency (USDA, FAS 2015).

At the end of 2015, the government committed to economic reforms and implemented policies to decrease or eliminate exports tax on principal agricultural commodities such as soybeans, corn, wheat, beef, and dairy (USDA, FAS 2015). In 2016, there was an immediate export tax reduction of 5 percent on soybean products, but due to fiscal pressure, further reductions were delayed until January 2018, when export taxes were reduced by one-half percentage points per month until December 2019. By the end of 2019, the tax on soybeans is scheduled to be down to 18 percent (USDA, FAS 2016).

Agricultural producers in Argentina receive very few direct production and input payments. The Ministry of Agroindustry provides preferential credit through FINAGRO, which includes subsidized credit for production, marketing, investment, and debt rescheduling. These credit resources are offered to farmers at interest rates ranging between 17.5 percent for investment and 23 percent for working capital, compared with market rates of 60 percent (Finance, 2019). Since 2015 with the economic reforms in place and an increasing fiscal deficit, FINAGRO payments have been curtailed and eliminated for soybean farmers (fig. 4). These programs provided a total of $3.1 billion in direct financial assistance to Argentine farmers during 2015-18 (Finance, 2019).

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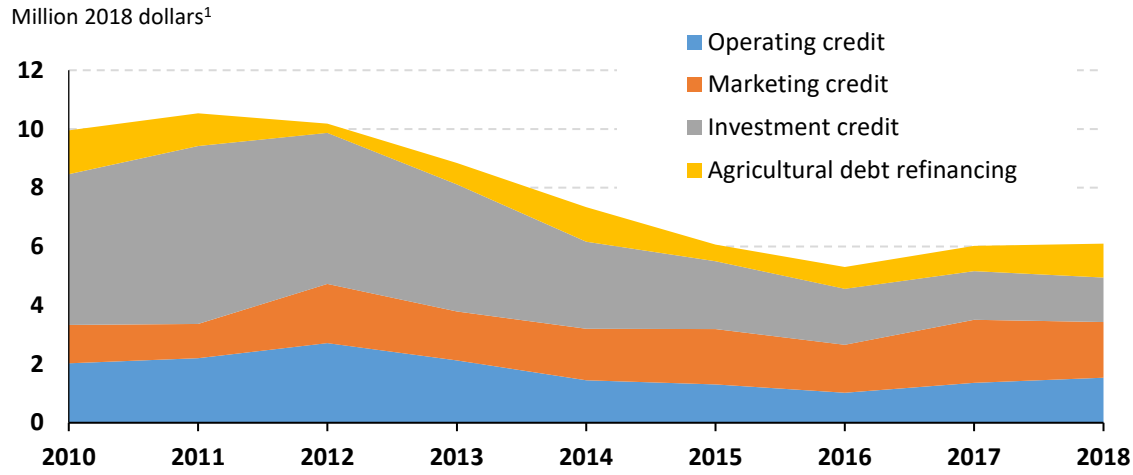
Brazil and Argentina: Agricultural Policies and Competitiveness -- Continued

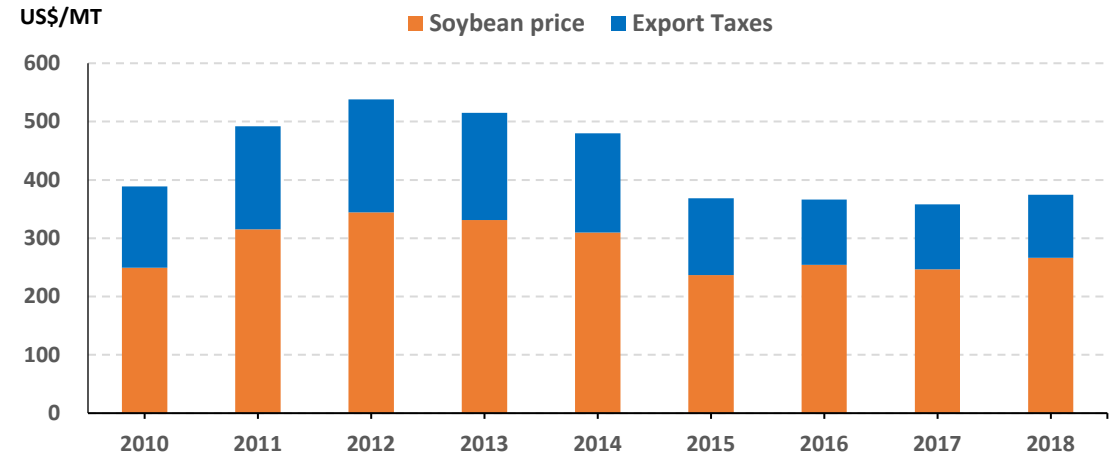
Figure 4. Argentina's government payments by program for 2010-18



[1]Deflated with the gross domestic product (GDP) chain-type price index.
Source: Argentina Ministry of Finance, National Treasury budget expenditures 2010-2018.

Argentina's export tax reform has raised the competitiveness of its soybean sector. Tax rate reductions since 2015 have reduced farmers' costs, improved farmer profitability, and lowered soybean export prices (fig. 4). The tax rate reduction have helped narrow the gap between interior and F.O.B. (free on board) port prices. Further export tax reform could improve the global competitiveness of Argentina's soybean sector and possibly displace soybean exports from other countries such as the United States and Brazil.

Figure 5. Argentina's policy reform has sharply reduced soybean export taxes, 2010-18



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

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Brazil and Argentina: Agricultural Policies and Competitiveness -- Continued

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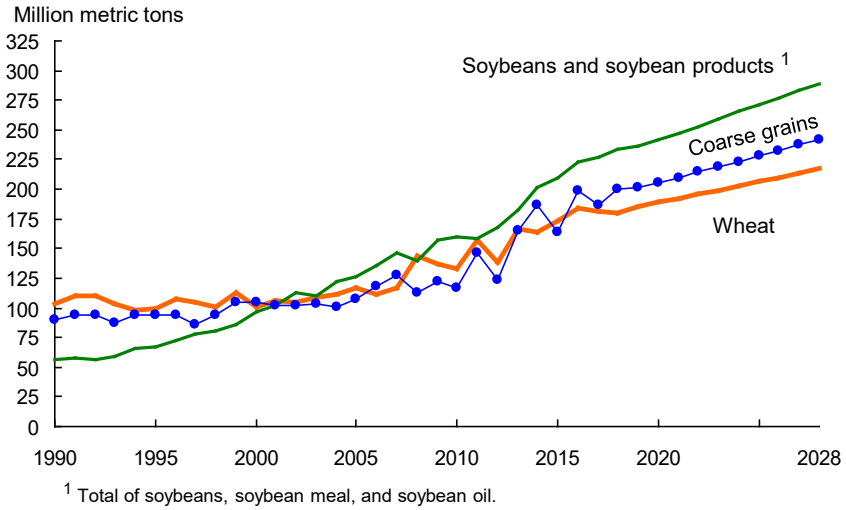
Global trade: Wheat, coarse grains, and soybeans and soybean products

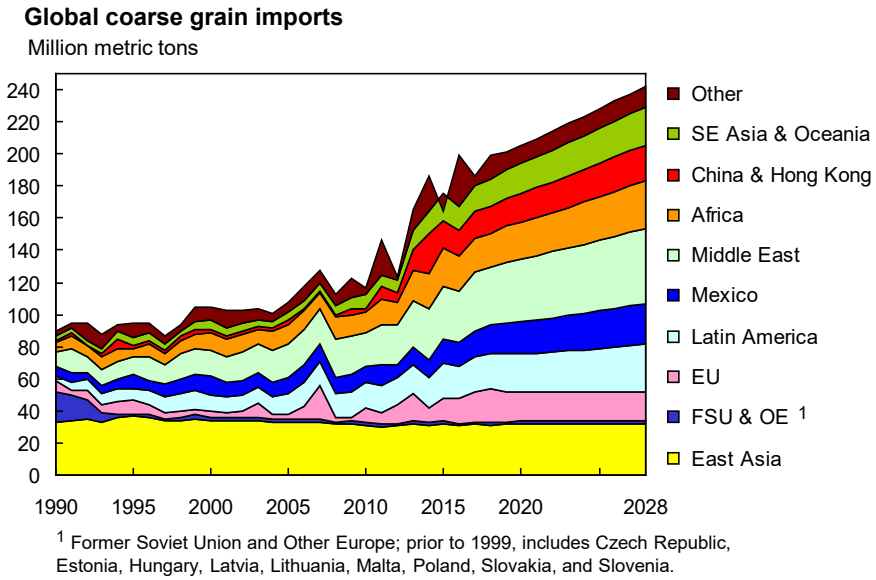


Global trade in soybeans and soybean products has risen rapidly since the early 1990s and surpassed global trade in wheat and in total coarse grains (corn, barley, sorghum, rye, oats, millet, and mixed grains). Continued strong growth in global demand for vegetable oil and protein meal—particularly in 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 and changes toward higher-value food products and protein consumption. World oilseed consumption is projected to rise 19.6 percent over the next decade, compared with 15.6 percent for meat, 14.3 percent for coarse grains, 10.5 percent for wheat, and 4.5 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, favor increasing meat consumption.

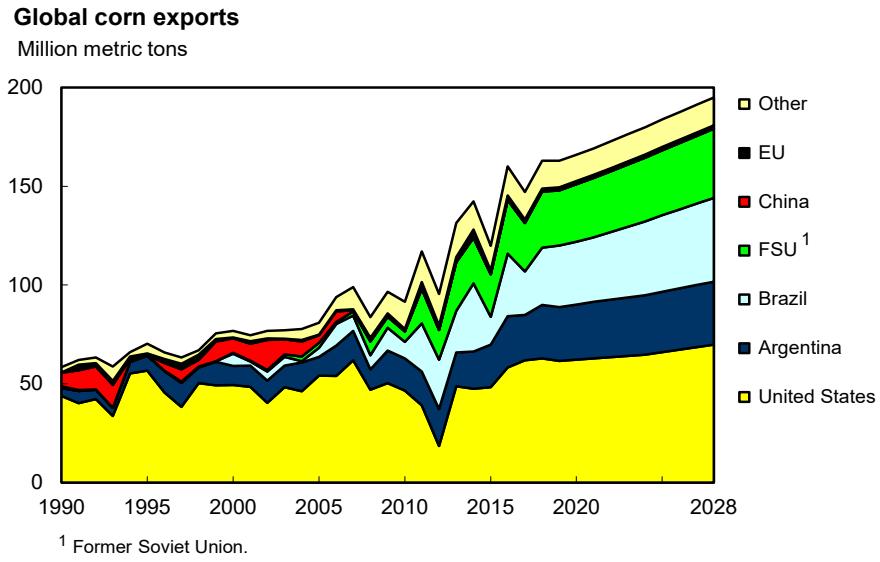
- Increasing demand for grains, oilseeds, and other crops provides incentives to expand global area under cultivation and intensify crop production, even though recent lower prices constrain expansion. Globally, the total area planted to grains, oilseeds, and cotton is projected to expand by about 6.1 percent from 2019 to 2028. Global production of grains, oilseeds, and cotton is projected to grow 13.7 percent from 2019 to 2028 (1.4 percent per year to 2028/29) due to higher area and rising yields. World consumption increases by 13 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 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 40.4 million tons (20 percent) between 2019/20 and 2028/29. 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 (with the exception of Argentina and Brazil). Corn trade is expected to account for 80.6 percent of the world coarse grain trade through 2028/29; with barley's share expected to increase slightly to 14.7 percent. By 2028/29, the world's largest coarse grain importers are Mexico, China, EU, Japan, Saudi Arabia, Iran, Vietnam, Egypt, and South Korea.

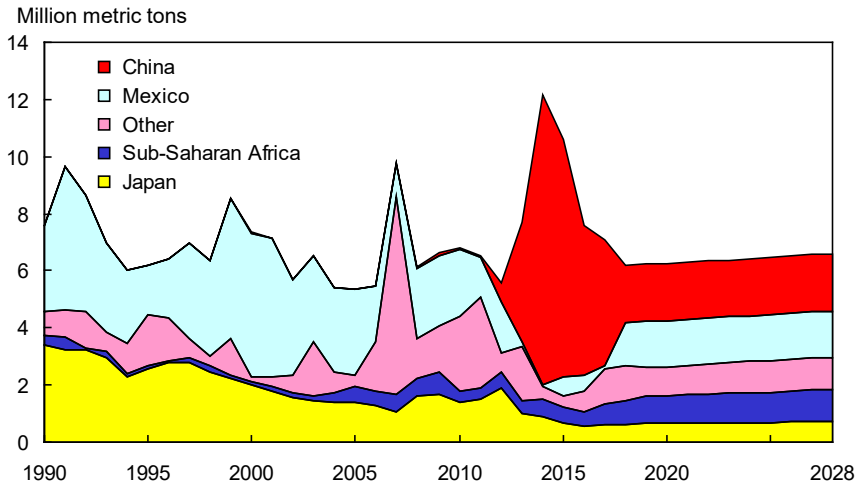
- China's coarse grain imports are projected to increase by 4.9 million tons by 2028/29, due to increased imports of corn, sorghum and barley. Corn imports are projected to reach 5.4 million tons in 2019/20 and are expected to rise to 7.2 million tons by 2028/29, as China's feed and industrial processing demand grows while stockpiles diminish and limits on corn production in erodible and drought-prone regions are assumed to curb growth in domestic output. Imports of relatively lower-priced sorghum are steady while 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 2028/29, as rising incomes and populations foster strong demand growth for livestock products and limited arable land and water constrain domestic grain production. By 2028/29, these combined regions will import 31.6 percent of world coarse grains imports. Saudi Arabia, Iran, and Egypt are projected to account for 19.4 percent of world coarse grain imports by 2028/29.
- Imports by Mexico account for 14 percent of the increase in global coarse grain trade during the coming decade. Growing demand for livestock products supports higher domestic meat production requiring additional feed. Mexico's sorghum imports are projected to remain steady at 1.6 million tons over the projection period. Mexico's corn imports increased each of the past six years, reaching 16.7 million tons in 2018/19 and are projected to be 17.7 million tons in 2019/20 and then rise to 23.3 million tons by 2028/29.
- South and Southeast Asian and Oceania coarse grain imports rise 42 percent to 29.4 million tons by 2028/29 in response to increased demand from livestock producers. These three regions account for 20.3 percent of the growth in world corn imports. Vietnam, Indonesia, and Thailand are among the fastest growing corn importing countries in this region. Indonesia has implemented policies to limit imports of corn and feed wheat to support domestic corn production.



U.S. corn exports are expected to increase by 8.26 million tons over the projection period and reach 69.9 million tons in 2028/29. Strong export competition leads to a reduction of the U.S. share of world corn exports (from 38 to 36 percent) over the projection period; the past 7-year average is 38 percent, well below the 59-percent share for the 2001/02 to 2010/11 period.

