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February 2023

USDA Agricultural Projections to 2032

Interagency Agricultural Projections Committee

World Agricultural Outlook Board, Chair
Economic Research Service
Farm Production and Conservation Business Center
Foreign Agricultural Service
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USDA Long-Term Projections, February 2023

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Abstract

This report provides projections for the agricultural sector to 2032. Projections cover agricultural commodities, agricultural trade, and aggregate indicators of the sector, such as farm income. The projections are based on specific assumptions, including a macroeconomic scenario, existing U.S. policy, and current international agreements. The Agriculture Improvement Act of 2018 is assumed to remain in effect through the projection period. The projections are one representative scenario for the agricultural sector and reflect a composite of model results and judgment-based analyses. The projections in this report were prepared using data through the October 2022 *World Agricultural Supply and Demand Estimates (WASDE*) report, except where noted otherwise. Macroeconomic assumptions were concluded in August 2022.

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

Acknowledgments and Contacts

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USDA Long-Term Projections: Background

USDA's long-term agricultural projections presented in this report are a departmental consensus on a conditional long-run scenario for the agricultural sector. These projections provide a starting point for discussion of alternative outcomes for the sector and are prepared in support of the President's annual budget process as defined in the Budget Control Act.

The projections, colloquially referred to as the Baseline projections, were prepared using data available through the October 2022 *World Agricultural Supply and Demand Estimates* (WASDE) report, except where noted. The macroeconomic forecasts were completed in August 2022. The Agriculture Improvement Act of 2018 is assumed to remain in effect through the projection period, and the projections only include policies in place or already expected to be implemented as of the October *WASDE*. The scenario presented in this report is not a USDA forecast about the future. Instead, it is a conditional, long-run scenario of how markets would evolve under current conditions, existing laws, normal weather patterns, and underlying trends. Rather than serving as a prediction of the future, it is intended to serve as a neutral benchmark for measuring the effects of proposed legislation or external developments that could have enduring effects on agricultural markets.

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 new domestic or external shocks during the projection period that would affect underlying global agricultural supply and demand trends. Changes in any of these assumptions can significantly affect the projections, and actual conditions will alter the outcomes.

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

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Introduction and Projections Overview

The macroeconomic projections underlying the USDA agricultural projections reflect worsening economic conditions in 2022 after a tentative global recovery in 2021 from the economic impact of the Coronavirus (COVID-19) pandemic. Economic growth continues to contract as high levels of inflation persist worldwide, COVID-19 outbreaks and lockdowns lead to lower growth in China, and negative ramifications from Russia's war against Ukraine materialize in high food and energy prices and lower global trade and cooperation. In our projections, the previously projected global economic recovery is characterized by slower growth, especially as inflation rates peaked in the first half of 2022, painting a gloomier economic outlook for the near future. The macroeconomic forecasts were completed in August 2022 and do not include any anticipated impacts from the Inflation Reduction Act.

Despite prices that continued to rise from already elevated levels in the 2021/22 crop marketing year, total acreage planted to the 8 major field crops (barley, corn, cotton, oats, rice, sorghum, soybeans, and wheat) dipped from 253.4 million acres in 2021/22 to 249.5 million acres in 2022/23. This decrease was driven primarily by a reduction in corn acres. The 8-crop total for area planted typically doesn't vary a great deal and is expected to remain in a narrow range near 250 million acres during the projections period. Acreage changes from year to year are led by the largest four crops: corn, soybeans, wheat, and cotton. These crops are the chief focus of the domestic crop Baseline reporting. In Baseline reporting, area for each crop typically follows a smooth trend, up or down, after an initial adjustment in the first or second marketing year of the Baseline (2023/24 and 2024/25).

A ramp up of Conservation Reserve Program (CRP) acres from 24.1 million in 2023 to 27.0 million acres by 2026 more than offsets the moderate decline in the 8-crop total of planted acres during the projection period. After 2026, CRP acres remain in the 26.9 million-to-27-million-acre range through 2032.