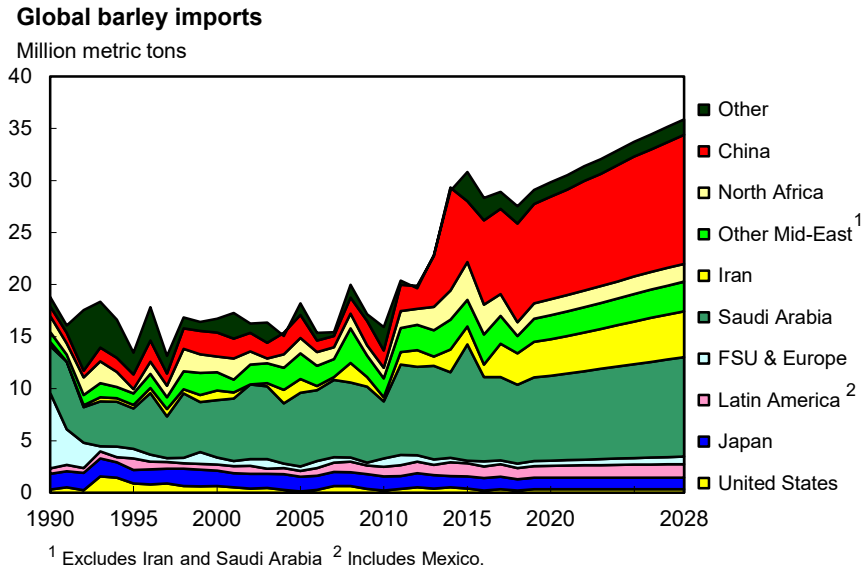
- Annual corn exports by the countries of the FSU, mostly Ukraine, are expected to rise by 7.1 million tons (25.4 percent), and reach 35.1 million tons in 2028/29. The country's favorable resource endowments, increasing economic openness, wider use of hybrid seed, and greater investment in the agriculture sector all stimulate corn production. Although feed use of corn in the FSU countries rises in the projections, the region becomes the world's third-largest corn exporter, after the United States and Brazil. By itself, Ukraine is the fourth largest exporter after Argentina.
- Argentina is the world's third largest exporter of corn. Argentine corn production is projected to increase dramatically, reflecting increasing area planted to corn as well as continued yield growth, despite recently re-introduced commodity export taxes. Exports increase from 27.3 million tons in 2019/20 to 31.8 million tons by 2028/29, an increase of 16.8 percent over the projection period.
- Brazil's annual corn exports more than tripled over the past decade and averaged 26.2 million tons in the past 5 years. Production of second-crop corn following soybeans, much of which takes place in the Center West, continues with soybean expansion onto new cropland. This growing 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 South region. 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 36 percent from 31.1 million tons in 2019/20 to 42.3 million tons by 2028/29.
- EU exports grow marginally and reach 1.6 million tons by the end of the projection period. EU corn imports are projected to decrease by 0.5 million tons to 17.4 million tons by 2028/29. Corn exports from the Other Europe region, mostly from Serbia to the EU, increase by 17.5 percent over the projection period and reach 2.7 million tons by 2028/29.
- South Africa's exports are stable at 1.5 million tons over the projection period. Other Africa corn exports are flat at 0.8 million tons throughout the projection period.

Global sorghum imports



World sorghum trade is projected to increase from 6.2 million tons in 2019/20 to 6.6 million tons by 2028/29, increasing by 5.6 percent over the coming decade. U.S. sorghum exports to China spiked in recent years as feed mills in southern China sought cheaper substitutes for expensive domestically produced corn. China's sorghum imports are expected to be lower and stable in the coming years due to high tariffs imposed on U.S. sorghum in April 2018. Most countries maintain stable imports through 2028/29. Mexico and Japan account for 36 percent of global imports through the projections 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 increase sorghum exports to China's for the feed market. U.S sorghum exports are projected to be 3.8 million tons in 2018/19 and stable through 2028/29. The U.S. sorghum export trade share is stable near 60 percent over the projection period.
- China is projected to remain the leading sorghum importer, but imports are projected to remain steady at 2 million tons from 2019/20 through 2028/29. Feed mills in south China import sorghum as a substitute for relatively expensive Chinese corn. Sorghum demand is expected to be sustained by corn quotas and uncertainty about biotech approvals that hamper 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. China's surging demand pushed sorghum prices up relative to corn prices, Mexico's importers shifted from sorghum to corn. Mexico's sorghum imports are projected to be 1.6 million tons per year from 2019/20 through 2028/29.
- Japan is the world's third-largest sorghum importer and projected to be a stable, at 700,000 tons annually over the next decade.
- The U.S. is the world's largest sorghum exporter. 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 from 1.6 million tons in 2019/20 to 1.8 million tons by 2028/29.
- Argentina is expected to be the world's third-largest sorghum exporter during the coming decade. Sorghum exports are projected to be 300,000 tons per year. The primary markets for Argentine's projected sorghum exports are Japan, Chile, Saudi Arabia, and Colombia.



Global barley trade is projected to expand from 29.1 million tons to 35.9 million tons by 2028/29. World demand for feed barley increased sharply in 2013/14 and peaked in 2014/15, due strong demand in China. China's demand for feed barley increases throughout the projection period. 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 13.4 percent for North Africa, 19.7 percent for Latin America, and 22.9 percent for the Middle East by 2028/29.

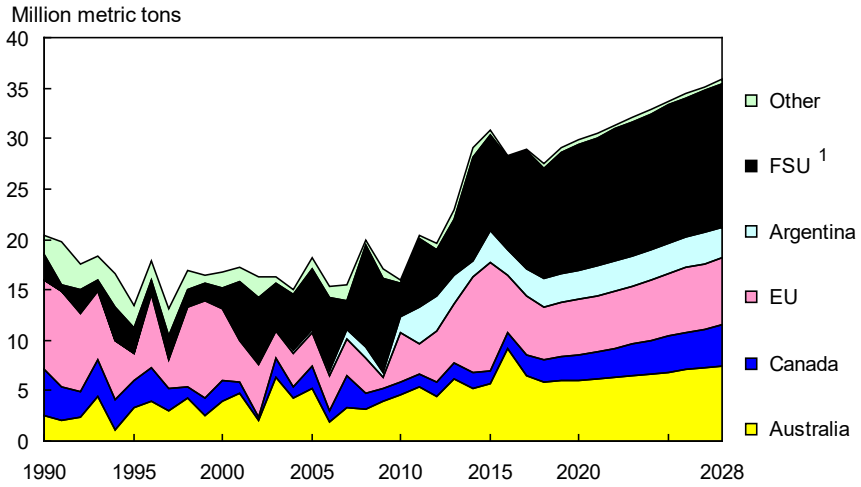
- Saudi Arabia is the world's second largest importer of barley. Its barley imports are projected to increase from 8.0 million tons in 2019/20 to 9.6 million tons by 2028/29. Despite the increase, Saudi Arabia's share of world barley imports remains stable near 27 percent. Saudi Arabia uses imported barley primarily as feed for sheep, goats, and camels. Iran increases barley imports by 29 percent, from 3.4 million tons in 2019/20 to 4.4 million tons by 2028/29.

- Other countries in the Middle East are projected to increase barley imports from 2.2 million tons in 2019/20 to 2.8 million tons by 2028/29. Jordan, United Arab Emirates, and Israel respectively, are the third, fourth, and fifth largest barley importers in the Middle East. Both Turkey and Morocco have stable imports over the projection period at 0.2 million tons and 0.3 million tons respectively. North Africa's largest barley importers were Tunisia, Algeria, Libya, and Morocco, in 2017/18.

- China's demand for feed barley surged beginning in 2013/14, as domestic corn prices were supported well above levels for world feed grains. As barley prices are projected to remain lower relative to corn prices, China is expected to maintain strong demand for feed barley imports. China's barley imports are projected to increase from 9.5 million tons in 2019/20 to 12.4 million tons by 2028/29, a 30.4 percent increase over the projection period.

- 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.

Global barley exports



[1] Former Soviet Union and Other Europe; prior to 1999, includes Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

The EU, Australia, and Russia are the three largest barley exporters during the projection period, followed by Ukraine, Canada, and Argentina. Exports driven by strong global demand, increase for most countries over the projection period. The world export shares of Australia, Russia, and EU are steady near 20.5 percent, 18.8 percent, and 18.4 percent, respectively. Ukraine's share decreases from 15.4 percent to 13.7 percent by 2028/29. Only Canada's export share increases, from 8.2 percent to 11.2 percent by 2028/29.

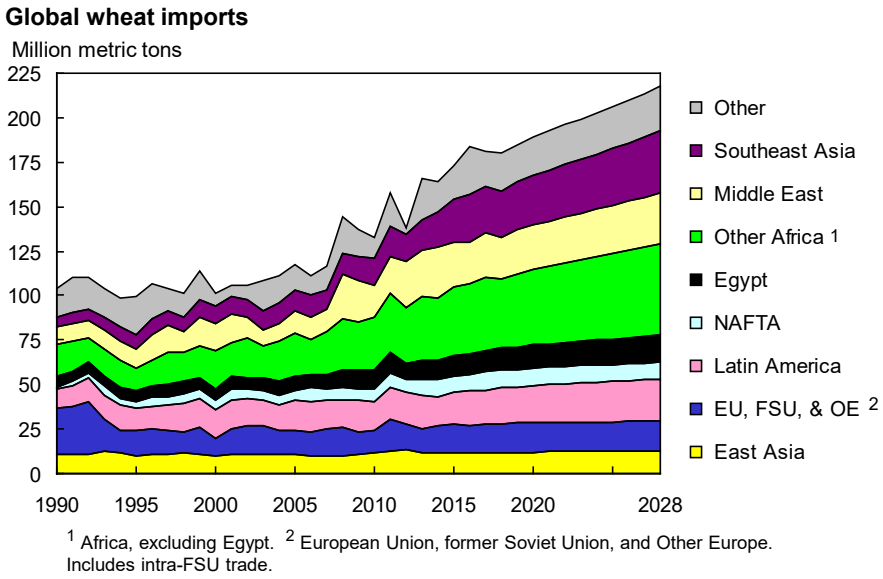
- Australia's barley exports are expected to increase during the coming decade from 5.9 million tons in 2019/20 to 7.4 million tons by 2028/29. Australia is projected to remain the world's largest barley exporter.

- The EU's barley exports are projected to increase from 5.5 million tons in 2019/20 to 6.7 million tons by 2028/29, in part due to increased barley demand from the Middle East and the EU's logistical comparative advantage in that region.

- Argentina's barley exports are projected to increase from 2.9 million tons in 2019/20 to 3.1 million tons by 2028/29. 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.

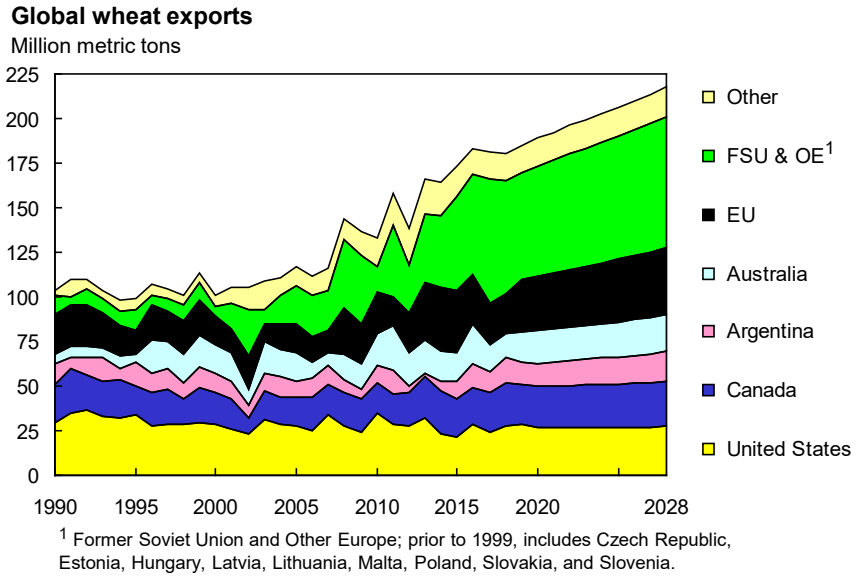
- FSU countries barley exports are projected to increase from 12 million tons in 2019/20 to 14.2 million tons in 2028/29. Russia, Ukraine, and Other FSU increase barley exports by 27.5 percent, 9.4 percent and 13.6 percent, respectively over the projection period. Russian exports are projected at 6.7 million tons and Ukraine's at 4.9 million tons by the end of the projection period. Kazakhstan is expected to increase its barley exports, especially to Iran.

- 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. Combined barley exports are expected to rise by 38 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.



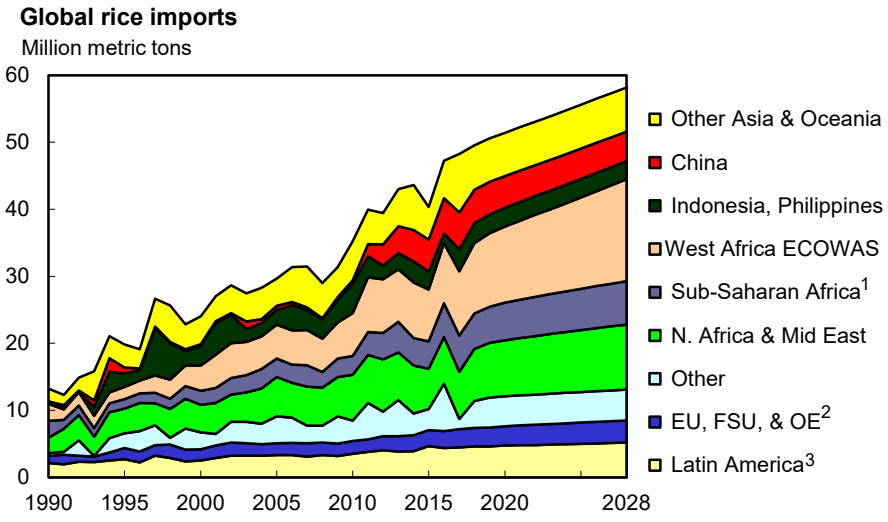
World wheat trade (including flour) is projected to expand by nearly 32.7 million tons (17.7 percent) between 2019/20 and 2028/29, reaching 217.7 million tons. Growth in wheat imports is concentrated in developing countries where income, urbanization, and population gains drive increases in demand. The largest growth markets include Egypt, Iraq, Indonesia, Bangladesh, Sub-Saharan Africa, the Middle East, and Southeast Asia.

- Imports are projected to expand 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 increase.
- Egypt and Indonesia remain the world's leading wheat importers, with annual imports climbing to 15.0 million tons and 13.9 million tons, respectively, by 2028/29. Indonesian imports are growing rapidly due to population growth, increased consumption of non-traditional instant noodles, and feed demand. Bangladesh and Brazil are the third and fourth largest wheat importing countries in the projections, increasing to 8.9 million and 8.3 million tons by 2028/29, respectively. These four countries add 8.2 million tons to imports over the projection period, accounting for 25 percent of the increase in global imports. The Philippines, Thailand, Vietnam, and Malaysia collectively add 4.2 million tons to imports by 2028/29, which is driven by rising incomes and populations, more diversified food consumption and wheat feed demand.
- Countries in Africa (including Egypt) and the Middle East increase their wheat imports by 12.7 million and 3.7 million tons, respectively, by 2028/29, accounting for 50 percent of the total increase in world wheat trade. As Saudi Arabia has nearly completed a planned phase-out of domestic wheat production due to water scarcity, its annual imports are projected to increase to 4.5 million tons by 2028/29.
- China has a surplus of wheat, but import demand remains strong due to a deficit of wheat suitable for use in bakery and specialty products. China's wheat imports increase to 5.6 million tons by 2028/29. Imports by Japan decrease slightly while imports by South Korea and Taiwan grow slightly, the three East Asian countries combined imports increase to 12.5 million tons by 2028/29. Historically, India has swung between being a wheat importer in some years and an exporter in other years. India is a marginal net wheat exporter during the projection period, exporting an annual average of 531,000 tons while importing about 50,000 tons.



The eight largest wheat exporters (the EU, Russia, United States, Canada, Australia, Argentina, Ukraine, and Kazakhstan) are projected to account for almost 92 percent of world trade in 2028/29. The FSU region exhibits the fastest growth in world export share, rising from 12 percent in the late 1990s and early 2000s to 26 percent over the past decade and then to a projected 33 percent by 2028/29.

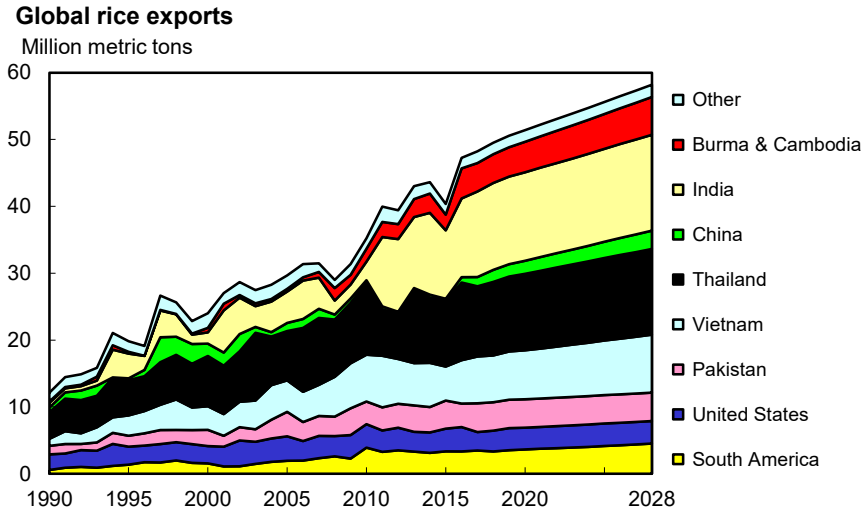
- U.S. wheat exports are projected to decrease gradually from 28.6 million tons to 27.9 million tons over the coming decade. The U.S. share of world exports decreases from 15.4 percent in 2019/20 to 12.8 percent by the end of the projection period in 2028/29.
- Wheat exports by Russia, Ukraine, and Kazakhstan have been strong during the past five years and are projected to climb from 58.5 million tons in 2019/20 to 71.6 million tons in 2028/29; this increase accounts for 39 percent of the projected increase in world wheat exports. Not explicitly reflected in the projections, year-to-year volatility in FSU wheat production and trade is likely due to the impact from the region's highly variable weather.
- The EU's export market share is projected to increase from 15.7 to 17.5 percent over the projection period. EU wheat exports are projected to reach 38 million tons by 2028/29 (3.03 percent annual growth rate), supported by higher yields and a decline in wheat fed to livestock domestically due to relatively low alternative feed prices. Turkey expands exports from 6.1 million tons in 2019/20 to 6.8 million tons by 2028/29.
- Canada's wheat exports grow from 22.1 million tons in 2019/20 to 25.0 million tons in 2028/29. Declining feed use and slow growth in domestic food demand supports higher wheat exports. Canada's wheat production increases due to yield growth, as area falls slightly. Australia's projected wheat exports increase by 18.8 percent, from 17.1 million tons in 2019/20 to 20.3 million tons by 2028/29. Australia is a major exporter to Southeast Asia and the Middle East, which both exhibit strong growth in wheat demand and imports.
- Argentina's wheat area grows despite the government's introducing new export taxes on commodities, especially in areas where it can be double-cropped with soybeans. 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 12.6 million tons in 2019/20 to 16.8 million tons in 2028/29, surpassing the recent record of 14.2 million tons in 2018/19. Brazil remains a major destination market benefiting from the MERCOSUR agreement.



[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 slightly more than 1.5 percent from 2019/20 to 2028/29, reaching 58.2 million tons by the end of the projection period. This corresponds to an increase of over 15 percent over the projection period. The main factors driving this expansion in trade are steady growth in demand—largely due to population and income growth in developing countries, mostly in Sub-Saharan Africa—and the inability of several key importing countries in Sub-Saharan Africa to raise production at the same rapid pace as consumption. Since the early 1990's to 2017/18, world rice trade as a share of world consumption has risen from less than 4 percent to 9.8 percent. This upward trend is expected to continue, with the share projected to exceed 11 percent by 2028/29.

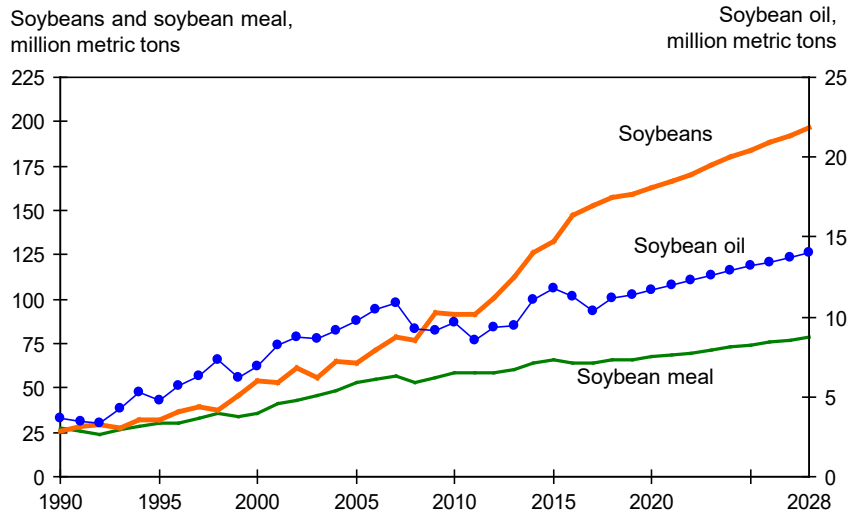
- China remains the largest rice-importing country until 2027/28 when Nigeria overtakes it. China's imports are projected to trend slowly downward from 4.86 million tons in 2019/20 to 4.41 million tons by 2028/29, as stocks continue to build.
- In Sub-Saharan Africa and the Middle East, demand growth is driven by expanding income, population, urbanization, and rice is easier to prepare than most traditional food staples, which is especially important in urban areas. In North Africa and the Middle East, production is limited primarily by climate. In Sub-Saharan Africa, production growth—while rapidly expanding—is constrained by infrastructure deficiencies and resource limitations. Africa and Middle East regions combined account for 90 percent of the increase in world rice trade over the projections. Nigeria is the largest rice-importing country by 2027/28, reaching 4.72 million tons by 2028/29.
- After Nigeria and China, the next largest importers are the EU, Saudi Arabia, the Philippines, Iraq, and Iran, with imports ranging from 1.59 to 2.55 million tons a year by 2028/29. With modest increases in production, the Philippine's imports are slightly decreasing with imports at 1.63 million tons by 2028/29. Indonesia's imports decrease by almost 6 percent over the next decade, dropping to 1.07 million tons by 2028/29. Per capita rice consumption is projected to decline over the next decade for both Southeast Asian countries.
- Saudi Arabia imports 1.7 million tons by 2028/29, while South Africa and Malaysia import 1.13 and 1.03 million tons, respectively. Saudi Arabia —which does not grow rice—is expected to show strong consumption growth over the next decade. Bangladesh's imports decrease by 180,000 tons over the projection period, to just over 900,000 tons by 2028/29, a result of continued production growth and declining per capita consumption. Japan, South Korea, and Taiwan maintain minimum market access import levels as agreed under the WTO Uruguay Round on Agriculture.



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 62 percent of world rice exports and about 56 percent of the growth in the coming decade.

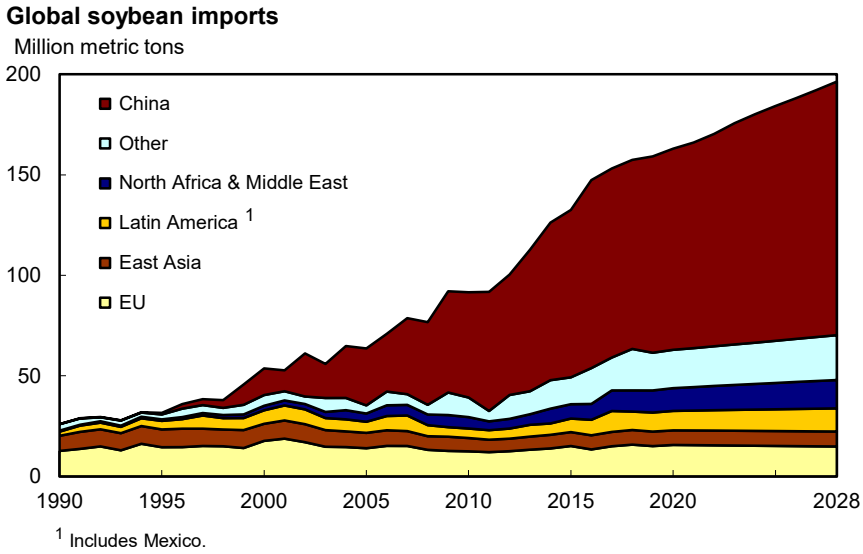
- India's rice exports had historically been volatile due to government trade and consumer policies and world market conditions. Follow, the Governments partial export ban on non-basmati rice in September 2011, exports increased significantly, allowing India to become the leading global rice exporter for the past six years. India is projected to remain the largest exporter during the projection period, with exports increasing by 1.23 million tons and reaching 14.34 million tons by 2028/29.
- In Thailand, increasing production and stable stock levels enable exports to rise 1.61 million tons to 12.82 million by 2028/29. Vietnam's exports are expected to expand by 1.46 million tons, rising from 7.21 million tons to 8.67 million tons by 2028/29. In both Vietnam and Thailand, rice per capita food consumption declines slightly as rising incomes support shifts toward a more diversified diet with increasing meat consumption, especially poultry.
- Pakistan has exported 3.5 to 4.2 million tons of rice in recent years. Pakistan's rising consumption and weak production growth result in near-stable rice exports through the projection period, at 4.25 million tons, remaining the world's fourth-largest rice exporter.
- By 2021/22, Burma is expected to overtake the United States as the fifth largest rice exporting country, with exports reaching 4.0 million tons by 2028/29. Cambodia's exports are projected to expand as well, reaching 1.65 million tons by 2028/29. For both countries, expanding exports are largely driven by increased production.
- The United States is projected to be the world's fifth-largest rice exporter from 2021/22 to 2028/29. Expansion of U.S. rice exports is projected at less than 1 percent per year over the baseline, a result of slow production and stronger domestic use. The U.S. share of world rice exports is projected to decline from 6.5 to about 5.8 percent during the next decade. The United States exports both long-grain and medium- and short-grain rice. Exports from South America—primarily Argentina, Brazil, Guyana, Paraguay, and Uruguay—are projected to expand over the next decade, accounting for almost 7.4 percent of global trade.
- Australia's rice exports are stable over the projection period at 250,000 tons per year, a result of only slight growth in production, with area flat due to water limitations. Egypt's rice exports are steady throughout the projection period at just 20,000 tons per year. Exports are constrained as area is strictly limited by access to water and consumption steadily increases. Australia and Egypt export medium- and short-grain rice and are the primary U.S. export competitors for these rice classes.

Global exports: Soybeans, soybean meal, and soybean oil



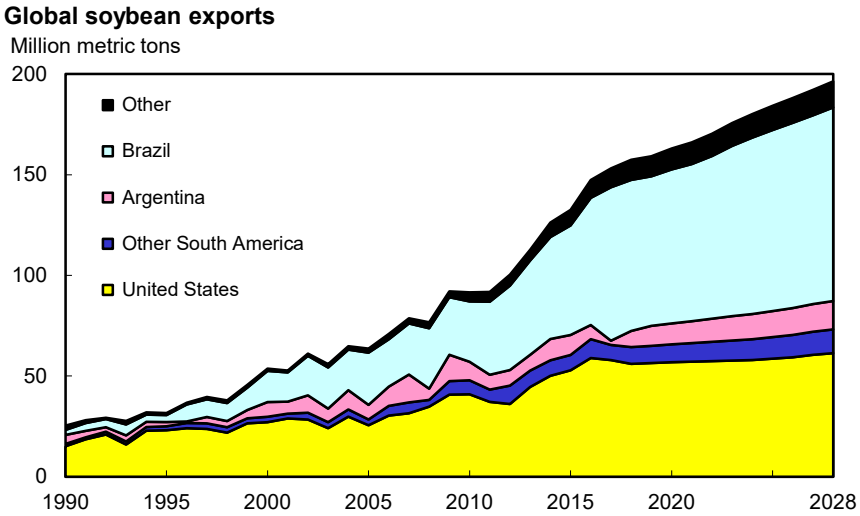
Increasing incomes and growing populations in developing countries, along with urbanization and development of modern food markets and outlets, are projected to boost demand for vegetable oils for food consumption and for protein meals used in livestock production. Global vegetable oil use for biodiesel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

- China remains the 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. The EU, India and China are the leading importers of palm oil from Indonesia and Malaysia. Indonesia will expand palm area for oil to meet demand for palm oil used in food and consumer products by those countries.
- Many countries with increasing feed demand and limited opportunities to expand oilseed production have invested in crushing capacity. China is the most prominent example, but countries in North Africa, the Middle East, and Southeast Asia are seeing similar developments. As a result, import demand for oilseeds has grown rapidly, and this growth is projected to continue. During the next decade, global soybean trade is projected to increase by 23.4 percent, soybean meal trade by 19 percent, and soybean oil trade by 23 percent.
- Brazil, the United States, and Argentina maintain over 87 percent of the world's aggregate exports of soybeans and soybean meal, and 69 percent of soybean oil throughout the projection period.
- Brazil's share of world exports of soybeans and soybean products climbs from 38 percent to 41.4 percent, as production expands faster than in any other soybean-exporting country. In Argentina, low production costs, reduced export taxes, and continuing exchange rate weakness are expected to encourage farmers to move more land into soybean production. Argentina's share of world exports of soybeans and soybean products (mostly products) is steady at 19.5 percent.
- The South American gains are projected to trim the U.S. share of global exports of soybeans and soybean products from 29.4 to 26 percent by 2028/29.
- 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 change little, while projected imports of soybean meal increase slightly.



World soybean trade is projected to rise rapidly during the next 10 years, climbing 37.2 million tons (23.4 percent) to 196 million tons. China increases soybean imports by 28.5 million tons by 2028/29 despite projections of slower gains in soybean meal consumption.