In the livestock sector, meat, dairy, and egg production all rise continuously throughout the projection period, with chicken, pork, egg, and dairy production all ending at record levels in 2032. Beef production starts the projection period (2024) after 2 years of cyclical herd rebuilding which lowers near-term projected beef production in 2022 and 2023. Note that for animals and animal products, the Baseline projection begins with calendar year 2024, while figures for calendar year 2022 and 2023 are based on published projections from the October 12, 2022 *World Agricultural Supply and Demand Estimates* (*WASDE*) report. Beef production rises by 8 percent, pork by 11.9 percent, and chicken by 10.2 percent. Overall milk production rises by 9.6 percent and eggs by 7.9 percent. Turkey production growth is the slowest, at 4.4 percent.

Global economic and market circumstances continue to challenge the U.S. agriculture sector. Persistent inflation, severe weather events, supply chain disruptions, high input costs, and Russia's war against Ukraine continued to pressure commodity prices above their historic trends in 2021/22 and 2022/23. This combination of conditions sets the stage for the first year's projections and a return to more "normal" conditions for later years.

After the spike in 2021/22 and 2022/23, prices for all crops are forecast to decline starting in 2023/24 for several years and then stabilize in the later years of the projection period. The exception being rice and cotton, which are forecast to experience slightly to moderately rising prices after the initial decline. For all crops, most of the adjustment takes place in the first 3 to 4 years of the projection. Nevertheless, at the end of the projections, prices for all crops are higher than the previous year's projections.

Corn prices are expected to fall steadily from a near-record peak of $6.80 per bushel in 2022/23 to $5.70 per bushel in the first year of the projection period. Corn continues a downward trend through 2026/27 before leveling off at $4.30 per bushel through the remainder of the projection period. Soybean prices follow a similar trend, falling to $13.00 per bushel in the first year of the projection period; down $1.00 from the recent 2022/23 peak. Soybean prices continue their downward trend through the first half of the projection period before leveling off at $10.30 per bushel in the second half of the 10-year projection.

Wheat prices are expected to drop from a record $9.20 per bushel in 2022/23 to $8.00 in the first year of the projection period, still the second highest price on record. Prices continue to fall through 2026/27 before settling at $5.70 per bushel through 2032/33. After 2 consecutive years of record or near record prices (at or above $0.90/pound), cotton is expected to see a drop in prices for the first year of the projection period to $0.80 per pound. Cotton prices continue to fall through 2025/26 to $0.75 per pound before turning upward in a steady rise though 2032/33, ending the projection period at $0.825 per pound.

In contrast to general uniformity in crops, price patterns for all animals (cattle, hogs, chicken, and turkey) vary, with cattle prices initially declining before rebounding after 2026. Chicken (broiler, farm level) prices rise continuously, and hog and turkey prices fall throughout. In all cases, though, animal prices start the Baseline projections at lower than the elevated levels that immediately preceded the beginning of the projection period, 2022 and 2023. Rising and comparatively high cattle prices (compared to most of the past two decades) encourage growth in cattle inventories as the herd rebuilds. Further, rising slaughter weights support growing beef production during the projection period. The all-milk farm price rises 7.1 percent during the projections, and New York wholesale egg prices climb 16.9 percent.

Chicken production is projected to grow steadily as the broiler-to-feed price ratio rises and domestic demand and exports continue to rise. Beef production rises 8 percent due to expanding inventories, a higher beef cattle-corn price ratio and slaughter weight. Pork production climbs 11.9 percent as the hog-feed ratio, slaughter weights, and pig inventories all show an upward trend.

After 3 consecutive years of increases beginning in 2020, net farm income and net cash income are projected to decrease in 2023. Net farm income is projected to decrease $1.7

billion from $160.5 billion in 2022 to $158.8 billion in 2023. Net cash farm income is projected to decrease $33.5 billion (17.8 percent) from $187.9 billion in 2022 to $154.4 billion in 2023. Lower cash receipts and Government payments, including those from COVID-19-related programs are the primary contributors to the projected decline in net farm income in 2023. The farm income projections, completed in December 2022, include planned direct assistance to farmers contained in the Inflation Reduction Act. Farm cash receipts are projected to decrease from 2023 through 2026 compared with the previous year after increasing to a record $541.5 billion in 2022. Beginning in 2027, cash receipts are expected to increase through 2032, ending at $498.9 billion.