- China's soybean imports have risen steadily since the late 1990's. In 2017/18, China accounted for about 62 percent of world soybean trade. China's imports are projected to increase from 97.6 million tons in 2019/20 to 126 million tons in 2028/29, accounting for 76 percent of the increase in trade. The projections assume that China will continue to meet rising demand for edible vegetable oils and protein in feed by importing soybeans, while supporting domestic production of food and feed grains. (Note: these projections were developed in October 2018. See box, "China's Retaliatory Tariffs Affect Projections of Some Commodities.")
- Imports of soybeans by other countries in East Asia (Japan, South Korea, and Taiwan) are projected to increase slightly from 7.2 million tons in 2019/20 to 7.4 million by 2028/29. The region is projected to see a modest increase in livestock production that would expand soymeal imports from 3.6 million tons to 4.2 million tons by 2028/29, mostly by South Korea.
- Indonesian soybean imports increase by 25 percent to 3.7 million tons by 2028/29. 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 660,000 tons by 2028/29 to 3.9 million tons for increasing feed demand. Expanding crushing capacity would also raise Vietnam soybean imports by 33.8 percent to 3 million tons by 2028/29. Vietnam soybean meal imports also increase due to increasing feed demand.
- EU soybean imports have been stable near 14.6 million tons over the past five years due to decreases in internal EU grain prices and increases in grain and rapeseed meal feeding. EU soybean imports are projected to increase to 15.7 million tons in 2020/21, but then decline gradually to 14.9 million tons by 2028/29.
- Many countries in North Africa and the Middle East region have minimal soybean production, so to fill their growing feed and food needs, they increase imports from 11 million tons in 2019/20 to 14.1 million tons by 2028/29, a 28 percent increase. Egypt is projected to increase soybean and soybean meal imports in an effort to improve feed efficiency and expand poultry production.
- Mexico's soybean imports are projected to increase 15 percent, to 5.8 million tons by 2028/29. These imports will support the production of soybean meal for the growing poultry and pork industries and soybean oil for domestic food consumption.



The three leading soybean exporters—the United States, Brazil, and Argentina—are projected to account for about 87.7 percent of world soybean trade over the next decade.

- Brazil's soybean exports are projected to rise 22 million tons (29 percent) to 96.1 million tons during the projection period (2019/20 to 2028/29), 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.

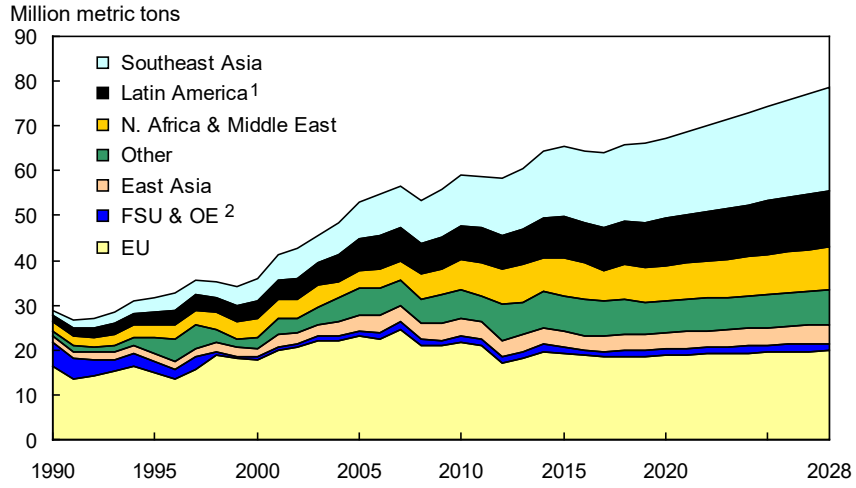
- By 2018/19, Argentina had ended its policy of a higher export tax rate for soybeans than for soybean products, which had favored domestic crushing of soybeans and exporting the resulting products. In response to a weak peso and increasing world demand for soybeans for crushing, Argentina's soybean exports are projected to grow 4 percent annually, rising about 42 percent to 14.1 million tons by 2028/29. 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 38.4 percent to 11.8 million tons by 2028/29, adding 3.3 million tons to world soybean exports.

- The U.S. share of global soybean exports is about 35.5 percent in 2019/20 and projected to decrease to 31.3 percent by 2028/29. U.S. soybean exports are projected to increase slightly from 56.5 million tons in 2019/20 to 61.4 million tons by 2028/29.

- Canada increases soybean exports from 5.7 million tons in 2019/20 to 7.6 million tons in 2028/29. Canada's soybean area has expanded beyond the traditional producing region of Southern Ontario to the prairies of Northeast 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. Projected soybean exports increase from 3 million tons in 2019/20 to 3.7 million tons by 2028/29.

Global soybean meal imports



[1] Includes Mexico. [2] Former Soviet Union and Other Europe; prior to 1999, includes Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia.

World soybean meal trade is projected to climb by 12.5 million tons (18.9 percent) to 78.5 million tons by 2028/29. In a number of countries, soybean meal imports are boosted by continued growth in livestock production and movement toward modern feed rations. Additionally, many countries have limited capability to increase domestic oilseed production.

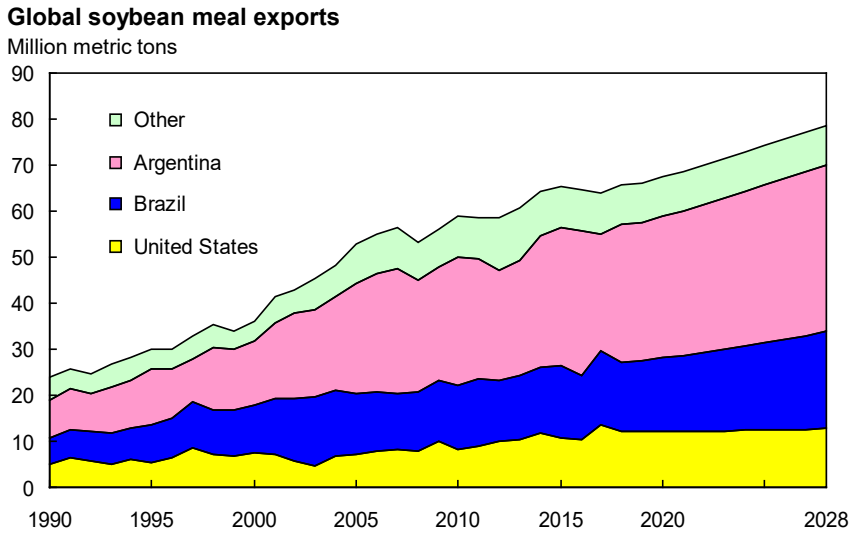
- The EU remains the world's largest soybean meal importer throughout the projection period increasing 6.1 percent to 19.8 million tons by 2028/29. Although abundant supplies of low-cost rapeseed meal are expected to be available as a result of EU biodiesel production, nutritional considerations limit the inclusion of rapeseed meal in some livestock rations.

- The regions of Southeast Asia, North Africa, the Middle East, and Latin America are projected to become larger importers of soybean meal due to 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 percent over the projection period), with an increase from 5.3 million tons in 2019/20 to 7.6 million tons by 2028/29. Indonesia, the Philippines, Thailand, and Malaysia increase to 15.3 million tons by 2028/29, adding 3.1 million tons to imports. Southeast Asia accounts for 44 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 1.7 million tons, accounting for 14 percent of the increase in world trade. Iran, Algeria, Egypt, and Saudi Arabia are the largest importers for these two combined regions. In 2019/20 these four countries are expected to account for about 46 percent of the region's imports.

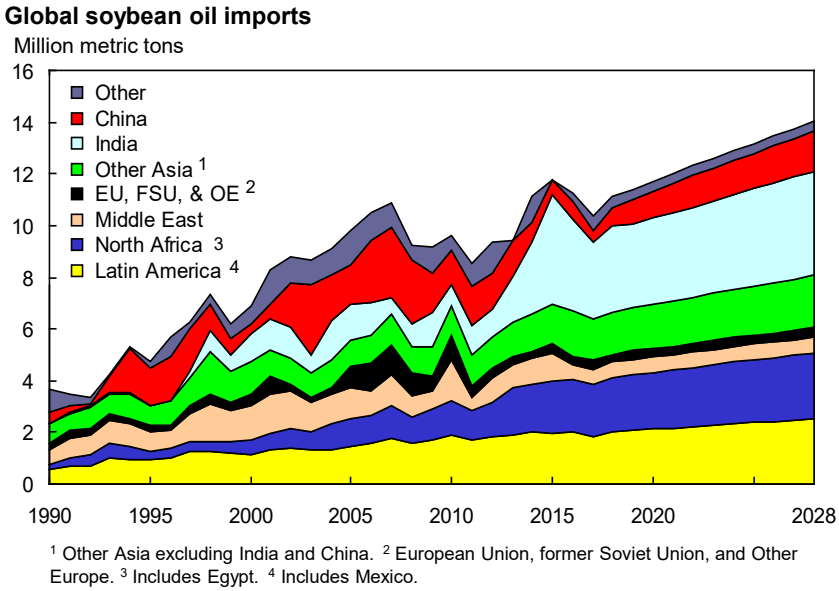
- Annual soybean meal imports by South American countries increase by 26 percent over the projection period from 5.6 million tons in 2019/20 to 7.1 million tons by 2028/29. Peru, Colombia, Ecuador, Chile, and Venezuela are among the largest importers.

- Mexico's growing demand for protein feed is expected to boost its annual soybean meal imports from 2.1 million to 2.5 million tons by 2028/29. Canada's soybean meal imports increase by 74,000 tons to 1.1 million tons, by 2028/29.



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 87 to 89 percent over the next decade. Argentina, Brazil, and United States account for 46, 27, and 16 percent, respectively, of the world market share of soybean meal exports by 2028/29. The U.S. share decreases a little over 2 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 2 percent per year. Argentina's annual soybean meal exports are projected to rise by 5.9 million tons over the next decade, reaching 36.1 million tons by 2028/29.
- 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 5.9 million tons (38.8 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 a robust demand for its soybean supply from China. Brazil's share of world soybean meal exports increases from 23 percent to almost 27 percent by 2028/29.
- U.S. soybean meal exports are projected to increase slightly to 12.7 million tons by 2028/29. The U.S. share of world soybean meal exports declines from 18.5 percent in 2019/20 to 16.2 percent by 2028/29.
- India's soybean meal exports declined beginning in 2013/14 as expanding domestic use and smaller harvests reduced export opportunities. Soybean meal exports decline from 1.4 million tons in 2019/20 to 600,000 tons by 2028/29. 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 300,000 tons through 2028/29.



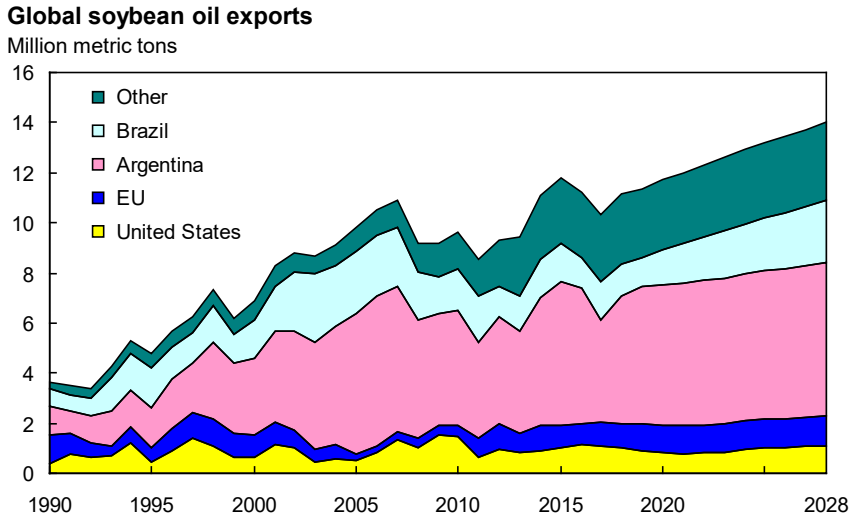
[1] Other Asia excluding India and China. [2] European Union, former Soviet Union, and Other Europe. [3] Includes Egypt. [4] Includes Mexico.

World soybean oil imports are projected to climb by 2.6 million tons (23 percent) over the projection period, reaching 14 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 surpassed China in 2013/14 to become the world's largest soybean oil importing country. India's soybean oil imports climb 25.3 percent, to 4 million tons in 2028/29. Factors contributing to the continued 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 growth of domestic oilseed production. Both Bangladesh and Pakistan increase imports over the projection period from a combined 890,000 tons to 1.06 million tons.

- 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 million tons by 2019/20 and continue to rise to 1.6 million tons by 2028/29. Imports by the Southeast Asia region increase by 65,000 tons to 339,000 tons by 2028/29. Vietnam, Malaysia, and the Philippines account for most of the soybean oil imports within Southeast Asia by 2028/29, at 139,000, 98,000 and 69,000 tons, respectively.

- 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 be stable at 0.5 million tons over the projection period to 2028/29. The Other North Africa and South America regions import 1.3 and 1.4 million tons in 2019/20, with both increasing by 0.3 million tons to 1.6 and 1.7 million tons by 2028/29, respectively. 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 America and Caribbean region increases imports from 0.5 million tons to 0.6 million tons by 2028/29. Mexico's imports increase slightly from 0.2 million tons in 2019/20 to 0.3 million tons by 2028/29 as consumption gains are fulfilled mostly by domestic soybean crushers.



Argentina, Brazil, 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 2028/29, Argentina, Brazil, and the United States are projected to account for 44, 18, and 8 percent of world soybean oil exports by 2028/29, respectively.

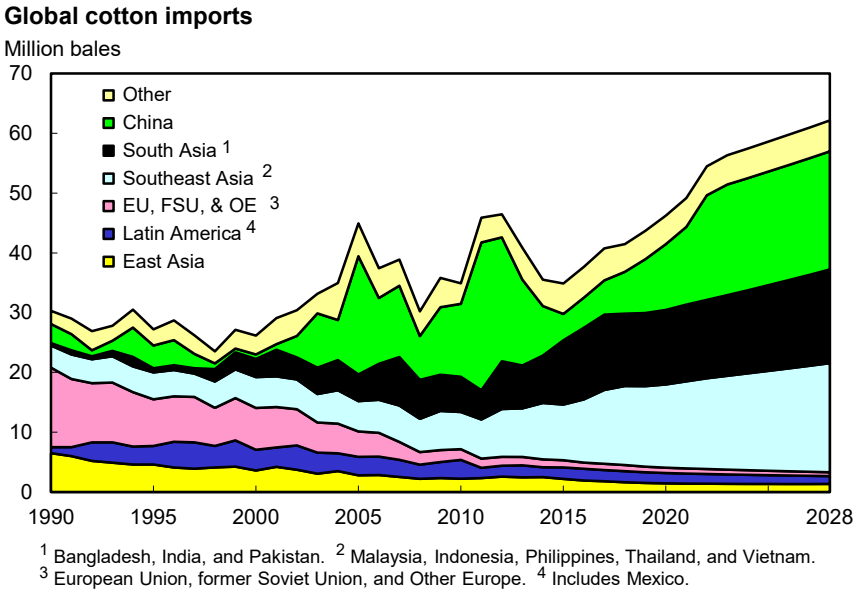
- Soybean oil exports from Argentina are projected to climb to 6.2 million tons by 2028/29, a 12-percent increase from 2019/20. Argentina's strength as a soybean oil exporter reflects the country's large crushing capacity and its small domestic market for soybean oil. Gains in Argentine soybean production 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 2019/20 are 1.1 million tons while continued expansion of soybean production into new areas of cultivation is expected to enable the country to increase soybean oil exports to 2.5 million tons by 2028/29. 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 1.1 million tons in 2028/29. The United States is expected to be the world's fourth-largest soybean oil exporter, with 7.9 percent of global trade.

- The EU increases soybean oil exports from 1.1 million tons in 2019/20 to 1.2 million tons by 2028/29, accounting for 8.3 percent of global trade. The FSU region maintains stable soybean oil exports at 0.7 million tons over the projection period.

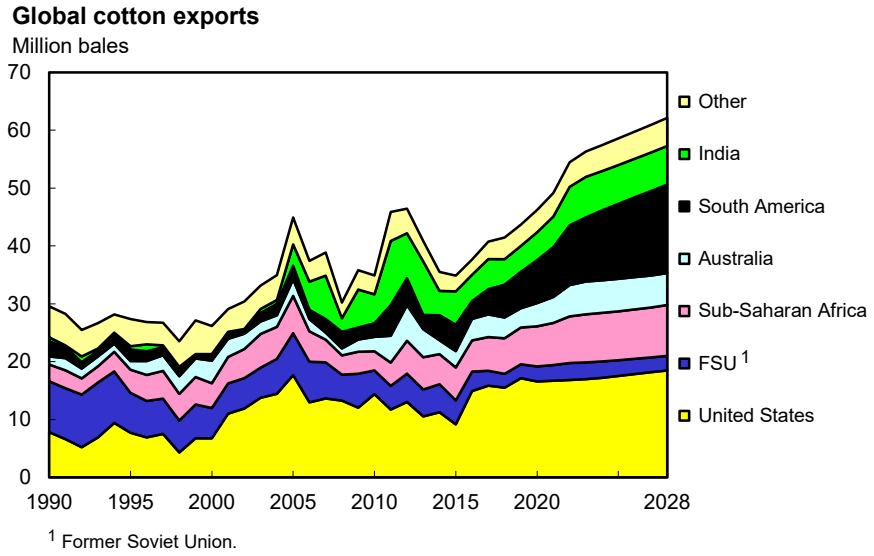
- Soybean oil exports by South American countries other than Argentina and Brazil are projected to increase by 0.26 million tons, with exports of 1.3 million metric tons by 2028/29. Paraguay and Bolivia are the largest soybean oil exporters in South America after Argentina and Brazil.



[1] Bangladesh, India, and Pakistan. [2] Malaysia, Indonesia, Philippines, Thailand, and Vietnam.
[3] European Union, former Soviet Union, and Other Europe. [4] Includes Mexico.

A rebound in China's cotton imports is expected to drive growth in world cotton trade, as volume rises at a 4 percent annual growth rate between 2019/20 and 2028/29. World cotton trade rises with the completion of China's disposal of its large reserve stocks, prompting a resumption of large imports there. Projected world cotton trade surpasses the 46.4-million-bale record set in 2012/13, reaching 62.1 million bales in 2028/29.

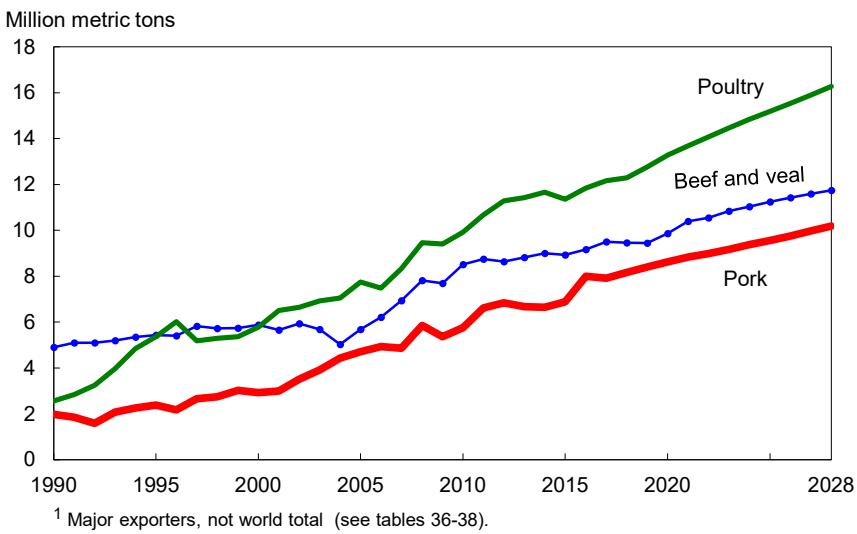
- China's cotton imports are expected to increase throughout the next decade with stronger growth in the first half of the projection period. China's cotton imports are expected to expand 9 percent per year during the projection period. China increases imports by about 10.8 million bales with imports at 19.8 million bales in 2028/29. The growth in China's cotton imports follows 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, India, and Pakistan will restrain China's growth.
- Vietnam is projected to be the second-largest importer in 2020/21 as its textile industry grows rapidly, with imports reaching 12.7 million bales by 2028/29. Vietnam's cotton imports increased more than six-fold over the past 12 years and are projected to account for 25 percent of the world's increased imports to 2028/29. Vietnam's textile sector and cotton imports are expected to grow 5.1 percent annually through 2028/29.
- Bangladesh, Indonesia, Turkey, and Pakistan are expected to be the third-, fourth-, fifth-, and sixth-largest cotton importers by 2028/29. Bangladesh became the world's largest cotton importer in 2015/16, but is projected to be surpassed once again by China in 2019/20 and then by Vietnam in 2020/21. Indonesia's cotton imports increase and surpass Turkey's import level in 2018/19. Indonesia becomes the fourth largest cotton importer throughout the projection period. Indonesia projected imports grow at 1 percent annually reaching 4 million bales by 2028/29. Turkey's share of world consumption has weakened recently, but imports are expected to increase slightly through the projection period to 3.7 million bales by 2028/29.
- Pakistan's cotton imports and exports are both projected to slightly increase by 2028/29. Mexico, EU, Thailand, Taiwan, FSU, South Korea, and Japan, all decrease imports slightly throughout the projection period, with a combined decrease of 1 million bales by 2028/29.



Raw cotton production is expected to continue moving to countries with favorable resource endowments and advancing production technologies. Expanded cotton output is projected for 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 (20 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 (15 percent). The United States remains the world's leading cotton exporter, increasing exports marginally (0.9 percent annually) to 18.5 million bales by 2028/29. However, the U.S. share of world cotton trade falls to 30 percent by 2028/29, compared with 40 percent in 2016/17.
- Area planted to cotton in Brazil is projected to expand in Bahia and Mato Grosso regions with continuing yield growth as well. Brazil's cotton exports are projected to increase by 8.8 million bales by 2028/29, corresponding to a 10.5-percent annual growth rate, the largest projected growth rate among the world's major exporters. Brazil became the world's second-ranking cotton exporter in 2018/19 and remains second through the projection period.
- India's cotton exports grow by 4.5 percent annually, reaching 6.7 million bales in 2028/29. Improved yields in India raised India's production and exports, although bollworm resistance issues have hampered yields in recent years. Projected yield growth in India reflects continuing improvement in cultivation practices and stabilization of insect problems. India became the third largest exporter in 2018/19 as Brazil exports surpassed India's. India is expected to remain 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 4 percent annual growth in the next decade. Improvements in technical and financial infrastructure will help boost production and exports. Exports from the other countries in Sub-Saharan Africa are projected to increase 2.7 percent annually. Sub-Saharan Africa is expected to add 2.4 million bales to trade and account for 14.5 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 rebound slightly during the first half of the projection before declining. FSU exports (entirely from Central Asia) increase 0.5 percent annually, with only 2.5 million bales exported by 2028/29, which is far below the peak exports of 7.3 million bales in 2005/06.

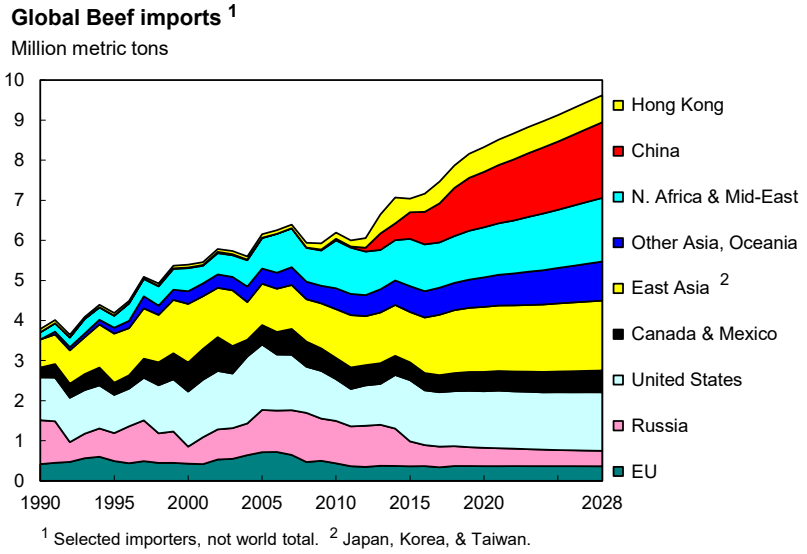
Global Meat exports [1]



[1] Major exporters, not world total (see tables 36-38).

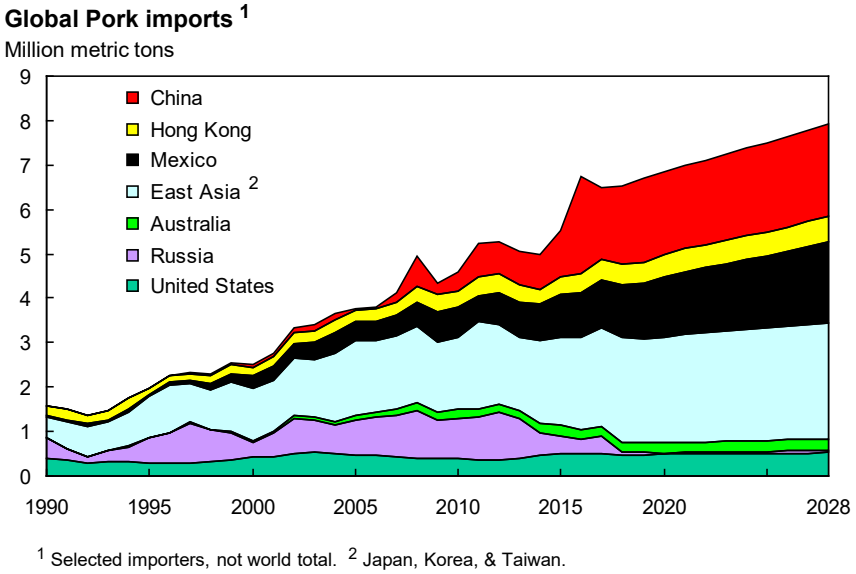
Growth in global meat consumption is projected to continue over the coming decade, leading many countries to increase meat exports. Poultry consumption rises the fastest, with a projected annual growth rate of 2.0 percent, followed by pork (1.2 percent) and beef (1.0 percent). Meat shipments by the major exporting countries rise by 2.5 percent per year, an increase of 7.5 million tons by 2028. Over the projection period, poultry exports rise by 3.4 million tons (2.7 percent annually), beef exports rise by 2.3 million tons (2.5 percent annually), and pork exports rise by 1.7 million tons (2.1 percent annually).

- Brazil is the largest exporter of poultry products followed by the United States, the EU, and Thailand. Brazil's exports increase by 52 percent, reaching 5.9 million tons by 2028. Brazil accounts for 59 percent of the global increase in poultry exports. The United States increases exports by 8.5 percent over the projection period to 3.8 million tons by 2028. The third-largest exporter, the EU, remains relatively stable near 2.1 million tons from 2019 through 2028. Thailand's projected poultry exports increase by 50 percent and reach 1.4 million tons by 2028.
- Brazil and India currently vie for the world's largest annual beef exporter, following a decade and a half of rapid export growth. Brazil is projected to export 2.2 million tons of beef in 2019, increasing by 700,000 tons to reach 2.9 million tons by 2028. Expanded access to existing markets for Brazilian beef enables it to outpace Indian beef exports through 2028. Indian beef exports increase from 1.6 million tons in 2019 to 2.05 million tons by 2028. Developing countries' demand for India's lower priced carabeef (from buffalos) is projected to continue rising rapidly. Australia is the third-largest beef exporter, historically among the top tier, with projected exports increasing to 1.6 million tons by 2028, adding 102,000 tons to world exports. Australia's beef herd will move into the rebuilding phase under the assumption of normal weather. The United States remains the fourth-largest beef exporter throughout the projection period, providing mainly higher valued cuts from grain-fed beef to a number of countries. U.S. beef exports increase by 74,840 tons over the projection period, reaching 1.55 million tons by 2028.
- The EU, the United States, Canada, and Brazil are the world's largest pork exporters. EU pork exports increase by 904,000 tons over the projection period, reaching 4.05 million tons by 2028. U.S. pork exports expand by almost 10 percent over the projection period, increasing from 2.81 million tons in 2019 to 3.08 million tons by 2028. Canada's pork exports reach 1.56 million tons by 2028, adding 198,000 tons over the projection period.



Between 2019 and 2028, imports by the major beef-importing countries are projected to increase by 1.6 million tons, reaching 10.5 million tons in 2028. 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.

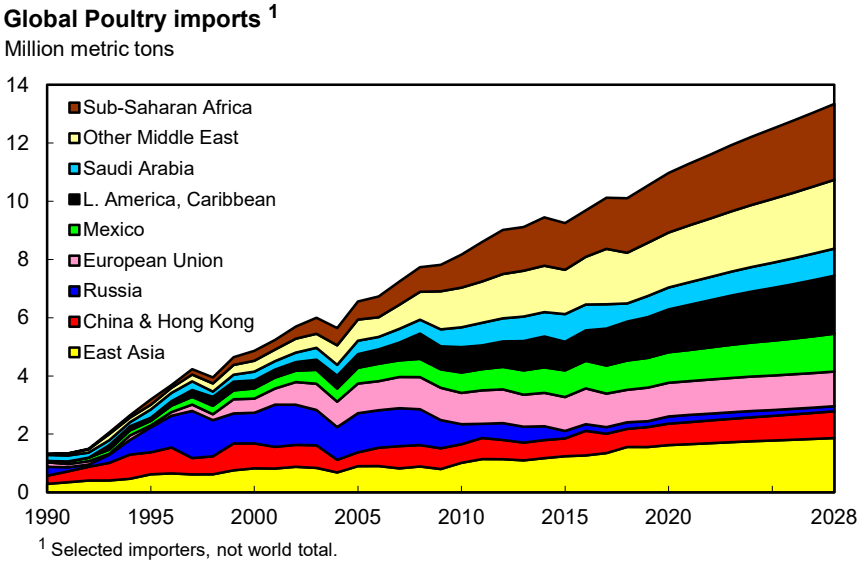
- Russian beef imports are projected to decrease from 470,000 tons in 2019 to 385,000 tons by 2028. Russian beef imports fall over the projection period due to declining consumption and policies supporting domestic beef production.
- The combined beef imports by China and Hong Kong are projected to increase 33 percent in the coming decade to 2.56 million tons by 2028 due to rising demand for beef which outpaces domestic production growth. This increase accounts for the largest growth in imports among major beef-importing countries. China's beef imports increase from 1.32 million tons in 2019 to 1.89 million tons by 2028, becoming the world's largest importer by 2021.
- U.S. beef imports of primarily grass-fed, lean beef for use in ground beef and processed products gradually rise throughout the projection period. With beef imports up by almost 4 percent over the next decade, the United States is projected to be the world's second largest beef importer by the end of the projection period at 1.46 million tons.
- The Middle East and North Africa region (including Egypt), with fast population and income growth, is projected to increase beef imports from 1.22 million tons in 2019 to 1.59 million by 2028, at an average annual growth rate of 3 percent.
- Mexico will increase beef imports by 60,000 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 2.7 percent annually from 220,000 tons in 2019 to 280,000 tons by 2028. Other Latin America will increase imports by 121,600 tons over the projection period, from 592,000 tons in 2019 to 714,000 tons by 2028, with an average annual increase of 2.1 percent.
- Southeast Asia countries maintain strong income growth, leading to an average annual growth rate of 3 percent increase in their beef imports, from 497,000 tons in 2019 to 645,000 tons by 2028. Adding 150,000 tons to global beef import demand over the projection. Malaysia, Philippines, and Indonesia, exhibit the largest increase in imports over the projection period in Southeast Asia. Other Asia and Oceania (excluding South East and East Asia) increases imports by 121,500 tons, a 59 percent increase over the projection period to 329,000 by 2028.