U.S agricultural trade is projected using data released by the U.S. Department of Commerce, Bureau of the Census on November 2, 2022. It includes values and volumes of U.S. imports and exports through September 30, 2022. This section covers fiscal years (FY) October 1 through September 31, 2021 through 2032 with projections beginning in FY 2023.

In 2023, projected U.S. total agricultural exports decrease by 3.2 percent to $190.0 billion, down from a record $196.4 billion in 2022. The decrease is mainly due to reductions in soybeans, cotton, and corn exports that are partially offset by gains in beef, poultry, and wheat. Over the projection period of 2022 through 2032 agricultural exports are expected to decline at an annual rate averaging -0.7 percent per year, ending at $182.2 billion in 2032. The entirety of that decline occurs in 2022–2026 where agricultural exports fall -3.8 percent annually. By 2027 export growth is forecast to resume at an annual rate of 1.9 percent through 2032.

Agricultural imports are expected to be a record $199.1 billion in 2023. This is up from $194.0 billion in 2022 and is largely driven by higher imports of horticultural products, sugar, and tropical products, as well as grain and feed products. The value of U.S. agricultural imports is projected to increase by an average annual rate of 0.3 percent over the 2022–32 period. Shadowing exports, the downturn in imports starts in 2024, followed by a return to growth after reaching a low of $181.6 billion in 2026. Between 2027 and 2032 the annual growth rate of imports is 2.0 percent, with a value of $200.0 billion in 2032, $17.8 billion higher than U.S exports.

General Policy Assumptions

U.S. Agricultural Policy

The projections include policies in place as of October 2022. The Agriculture Improvement Act of 2018, also known as the 2018 Farm Act, is assumed to be in effect through the projection period. Ongoing provisions from earlier farm and other legislation are also assumed to continue. The projections assume there will be no new ad hoc payments over the course of the Baseline. Land enrolled in the Conservation Reserve Program is assumed to rise to 27 million acres by 2026—and remain at, or close to that level through 2032—which is the maximum level legislated in the 2018 Farm Act.

Similarly, trade tariffs policies in place as of October 2022 are assumed to remain in effect throughout the next 10 years. Trade agreements implemented before October 2022, such

as the United States-Mexico-Canada Agreement (USMCA) and the Japan-U.S. Free Trade Agreement, have also been considered in these projections.

International Policy

Agricultural trade projections assume that trade agreements, sanitary and phytosanitary restrictions, and domestic policies in place as of October 2022 remain in place throughout the projection period.

In August 2014, Russia imposed a ban on agricultural imports from certain Western countries—including the European Union (EU), the United States, and Canada. This ban has been renewed annually and was still in effect as of October 2022. We assume this policy will continue to be renewed and that Russia will use policies to stimulate its domestic pork and poultry production and reduce its reliance on imports.

Projections assume continuation of China policies in effect in 2022. Domestic policies include a payment for all grain producers, direct payments for cotton, soybean, corn, and rice producers, and minimum prices for wheat and rice. China maintains large grain reserves and exports surplus rice. Some U.S. products may be assessed retaliatory tariffs that have been in place since 2018 but these do not necessarily affect China's overall projected demand since China has multiple suppliers for major commodities.

Argentina's export duty of 33 percent on soybeans, soybean meal, and soybean oil, and 12 percent tariffs on corn and wheat are reflected in the projections. In March 2022, the Argentine government eliminated the differential export tax (DET) which had kept export taxes on soybean meal and soybean oil at 31 percent—lower than export taxes on soybeans, and which had been in effect since mid-2020. In addition to equalizing the taxes across soybean and products, the government enacted a moratorium on new export registrations.

In May 2022, in an effort to fight inflation, Brazil suspended import tariffs on various agricultural products including corn (previously a 7.2 percent tariff), wheat flour (previously a 10.8 percent tariff), soybean oil (from 10.0 percent), beef (from 10.8 percent), and poultry (from 9 percent) from countries outside the Mercosur trade bloc. Consequently, the projections incorporate these reductions in tariffs for the projection period. The projections also assume the reimposition of tariffs on soybeans (8.0 percent) and soybean meal (6.0 percent) from January 2022, for the duration of the projection period. The Mercosur trade bloc includes Brazil, Argentina, Paraguay, and Uruguay.

In December 2020, the Mexican Government published a presidential decree calling for the phasing out of the use of glyphosate and of human consumption of bioengineered corn in Mexico over the 3-year period that ends on January 1, 2024. When the projections in this report were made, the Mexican Government had not offered details on the decree's implementation, so this report's projections do not consider the possible effects of this decree.

Japan has a series of tariff-rate quotas in place on various commodities. In accordance with the U.S.–Japan Trade Agreement (USJTA), Japan placed a tariff of 38.5 percent on U.S. beef imports surpassing 242,000 metric tons. The USJTA's safeguard mechanism was revised in 2022 to accommodate higher demand for U.S. beef, raising the threshold required to trigger the implementation of higher tariffs on U.S beef. In September 2021, the United States lifted all restrictions on imports of Japanese food products. Other countries, such as those in the European Union, are likewise easing restrictions on imports of Japanese foodstuffs that were imposed following the 2011 nuclear disaster in Fukushima Prefecture. The projections do account for these policy initiatives.

In mid-2022, the South Korean government issued revisions to a number of its tariff-rate quotas on agricultural commodities, raising rates on soybean oil, sunflower seed oil, pork, wheat, wheat flour, processed egg products, and fodder. Import tariffs on pork were reduced to zero to combat significant spikes in domestic prices. The projections in this report do account for these policy changes.

The projections account for the Government of Taiwan's announcement in November 2021 that it would temporarily reduce tariffs on beef imports by 50 percent and wheat to zero to combat inflation on food prices. Additionally, import tariffs on selected butter products and milk powder were reduced by 50 percent, while tariffs on soybeans and wheat were likewise waived. These measures were extended through at least the end of 2022. Polices in place as of October 2022 are included in the projections.

India's agricultural sector policies continue to focus on food security issues, with provision of production incentives, such as procurement prices, for important consumption staples—wheat and rice. These production incentives and consumption subsidies have led to improvement in production of major food grains, but farm yields in India are still generally below the world averages, primarily due to domestic policies and trade restrictions that lower productivity. But, as incomes rise and consumption habits change, per capita demand for staples like rice and wheat are being replaced by fresh and processed products. But overall strong population growth drives increasing consumption. Recent analysis by the Government of India suggests that there will soon be excess supplies of both staples but with a significant deficit in oilseed and pulse production. Consequently, agricultural sector policies are now expected to focus more on ensuring a reasonable return to producers of all crops, including coarse grains and oilseeds.

Investments made by Saudi Arabia in foreign agricultural production, intended to promote agricultural exports to the nation, are projected to continue as the Government continues to provide investment incentives and freshwater scarcity persists.

The bread subsidy in Egypt is projected to remain in place through the duration of the projection period, despite the stress put on the wheat market by Russia's war against Ukraine. Recipients of the subsidy are allotted 150 discounted loaves of bread per month.

Biofuel Assumptions

U.S. Biofuels

Final renewable fuel standards for cellulosic biofuel, advanced biofuel, and total renewable fuel for 2020, 2021, and 2022 were announced by the U.S. Environmental Protection Agency (EPA) on June 3, 2022. The biomass-based diesel (BBD) standard was also set in the same announcement. These scenarios were completed in October 2022, before any subsequent volume requirements were established by EPA and make no assumptions about future policies throughout the baseline period.

Corn is the primary feedstock for U.S. ethanol, accounting for more than 98 percent of ethanol production. Over the scenario period, corn use for ethanol production is seen to remain relatively flat with slight growth. Initially, corn use for ethanol grows through the middle of the period and subsequently falls on lower gasoline consumption. New technological developments in sustainable aviation fuel production, using ethanol as a feedstock, boost domestic ethanol use in the second half of the Baseline projection during the period of declining gasoline consumption. Ethanol exports are assumed to remain a small share of ethanol consumption, with limited expansion potential. Ethanol imports remain small and constant throughout the period. Corn used to produce ethanol continues to be a substantial source of demand for the sector, accounting for about one-third of total U.S. corn use through the projection period.