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

Imports by major pork importing countries are projected to continue to rise, increasing by 1.90 million tons (23 percent) from 2019 to 2028. Mexico, China, the Philippines, Japan, and South Korea exhibit the largest increase in pork imports over the projection period, accounting for almost 65 percent of the increase, adding a combined 1.23 million tons of pork imports by 2028.

- China became the world's largest pork importer in 2016 and is projected to continue as the world's largest importer through 2028. China's annual pork imports have risen sharply since 2009 and are projected to increase by about 12 percent from 2019 to 2028 to almost 2.09 million tons. China increases pork imports by 224,000 tons over the projected decade.
- Mexico becomes the world's second largest pork importer by 2026, surpassing Japan. Imports climb from 1.24 million tons in 2019 to 1.82 million tons by 2028. Income and population growth are the primary drivers of Mexico's rising pork demand. Mexico accounts for 31 percent of the projected increase in world pork imports among major importers.
- Japan is projected to become the third largest importer by 2026 after China and Mexico. Japan's pork imports increase by 157,500 tons over the projection period and reach 1.68 million tons by 2028. Japan's imports increase by 10 percent from 2019 through 2028, due to almost flat domestic production and slight growth in consumption.
- Russia's pork imports are projected to increase 23 percent from 2019 to 2028, reaching 49,000 tons. Russia's pork imports have fallen substantially since 2012, reflecting policies to stimulate domestic meat production and reduce reliance on imports.
- South Korea increases pork imports to satisfy demand for selected cuts, with imports rising by over 14 percent over the projection period to reach 782,000 tons, adding 97,400 tons to annual pork imports. The Philippines is projected to increase pork imports by 56 percent, from 300,000 tons in 2019 to 469,000 tons by 2028, a 169,000-ton increase. Other Asia and Oceania increases by 27 percent, from 428,000 tons in 2019 to 546,000 tons by 2028.
- Increasing income and population growth drive strong demand for imported pork in Central America and the Caribbean. Imports rise by 120,200 tons or 48 percent over the coming decade, reaching 371,000 tons by 2028.



Annual poultry meat imports by the major importing countries are projected to increase by 3.5 million tons (28 percent), reaching nearly 15.8 million tons by 2028. Substantial growth is expected from emerging market nations in the Sub-Saharan Africa, the Middle East, Latin America, and Asia. This includes countries such as Mexico, the Philippines, Saudi Arabia, Japan, and China. A decline in poultry meat imports is projected for Russia. Slow import growth is projected for EU, Japan, and Canada.

- Poultry meat imports by the regions of Africa and the Middle East are projected to grow by 36 percent and 28 percent, respectively, over the coming decade. By 2028, these regions together increase their poultry meat imports by 1.34 million tons. Projected gains in income and population boost demand, while ongoing animal-disease issues in a number of countries are expected to limit domestic production growth, thus leading to increased imports.
- Higher projected incomes in Mexico, Central America, and the Caribbean generate their growing poultry meat demand and 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 imports rising by about 279,000 tons (27 percent). Poultry imports by the Central America and Caribbean region rise by 356,000 tons (44 percent), reaching 1.2 million tons by 2028.
- Russia's substantial decline in poultry imports since 2014 is projected to continue, as imports fall steadily over the projection period to 175,000 tons (a 13 percent decrease from 2019). The projections assume that Russian policies will stimulate domestic production and thereby limit imports.
- China's rising consumption of poultry meat is met primarily by domestic production, with imports accounting for only about 2 percent of consumption. However, China's poultry imports increase by 38 percent, reaching 599,000 tons by 2028. China is projected to be a net poultry importer from 2018 through 2028.
- 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 50 percent from 2019 to 2028, reaching 1.4 million tons.

Table 25. Coarse grains trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million metric tons						
Importers												
Former Soviet Union[1]	0.8	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Other Europe	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
European Union[2]	18.9	20.9	18.9	18.0	17.8	17.7	17.8	17.8	18.0	18.0	18.1	18.2
Egypt	9.4	9.7	10.1	10.7	11.1	11.5	12.0	12.4	13.0	13.5	14.0	14.6
Iran	11.5	11.5	12.4	12.9	13.4	13.9	14.3	14.7	15.1	15.4	15.6	15.9
Saudi Arabia	12.1	12.6	13.4	13.7	14.1	14.5	14.8	15.2	15.5	15.9	16.3	16.6
Turkey	3.7	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.3	2.3
Other Middle East	6.9	6.2	6.9	7.0	7.1	7.3	7.4	7.6	7.7	7.9	8.0	8.1
Morocco	3.0	2.8	3.1	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.6	3.7
Other North Africa	7.5	7.4	7.7	7.9	8.1	8.3	8.5	8.8	9.0	9.2	9.4	9.6
West Africa (ECOWAS)[3]	0.6	0.8	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.2	1.2
Sub-Saharan Africa[4]	3.0	3.3	3.5	3.6	3.7	3.7	3.8	3.9	4.0	4.1	4.2	4.3
South Africa	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Japan	17.1	16.8	17.1	17.2	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0
South Korea	10.2	10.4	10.5	10.5	10.6	10.7	10.7	10.8	10.8	10.9	10.9	11.0
Taiwan	4.2	4.1	4.2	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
China	17.1	16.9	17.4	18.0	18.5	19.1	19.5	20.1	20.7	21.2	21.7	22.3
Indonesia	0.6	0.6	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.2
Malaysia	3.5	4.0	4.1	4.2	4.2	4.3	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	0.8	0.8	0.8	0.8	0.8
Thailand	0.7	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2
Vietnam	8.8	9.5	10.5	11.0	11.4	11.9	12.3	12.8	13.3	13.9	14.4	14.9
Other Asia & Oceania	3.2	3.6	4.0	4.3	4.6	4.9	5.1	5.4	5.6	5.9	6.2	6.5
Canada	1.7	0.6	0.9	0.8	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7
Mexico	16.5	18.3	19.4	20.0	20.7	21.3	21.8	22.4	23.2	23.8	24.5	25.1
Central America & Caribbean	6.7	7.0	7.4	7.6	7.8	7.9	8.1	8.3	8.6	8.8	8.9	9.2
Brazil	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Other South America	13.2	13.5	14.3	14.8	15.2	15.6	16.2	16.6	17.1	17.6	18.1	18.6
Other foreign[5]	-1.4	8.2	3.0	3.0	3.0	2.8	2.7	2.6	2.5	2.4	2.3	2.2
United States	3.7	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Total trade	186.3	199.7	201.5	205.4	209.6	214.2	218.6	223.2	228.1	232.7	237.3	241.9
						Exports, million metric tons						
Exporters												
European Union[2]	7.9	7.3	7.4	7.5	7.6	7.7	8.0	8.3	8.5	8.7	8.9	9.1
Other Europe	0.9	2.8	2.4	2.4	2.4	2.5	2.6	2.6	2.7	2.7	2.7	2.8
Russia	11.5	7.5	9.9	10.4	10.7	11.1	11.4	11.7	11.9	12.1	12.4	12.6
Ukraine	23.0	29.5	27.7	28.7	29.5	30.2	30.9	31.6	32.0	32.6	33.2	33.9
Other Former Soviet Union[6]	2.0	2.6	2.7	2.7	2.8	2.9	2.9	2.9	3.0	3.0	3.1	3.1
Canada	5.8	5.6	5.9	6.1	6.4	6.7	7.0	7.2	7.5	7.8	8.0	8.2
Argentina	26.1	30.3	30.4	31.0	31.8	32.4	32.8	33.4	33.9	34.3	34.8	35.3
Brazil	22.0	29.0	31.1	32.0	32.7	34.2	35.8	37.3	38.8	40.0	41.2	42.4
Other South America	2.2	2.5	2.5	2.6	2.6	2.6	2.7	2.7	2.7	2.8	2.8	2.9
Australia	7.8	7.7	8.1	8.2	8.4	8.6	8.7	8.9	9.2	9.4	9.7	9.9
Other Asia and Oceania	4.1	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.5	3.5
South Africa	2.3	1.9	1.5	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Other Africa[7]	1.8	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Other foreign	1.7	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0
United States	67.3	66.8	65.6	66.2	66.8	67.5	68.1	68.7	70.0	71.3	72.6	73.8
						Percent						
U.S. trade share	36.1	33.5	32.5	32.2	31.9	31.5	31.2	30.8	30.7	30.6	30.6	30.5

[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 2018.

Table 26. Corn trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million metric tons						
Importers												
European Union[1]	18.0	19.5	17.9	17.1	17.0	17.0	17.0	17.0	17.2	17.3	17.3	17.4
Former Soviet Union[2]	0.5	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Egypt	9.4	9.7	10.1	10.7	11.0	11.5	12.0	12.4	12.9	13.5	14.0	14.5
Morocco	2.6	2.6	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.2	3.3	3.4
Other North Africa	5.9	6.3	6.5	6.6	6.8	7.0	7.2	7.4	7.6	7.8	8.0	8.2
Iran	8.3	8.5	9.0	9.4	9.8	10.1	10.5	10.7	11.0	11.1	11.3	11.5
Saudi Arabia	4.0	5.0	5.4	5.6	5.8	6.0	6.1	6.3	6.5	6.7	6.8	7.0
Turkey	2.9	2.2	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2
Other Middle East	4.6	4.3	4.4	4.5	4.5	4.6	4.7	4.8	4.8	4.9	4.9	5.0
Japan	15.2	15.0	15.2	15.3	15.3	15.2	15.2	15.1	15.1	15.1	15.1	15.0
South Korea	10.0	10.2	10.3	10.4	10.4	10.5	10.6	10.6	10.7	10.7	10.8	10.8
Taiwan	4.1	4.0	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
China	4.0	5.0	5.4	5.6	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2
Indonesia	0.6	0.6	0.7	0.8	0.9	0.9	0.9	1.0	1.0	1.1	1.2	1.2
Malaysia	3.5	4.0	4.1	4.2	4.2	4.3	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	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	1.1	1.1	1.2
Vietnam	8.8	9.5	10.5	11.0	11.4	11.9	12.3	12.8	13.3	13.9	14.4	14.9
Other Asia & Oceania	1.0	1.2	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6
Canada	1.7	0.5	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6
Mexico	16.2	16.7	17.7	18.3	18.9	19.6	20.1	20.7	21.5	22.1	22.7	23.3
Central America & Caribbean	6.7	6.9	7.2	7.5	7.6	7.9	8.0	8.2	8.5	8.7	8.9	9.1
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	12.5	12.8	13.5	13.9	14.3	14.7	15.2	15.6	16.1	16.5	17.0	17.5
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
West Africa (ECOWAS)[3]	0.6	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.1	1.1	1.1	1.2
Sub-Saharan Africa[4]	2.3	2.5	2.6	2.6	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.2
Other foreign[5]	0.8	11.1	6.4	6.3	6.4	6.3	6.3	6.4	6.4	6.4	6.4	6.5
United States	0.9	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Total trade	147.1	163.0	162.9	165.9	169.2	172.8	176.4	179.9	183.8	187.5	191.3	195.0
						Exports, million metric tons						
Exporters												
European Union[1]	1.7	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Argentina	23.0	27.0	27.3	27.8	28.6	29.2	29.5	30.1	30.6	31.0	31.4	31.8
Brazil	22.0	29.0	31.1	31.9	32.7	34.2	35.8	37.3	38.7	40.0	41.2	42.3
Other South America	2.1	2.2	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.7
South Africa	2.3	1.9	1.5	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Other Africa	1.4	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.7
Other Europe	0.8	2.7	2.3	2.3	2.3	2.4	2.5	2.5	2.6	2.6	2.6	2.7
Ukraine	18.5	25.0	23.0	23.9	24.6	25.2	25.9	26.5	27.0	27.5	28.1	28.8
Former Soviet Union[2]	6.0	3.5	5.0	5.2	5.4	5.5	5.7	5.8	5.9	6.1	6.2	6.3
Other foreign	7.4	6.5	6.5	6.5	6.5	6.5	6.5	6.6	6.6	6.6	6.6	6.6
United States	61.9	62.9	61.6	62.2	62.9	63.5	64.1	64.8	66.0	67.3	68.6	69.9
						Percent						
U.S. trade share	42.1	38.6	37.8	37.5	37.2	36.7	36.4	36.0	35.9	35.9	35.9	35.8

[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 2018.

Table 27. Sorghum trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
Importers	*Imports, million metric tons*											
Japan	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Mexico	0.1	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
South America	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Sub-Saharan Africa[1]	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1
China	4.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Other[2]	1.1	1.0	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Total trade	7.1	6.2	6.2	6.3	6.3	6.3	6.4	6.4	6.5	6.5	6.6	6.6
Exporters	*Exports, million metric tons*											
Argentina	0.5	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4
Australia	0.7	1.4	1.6	1.6	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.8
Other foreign	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
United States	5.2	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
	Percent											
U.S. trade share	73.4	61.8	61.2	60.9	60.5	60.2	59.7	59.3	59.0	58.6	58.1	58.0

[1]Includes South Africa.

[2]Includes unaccounted.

The projections were completed in October 2018.

Table 28. Barley trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
	Imports, million metric tons											
Importers												
Former Soviet Union[1]	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Europe	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Japan	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
China	8.2	9.5	9.5	9.8	10.1	10.5	10.8	11.2	11.5	11.8	12.1	12.4
Brazil	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Latin America[2]	0.6	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.8
Saudi Arabia	8.0	7.6	8.0	8.2	8.3	8.5	8.7	8.8	9.0	9.2	9.4	9.6
Iran	3.2	3.0	3.4	3.5	3.6	3.7	3.8	4.0	4.1	4.2	4.3	4.4
Turkey	0.8	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.1
Other Middle East	1.9	1.6	2.1	2.2	2.2	2.3	2.3	2.4	2.5	2.6	2.6	2.7
Morocco	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other North Africa	1.6	1.1	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Other foreign[3]	1.2	1.2	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0
United States	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total trade	28.9	27.5	29.1	29.8	30.5	31.4	32.1	32.9	33.7	34.4	35.2	35.9
	Exports, million metric tons											
Exporters												
European Union[4]	5.9	5.3	5.5	5.5	5.5	5.6	5.8	6.1	6.2	6.4	6.5	6.7
Argentina	2.6	2.8	2.9	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.1	3.1
Australia	6.5	5.8	5.9	6.0	6.2	6.3	6.4	6.6	6.8	7.0	7.3	7.4
Canada	2.0	2.2	2.4	2.5	2.7	2.9	3.1	3.3	3.6	3.7	3.9	4.0
Russia	5.9	4.5	5.3	5.6	5.7	6.0	6.1	6.3	6.4	6.4	6.6	6.7
Ukraine	4.3	4.3	4.5	4.6	4.7	4.8	4.8	4.8	4.9	4.9	4.9	4.9
Other Former Soviet Union[5]	1.5	2.2	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5	2.6
Turkey	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Other foreign	0.1	0.3	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	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3

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

[2]Includes Mexico.

[3]Includes unaccounted.

[4]Excludes intra-EU trade.

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

The projections were completed in October 2018.

Table 29. Wheat trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million metric tons						
Importers												
Iran	0.2	0.5	1.8	1.5	1.2	1.0	0.9	0.7	0.7	0.6	0.5	0.5
Iraq	4.1	3.5	3.9	4.0	4.2	4.3	4.4	4.6	4.8	4.9	5.1	5.3
Turkey	6.2	4.5	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1
Saudi Arabia	3.4	3.4	3.5	3.6	3.7	3.9	4.0	4.1	4.2	4.3	4.4	4.5
Other Middle East	11.3	11.5	11.5	11.7	11.8	12.0	12.2	12.4	12.6	12.8	13.1	13.3
Morocco	3.7	3.0	4.5	4.5	4.5	4.5	4.5	4.6	4.6	4.6	4.6	4.6
Egypt	12.4	12.5	12.7	12.8	13.1	13.2	13.6	13.8	14.1	14.4	14.6	15.0
Other North Africa	11.4	10.4	10.5	10.6	10.8	10.8	11.0	11.2	11.3	11.4	11.5	11.7
Nigeria	5.1	5.2	5.3	5.5	5.7	5.9	6.1	6.2	6.4	6.6	6.7	6.9
Other West Africa (ECOWAS)[1]	4.2	4.3	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3
South Africa	2.1	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8
Other Sub-Saharan Africa[2]	14.1	14.3	14.8	15.4	16.1	16.8	17.4	18.0	18.7	19.3	19.8	20.4
Mexico	5.2	5.6	5.4	5.6	5.6	5.7	5.8	5.8	5.8	5.9	5.9	6.0
Cuba	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
Central America & Caribbean	3.3	3.4	3.4	3.5	3.6	3.7	3.7	3.7	3.8	3.8	3.9	3.9
Brazil	7.0	7.5	7.6	7.6	7.7	7.8	7.9	8.0	8.0	8.1	8.2	8.3
Other South America	8.6	8.8	8.7	8.9	9.0	9.3	9.5	9.8	9.9	10.1	10.2	10.4
European Union[3]	5.8	6.0	6.1	6.2	6.2	6.2	6.1	6.1	6.1	6.1	6.1	6.1
Other Europe	1.9	1.9	1.9	1.9	1.9	1.8	1.7	1.7	1.6	1.6	1.5	1.5
Former Soviet Union[4]	8.2	8.3	8.5	8.5	8.6	8.8	8.9	9.0	9.0	9.2	9.3	9.4
China	4.0	4.5	4.6	4.6	4.7	4.8	4.9	4.9	5.1	5.3	5.5	5.6
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	5.9	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.7	5.7	5.7	5.7
South Korea	4.3	4.1	4.5	4.7	4.8	4.8	4.9	4.9	5.0	5.0	5.1	5.1
Taiwan	1.3	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.7	1.7
India	1.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
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	6.2	6.5	6.8	7.1	7.4	7.6	7.8	8.0	8.2	8.4	8.6	8.9
Philippines	6.0	5.8	6.0	6.2	6.4	6.6	6.8	7.0	7.2	7.3	7.5	7.8
Indonesia	10.5	10.5	10.8	11.1	11.4	11.8	12.1	12.4	12.8	13.2	13.5	13.9
Malaysia	1.6	1.7	1.8	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.2
Thailand	3.1	3.3	3.5	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.5	4.6
Vietnam	4.7	4.8	5.0	5.1	5.2	5.4	5.5	5.5	5.7	5.8	5.9	6.0
Other Asia & Oceania	6.5	7.2	6.4	6.6	6.7	6.9	7.1	7.2	7.3	7.5	7.6	7.8
Other foreign[5]	2.4	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
United States	4.3	3.8	3.5	3.8	3.7	3.5	3.5	3.5	3.3	3.3	3.3	3.3
Total trade	181.3	180.4	185.0	188.9	192.3	196.0	199.4	202.7	206.3	209.9	213.6	217.7
						Exports, million metric tons						
Exporters												
European Union[3]	23.3	23.0	29.1	30.2	31.1	32.0	33.0	34.0	35.0	36.0	37.1	38.0
Canada	22.0	24.0	22.1	22.5	22.8	23.1	23.3	23.6	24.0	24.3	24.7	25.0
Australia	14.5	13.0	17.1	18.3	18.6	19.0	19.3	19.4	19.6	19.8	20.1	20.3
Argentina	12.0	14.2	12.6	13.2	13.6	14.1	14.5	14.8	15.3	15.8	16.3	16.8
Russia	41.4	35.0	30.8	31.8	32.6	33.4	34.0	34.7	35.5	36.1	36.8	37.4
Ukraine	17.8	16.5	18.4	19.2	19.7	20.3	20.9	21.6	22.0	22.7	23.3	23.9
Other Former Soviet Union[6]	9.4	9.5	9.6	9.7	9.7	9.8	9.9	10.0	10.0	10.1	10.2	10.3
Other Europe	1.0	1.7	1.4	1.4	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3
India	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5
China	1.0	1.2	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.7
Turkey	6.2	6.0	6.1	6.1	6.2	6.3	6.3	6.4	6.5	6.6	6.7	6.8
Other foreign	7.8	7.9	7.4	7.4	7.5	7.5	7.6	7.7	7.7	7.8	7.8	7.8
United States	24.5	27.9	28.6	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.2	27.9
						Percent						
U.S. trade share	13.5	15.5	15.4	14.4	14.2	13.9	13.6	13.4	13.2	13.0	12.7	12.8

[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 2018.

Table 30. Rice trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million metric tons						
Importers												
Canada	0.37	0.38	0.38	0.39	0.39	0.40	0.40	0.40	0.41	0.41	0.41	0.42
Mexico	0.85	0.88	0.89	0.90	0.91	0.92	0.94	0.96	0.98	0.99	1.01	1.03
Cuba	0.46	0.55	0.55	0.54	0.54	0.53	0.53	0.52	0.52	0.52	0.52	0.52
Central America/Caribbean	1.28	1.37	1.38	1.43	1.46	1.48	1.51	1.55	1.59	1.62	1.66	1.69
Brazil	0.68	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Other South America	1.22	1.18	1.16	1.22	1.23	1.24	1.25	1.26	1.27	1.27	1.27	1.28
European Union[1]	2.00	2.00	2.08	2.14	2.21	2.27	2.34	2.38	2.42	2.46	2.51	2.55
Former Soviet Union[2]	0.58	0.62	0.60	0.61	0.61	0.61	0.61	0.61	0.61	0.60	0.60	0.60
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	3.20	1.20	1.09	1.00	0.99	0.97	0.97	0.96	0.94	0.93	0.92	0.91
China	5.50	5.00	4.86	4.76	4.69	4.61	4.58	4.54	4.51	4.47	4.43	4.41
Japan	0.69	0.69	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68	0.68
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	2.00	1.20	1.14	1.15	1.15	1.15	1.16	1.16	1.14	1.12	1.10	1.07
Malaysia	0.90	1.00	1.01	1.01	1.01	1.02	1.02	1.03	1.03	1.03	1.03	1.03
Philippines	1.30	1.80	1.66	1.66	1.65	1.65	1.65	1.65	1.65	1.64	1.64	1.63
Other Asia & Oceania	3.51	3.29	3.28	3.32	3.37	3.39	3.43	3.46	3.49	3.52	3.55	3.58
Iraq	1.15	1.30	1.25	1.29	1.33	1.37	1.41	1.44	1.49	1.53	1.58	1.63
Iran	1.30	1.40	1.51	1.51	1.52	1.54	1.55	1.56	1.58	1.58	1.59	1.59
Saudi Arabia	1.25	1.30	1.33	1.37	1.40	1.45	1.50	1.54	1.58	1.62	1.66	1.70
Other N. Africa & M. East	3.32	3.79	4.07	4.19	4.28	4.36	4.45	4.51	4.59	4.67	4.73	4.80
Nigeria	2.60	3.00	3.24	3.39	3.57	3.73	3.86	4.01	4.16	4.37	4.56	4.72
Other West Africa (ECOWAS)[3]	6.98	7.49	7.72	7.94	8.20	8.52	8.77	9.11	9.46	9.78	10.10	10.47
Other Sub-Saharan Africa[4]	4.44	4.27	4.35	4.57	4.69	4.79	4.88	4.97	5.07	5.16	5.25	5.34
South Africa	1.00	1.00	1.04	1.04	1.05	1.06	1.07	1.09	1.10	1.11	1.12	1.13
Other foreign[5]	0.28	2.77	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
United States	0.85	0.86	0.88	0.89	0.90	0.92	0.93	0.95	0.96	0.97	0.99	1.00
Total imports	48.23	49.51	50.56	51.39	52.24	53.07	53.89	54.73	55.60	56.48	57.32	58.19
Exporters						*Exports, million metric tons*						
Australia	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.24	0.24	0.24	0.25
Argentina	0.40	0.40	0.40	0.39	0.40	0.39	0.39	0.40	0.40	0.41	0.41	0.42
Other South America	3.08	2.94	3.13	3.24	3.35	3.43	3.53	3.62	3.75	3.85	3.97	4.10
European Union[1]	0.36	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35
China	1.39	1.80	1.85	1.95	2.06	2.14	2.22	2.32	2.43	2.54	2.65	2.74
India	12.80	13.00	13.10	13.24	13.38	13.48	13.61	13.76	13.89	14.06	14.20	14.34
Pakistan	4.30	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25	4.25
Thailand	10.50	11.00	11.21	11.44	11.64	11.84	12.00	12.18	12.34	12.53	12.66	12.82
Vietnam	7.00	7.00	7.21	7.33	7.47	7.64	7.83	7.98	8.16	8.33	8.49	8.67
Burma	3.00	3.00	3.07	3.19	3.27	3.38	3.48	3.56	3.65	3.76	3.87	4.00
Cambodia	1.25	1.30	1.33	1.38	1.41	1.45	1.49	1.52	1.56	1.59	1.62	1.65
Egypt	0.05	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Other foreign	1.10	1.09	1.10	1.12	1.13	1.14	1.16	1.17	1.18	1.19	1.21	1.22
United States	2.76	3.11	3.30	3.25	3.25	3.30	3.32	3.35	3.37	3.37	3.37	3.37
Total exports	48.23	49.51	50.56	51.39	52.24	53.07	53.89	54.73	55.60	56.48	57.32	58.19
						Percent						
U.S. trade share	5.7	6.3	6.5	6.3	6.2	6.2	6.2	6.1	6.1	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 2018.

Table 31. Soybean trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million metric tons						
Importers												
European Union[1]	15.0	15.8	15.1	15.7	15.6	15.5	15.4	15.3	15.2	15.1	15.0	14.9
Former Soviet Union [2]	2.4	2.5	2.1	2.0	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.9
Mexico	4.6	4.9	5.1	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.8
Argentina	4.0	2.2	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.8	2.9	3.0
Other South America	1.3	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	1.9	2.0
Central Amer & 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	3.3	3.3	3.5	3.7	3.8	4.0	4.1	4.3	4.4	4.6	4.7	4.8
Iran	2.5	2.6	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.4
Saudi Arabia	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0
Turkey	2.6	2.6	2.7	2.8	2.8	2.9	3.0	3.0	3.1	3.2	3.2	3.3
Other Middle East	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
Africa	0.7	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0
Pakistan	2.3	2.5	2.5	2.7	2.8	3.0	3.2	3.3	3.5	3.6	3.8	3.9
China	94.0	94.0	97.6	100.0	102.3	105.6	110.0	113.6	116.8	119.7	122.8	126.1
Japan	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
South Korea	1.3	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5
Taiwan	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7
Malaysia	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0
Indonesia	2.7	2.9	3.0	3.1	3.1	3.2	3.3	3.4	3.5	3.5	3.6	3.7
Vietnam	1.9	2.2	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.8	2.9	3.0
Thailand	2.5	3.2	3.2	3.3	3.4	3.4	3.5	3.6	3.7	3.7	3.8	3.9
Other	3.8	6.6	4.7	4.7	4.7	4.8	4.8	4.8	4.8	4.8	4.9	4.9
Total imports	153.1	157.4	159.1	163.0	166.0	170.3	175.7	180.1	184.2	188.1	192.1	196.3
						Exports, million metric tons						
Exporters												
Argentina	2.1	8.0	9.9	10.4	10.9	11.5	12.1	12.5	12.9	13.3	13.7	14.1
Brazil	76.2	75.0	74.2	76.5	78.0	80.8	84.5	87.6	89.9	92.0	93.7	96.1
Other South America	7.5	8.3	8.5	8.9	9.2	9.6	10.0	10.3	10.7	11.1	11.5	11.8
Ukraine	2.8	3.0	3.0	3.1	3.3	3.3	3.3	3.4	3.5	3.5	3.6	3.7
Canada	4.9	5.5	5.7	5.9	6.1	6.4	6.6	6.8	7.0	7.2	7.4	7.6
Other foreign	1.7	1.5	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.6	1.6	1.6
United States	57.9	56.1	56.5	56.9	57.2	57.4	57.7	58.0	58.6	59.3	60.6	61.4
Total exports	153.1	157.4	159.1	163.0	166.0	170.3	175.7	180.1	184.2	188.1	192.1	196.3
						Percent						
U.S. trade share	37.8	35.6	35.5	34.9	34.4	33.7	32.8	32.2	31.8	31.5	31.5	31.3

[1]Excludes intra-EU trade.

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

The projections were completed in October 2018.

Table 32. Soybean meal trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million metric tons						
Importers												
European Union[1]	18.4	18.5	18.7	18.8	18.9	19.0	19.2	19.3	19.4	19.6	19.7	19.8
Russia	0.2	0.2	0.2	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5
Other Former Soviet Union[2]	0.5	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Other Europe	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
Canada	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Japan	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.8	1.9
South Korea	1.9	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.3
Indonesia	4.4	4.6	4.8	5.0	5.1	5.2	5.3	5.5	5.7	5.8	6.0	6.1
Malaysia	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.0
Philippines	2.8	2.9	2.9	3.0	3.1	3.2	3.2	3.3	3.4	3.5	3.6	3.7
Thailand	3.2	2.9	2.9	2.9	3.0	3.1	3.1	3.2	3.3	3.3	3.4	3.5
Vietnam	4.8	5.0	5.3	5.6	5.8	6.1	6.3	6.6	6.9	7.1	7.4	7.6
Other Asia & Oceania	1.7	1.7	1.7	1.8	1.8	1.9	1.9	2.0	2.1	2.1	2.2	2.2
Mexico	2.0	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4	2.4	2.5	2.5
Central Amer & Caribbean	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.8	2.8	2.9	3.0	3.0
South America	5.1	5.4	5.6	5.8	5.9	6.1	6.3	6.4	6.6	6.7	6.9	7.1
Egypt	0.6	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0	1.0	1.1
Iran	1.1	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3
Saudi Arabia	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4
Other Middle East[3]	1.8	2.4	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8
Other North Africa[4]	2.2	2.2	2.3	2.4	2.5	2.5	2.6	2.7	2.8	2.9	2.9	3.0
Other	5.3	5.0	4.2	4.2	4.2	4.2	4.3	4.3	4.3	4.3	4.4	4.4
Total imports	63.9	65.7	66.1	67.4	68.6	69.9	71.3	72.8	74.3	75.7	77.1	78.5
						Exports, million metric tons						
Exporters												
Argentina	25.3	29.8	30.2	30.9	31.5	32.1	32.8	33.4	34.1	34.8	35.4	36.1
Brazil	16.1	15.0	15.2	15.8	16.4	17.1	17.8	18.3	19.0	19.7	20.4	21.1
Other South America	4.1	4.1	4.2	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.2	5.3
China	1.0	0.9	0.8	0.8	0.8	0.7	0.7	0.7	0.7	0.6	0.6	0.6
India	1.5	1.4	1.4	1.3	1.2	1.1	1.0	1.0	0.9	0.8	0.7	0.6
European Union[1]	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other foreign	2.0	1.9	1.7	1.7	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9
United States	13.5	12.2	12.2	12.2	12.2	12.2	12.2	12.4	12.5	12.6	12.7	12.7
Total exports	63.9	65.7	66.1	67.4	68.6	69.9	71.3	72.8	74.3	75.7	77.1	78.5
						Percent						
U.S. trade share	21.2	18.6	18.5	18.2	17.8	17.5	17.2	17.1	16.9	16.7	16.4	16.2

[1]Excludes intra-EU trade.

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

[3]Middle East excluding Saudi Arabia and Iran.

[4]North Africa excluding Egypt.

The projections were completed in October 2018.

Table 33. Soybean oil trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million metric tons						
Importers												
China	0.5	0.7	1.0	1.0	1.1	1.2	1.3	1.3	1.4	1.4	1.5	1.6
India	3.0	3.4	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.8	3.9	4.0
Bangladesh	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Pakistan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2
South East Asia	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
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	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Central Amer & Caribbean	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6
South America	1.2	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6	1.6
Iran	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1
Egypt	0.2	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]	1.3	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7
European Union[2]	0.3	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
Total imports	10.4	11.1	11.4	11.7	12.0	12.3	12.6	12.9	13.2	13.4	13.7	14.0
						Exports, million metric tons						
Exporters												
Argentina	4.1	5.1	5.5	5.6	5.7	5.8	5.8	5.9	5.9	6.0	6.1	6.2
Brazil	1.5	1.3	1.1	1.4	1.5	1.7	1.9	2.0	2.1	2.2	2.3	2.5
Other South America	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.3
European Union[2]	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
Former Soviet Union -12	0.7	0.8	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other foreign	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
United States	1.1	1.0	0.9	0.8	0.8	0.8	0.9	1.0	1.0	1.0	1.1	1.1
Total exports	10.4	11.1	11.4	11.7	12.0	12.3	12.6	12.9	13.2	13.4	13.7	14.0
						Percent						
U.S. trade share	10.7	9.0	7.6	7.0	6.6	6.5	6.8	7.6	7.7	7.8	7.8	7.9

[1]Excludes Egypt.

[2]Excludes intra-EU trade.

The projections were completed in October 2018.

Table 34. All cotton trade long-term projections

	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29
						Imports, million bales						
Importers												
European Union[1]	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4
Former Soviet Union[2]	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2
Mexico	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.6	0.5	0.5	0.4
Japan	0.3	0.3	0.3	0.3	0.2	0.3	0.2	0.2	0.2	0.2	0.2	0.2
South Korea	0.9	0.8	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
China	5.7	7.0	9.0	11.0	13.0	17.5	18.5	18.7	19.0	19.2	19.5	19.8
Indonesia	3.5	3.8	3.6	3.6	3.7	3.7	3.7	3.8	3.8	3.9	3.9	4.0
Vietnam	6.9	7.7	8.1	8.7	9.3	9.9	10.4	10.9	11.3	11.8	12.2	12.7
Thailand	1.1	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Pakistan	3.3	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.6	2.6	2.6	2.6
India	1.7	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.8	1.8	1.9
Bangladesh	7.6	8.1	8.3	8.5	8.8	9.0	9.4	9.7	10.1	10.4	10.8	11.2
Taiwan	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Other Asia & Oceania	1.0	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9
Turkey	4.0	3.1	3.3	3.3	3.4	3.4	3.5	3.5	3.6	3.6	3.7	3.7
Other	2.1	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Total imports	40.7	41.5	43.7	46.2	49.2	54.5	56.3	57.4	58.6	59.8	60.9	62.1
						Exports, million bales						
Exporters												
Former Soviet Union[2]	2.6	2.4	2.4	2.6	2.7	2.9	2.9	2.8	2.7	2.6	2.5	2.5
Australia	3.9	3.6	3.3	4.0	4.5	5.4	5.7	5.6	5.6	5.6	5.5	5.5
Argentina	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5
Brazil	4.2	5.4	6.0	7.1	8.3	10.0	10.7	11.7	12.6	13.4	14.1	14.8
Other Latin America	0.4	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Pakistan	0.2	0.2	0.2	0.3	0.4	0.5	0.5	0.6	0.6	0.6	0.7	0.7
India	5.2	4.4	4.5	4.8	5.3	6.7	7.0	6.8	6.7	6.7	6.7	6.7
Egypt	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
West Africa (ECOWAS)[3]	4.2	4.4	4.6	5.1	5.4	5.9	6.2	6.2	6.3	6.4	6.4	6.5
Other Sub-Saharan Africa[4]	1.6	1.7	1.8	1.9	1.9	2.1	2.2	2.2	2.2	2.2	2.2	2.3
Other foreign	2.3	2.7	2.6	2.6	2.7	2.8	2.9	2.9	3.0	3.0	3.1	3.2
United States	15.8	15.5	17.1	16.6	16.7	16.8	17.0	17.2	17.5	17.9	18.2	18.5
Total exports	40.7	41.5	43.7	46.2	49.2	54.5	56.3	57.4	58.6	59.8	60.9	62.1
						Percent						
U.S. trade share	38.9	37.4	39.2	35.9	34.0	30.9	30.1	29.9	29.9	29.9	29.8	29.7

[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 2018.

Table 35. Beef trade long-term projections

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	Imports, thousand metric tons, carcass weight											
Importers												
Japan	817	835	850	857	851	847	842	840	840	840	838	838
South Korea	531	560	565	577	589	605	618	635	647	661	672	682
Taiwan	160	175	185	190	194	198	203	208	212	216	220	224
Indonesia	94	98	103	107	110	113	116	120	123	127	130	133
Malaysia	205	210	219	228	237	247	252	259	266	274	281	290
Philippines	169	170	175	181	188	192	199	202	208	212	217	222
China	974	1,200	1,320	1,382	1,453	1,523	1,589	1,648	1,702	1,762	1,825	1,887
Hong Kong	543	560	600	618	634	649	653	656	660	666	669	673
Other Asia and Oceania	207	203	207	220	232	243	264	274	288	300	316	329
European Union[1]	338	370	370	367	366	368	367	367	366	366	365	364
Other Europe	118	114	114	116	118	120	122	124	126	128	130	132
Russia	516	495	470	458	447	436	423	413	402	396	390	385
Egypt	250	300	330	345	364	378	394	409	419	433	446	460
Other N. Africa & M. East	880	868	890	905	922	943	973	1,006	1,032	1,067	1,098	1,129
Other Latin America[2]	531	575	592	609	625	640	653	667	679	691	702	714
Mexico	196	210	220	225	232	238	244	250	256	264	272	280
Canada	229	240	250	256	257	258	259	260	260	261	262	263
United States	1,358	1,373	1,406	1,412	1,437	1,429	1,432	1,429	1,443	1,447	1,456	1,461
Major importers	8,116	8,556	8,866	9,051	9,257	9,426	9,601	9,763	9,929	10,109	10,288	10,465
	Exports, thousand metric tons, carcass weight											
Exporters												
Australia	1,485	1,630	1,510	1,534	1,536	1,549	1,556	1,563	1,578	1,589	1,600	1,612
New Zealand	593	603	589	595	598	603	612	620	622	622	628	629
Former Soviet Union[3]	231	261	290	285	289	293	308	326	341	353	360	373
India	1,849	1,665	1,625	1,702	1,752	1,791	1,831	1,871	1,921	1,970	2,007	2,047
Other Asia	171	174	177	181	183	185	186	185	185	186	185	186
European Union[1]	369	350	350	353	354	350	350	349	349	347	347	348
Argentina	293	500	575	601	610	627	645	666	689	714	741	766
Brazil	1,856	2,100	2,200	2,347	2,431	2,506	2,579	2,657	2,697	2,765	2,832	2,900
Other Latin America[4]	892	239	149	257	607	624	746	771	819	834	844	824
Canada	465	500	515	514	511	513	516	517	518	518	518	518
United States	1,297	1,435	1,472	1,489	1,516	1,507	1,510	1,507	1,521	1,526	1,535	1,547
Major exporters	9,501	9,457	9,452	9,858	10,386	10,547	10,837	11,033	11,238	11,425	11,598	11,749

[1]Excludes intra-EU trade.

[2]Excludes Mexico

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

[4]Excludes Argentina and Brazil.

The projections were completed in October 2018.

Table 36. Pork trade long-term projections

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
	Imports, thousand metric tons, carcass weight											
Importers												
Japan	1,475	1,510	1,525	1,557	1,584	1,604	1,616	1,629	1,637	1,649	1,665	1,683
China	1,620	1,750	1,875	1,880	1,886	1,897	1,925	1,960	1,992	2,021	2,055	2,099
Hong Kong	463	475	490	503	512	521	528	535	539	547	552	557
South Korea	645	735	685	700	711	717	727	738	747	758	770	782
Philippines	241	270	300	321	337	354	370	388	413	430	450	469
Australia	215	225	230	230	232	235	237	244	250	257	263	268
Other Asia and Oceania	380	408	428	441	453	468	480	492	504	517	532	546
Russia	375	60	40	31	36	39	37	39	43	46	47	49
Other Former Soviet Union[1]	100	133	146	148	150	151	153	155	157	160	161	163
Other South America[2]	274	313	358	381	403	428	452	474	500	526	549	573
Mexico	1,083	1,175	1,235	1,332	1,413	1,453	1,518	1,580	1,627	1,687	1,756	1,818
Central Am & Caribbean	204	228	251	273	290	301	312	324	336	349	360	371
Canada	222	230	235	240	245	251	255	261	266	271	276	281
United States	506	483	481	485	490	494	499	503	508	513	517	522
Major importers	7,803	7,995	8,279	8,521	8,741	8,913	9,107	9,322	9,519	9,728	9,954	10,181
	Exports, thousand metric tons, carcass weight											
Exporters												
Brazil	786	685	735	772	814	859	876	908	927	955	982	1,007
Canada	1,336	1,350	1,365	1,372	1,392	1,411	1,438	1,470	1,486	1,515	1,543	1,563
Mexico	170	180	190	196	202	208	214	220	226	232	239	246
European Union[3]	2,860	3,050	3,150	3,252	3,381	3,450	3,558	3,664	3,767	3,843	3,950	4,054
China	208	175	150	150	151	151	152	152	151	150	149	149
United States	2,555	2,717	2,812	2,880	2,894	2,903	2,926	2,948	2,982	3,016	3,044	3,084
Major exporters	7,915	8,157	8,402	8,622	8,832	8,981	9,163	9,363	9,539	9,712	9,906	10,103

[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 2018.

Table 37. Poultry trade long-term projections[1]

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
						Imports, thousand metric tons, ready to cook						
Importers												
Russia	226	226	201	247	249	234	227	216	200	191	180	175
Other Former Soviet Union[2]	539	560	550	576	606	630	651	674	697	719	743	766
European Union[3]	1,152	1,116	1,153	1,157	1,159	1,172	1,178	1,183	1,186	1,187	1,188	1,190
Canada	177	178	183	186	189	192	195	198	201	204	207	210
Mexico	964	1,006	1,023	1,049	1,070	1,103	1,139	1,168	1,198	1,226	1,262	1,302
Central Amer & Caribbean	727	780	817	856	899	938	980	1,021	1,058	1,094	1,134	1,173
South America	542	557	582	617	654	683	709	730	752	772	797	817
Japan	1,057	1,141	1,176	1,225	1,247	1,270	1,295	1,316	1,331	1,347	1,364	1,381
Hong Kong	294	213	252	280	286	293	298	302	307	312	316	319
China	370	409	434	457	471	488	504	521	539	559	579	599
South Korea	132	165	180	189	194	200	204	210	214	220	227	233
Philippines	271	314	344	375	402	429	451	472	494	516	539	561
Other Asia & Oceania	643	784	773	812	838	863	891	921	946	974	1,001	1,029
Saudi Arabia	837	624	727	752	775	796	821	843	866	888	910	932
Other Middle East	1,681	1,680	1,748	1,787	1,838	1,880	1,932	1,984	2,033	2,082	2,130	2,176
North Africa	295	137	161	183	200	214	225	237	249	261	272	283
West Africa (ECOWAS)[4]	430	497	526	555	576	596	614	628	646	664	681	698
Other Sub-Saharan Africa	1,326	1,377	1,439	1,491	1,546	1,598	1,661	1,713	1,767	1,816	1,860	1,909
Major importers	11,663	11,764	12,269	12,793	13,198	13,579	13,972	14,336	14,682	15,032	15,388	15,755
Exporters						*Exports, thousand metric tons, ready to cook*						
European Union[3]	1,892	1,983	2,059	2,093	2,095	2,093	2,084	2,088	2,098	2,104	2,115	2,126
Former Soviet Union[5]	547	636	726	786	819	850	879	908	936	966	997	1,027
Brazil	3,943	3,783	3,875	4,135	4,369	4,585	4,825	5,037	5,241	5,455	5,661	5,882
Other South America	321	289	319	335	350	366	380	391	400	412	425	436
Canada	161	152	158	158	158	160	163	165	168	171	173	176
China	436	460	475	487	493	509	522	529	538	548	555	561
Thailand	758	851	901	955	1,011	1,052	1,097	1,137	1,187	1,238	1,295	1,354
Turkey	362	386	406	421	428	439	447	455	460	469	479	487
United States	3,421	3,427	3,514	3,571	3,617	3,662	3,707	3,753	3,776	3,788	3,801	3,814
Major exporters	11,841	11,967	12,433	12,940	13,340	13,716	14,103	14,464	14,805	15,149	15,500	15,861

[1]Broilers and turkeys only.

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

[3]Excludes intra-EU trade.

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

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

The projections were completed in October 2018.

List of Tables

Page