Underpinning the scenario are declines in overall gasoline consumption in the United States. The United States is not projected to return to annual gasoline consumption levels seen prior to COVID-19, as electric vehicles, improved fleet efficiency, and lifestyle changes affect motor vehicle fuel consumption. An increase from 2021/22 levels is expected, but the long-run trend points to a decline in gasoline consumption. Most gasoline in the United States continues to be a 10-percent ethanol blend (E10). Some growth is projected in the 15-percent ethanol blend (E15) market early in the projection period, but infrastructure and other constraints limit growth over the long term and the expansion of mid- and high-level blending is not sufficient to prevent declining U.S. domestic fuel ethanol use. The E85 market remains small with limited growth potential.

The volume requirement for U.S. biomass-based diesel use, as administered by the EPA under the Renewable Fuels Standard, remained at 2.43 billion gallons for 2020 and 2021 and increased to 2.76 billion gallons in 2022. The current scenario assumes the volume requirement continues at that level. Some production of fatty acid methyl ester (FAME) biodiesel and renewable diesel above the biomass-based diesel volume requirement is assumed to continue meeting a portion of the nonspecific advanced biofuel requirement. The Inflation Reduction Act extended the BBD $1.00-per-gallon Federal tax credit through 2024 for biodiesel and renewable diesel. In addition, the bill provided a tax credit for sustainable aviation fuel ranging from $1.25 to $1.75 per gallon through 2024 with clean-fuel production credits starting in 2025 through 2027, which offer incentives based on greenhouse gas (GHG) reductions for clean on-road and aviation fuels.

California's Low Carbon Fuel Standard (LCFS) program remains a significant driver for renewable diesel expansion in the United States. Currently, California consumes a large amount of U.S. renewable diesel production. In 2020, Oregon adopted a similar program, although its market is far smaller. California is the largest fuels market in the country and combined renewable diesel and biodiesel use in the diesel pool reached 24 percent, by volume, in 2020. This penetration rate will grow further and is supported by the State's LCFS and carbon market. In the LCFS market, renewable diesel and biodiesel produced with low-carbon intensity feedstocks is a better value proposition than using vegetable oils. USDA expects that the planned expansion of renewable diesel production plants could rely increasingly on non-soybean oil feedstocks to fulfill a large portion of the growing demand due to lower carbon intensity scores.

Demand increases for renewable diesel and sustainable aviation fuel over the next few years are expected to support soybean oil prices. At such prices, USDA expects market erosion for the conventional, non-integrated FAME producers. Biofuel blenders could increasingly substitute FAME with renewable diesel because it is considered a higher quality, drop-in replacement fuel. The scenario assumes expansion in soybean-oil based renewable diesel as well as substitution for FAME in markets. The scenario makes no assumptions about future policies throughout the Baseline period and do not include proposed LCFS-type programs in other States.

International Biofuels

Markets for transport biofuels exist in Europe and another two dozen countries. Except for Japan, all have domestic feedstock industries sufficiently large enough to support a program, but many isolate their markets from biofuel imports. After 15 or more years of operation, most developing country biofuel programs have stagnated in recent years with little overall change in blend rates to build use beyond what domestic feedstock industries can support, and little to no incentives to introduce new biofuels like cellulosic ethanol, renewable diesel, or sustainable aviation fuel (SAF). Most countries still have no minimum GHG emissions savings requirements nor other environmental sustainability criteria for biofuels. In most cases, there is also no effective carbon tax or other policy incentivizing lower carbon intensity (CI) over time for existing fuels.

Biofuel markets have remained volatile since the beginning of the pandemic starting with a dramatic collapse in fuel demand (especially for gasoline and ethanol) in early 2020. Oscillations tied to new COVID-19 waves, higher feedstock prices, and unstable oil prices have followed. Meanwhile, changes in biofuel and fossil fuel taxes and price subsidy support as well as blend mandates are used to navigate these changes and accomplish certain goals. Taxes are lowered and price subsidies raised on fuels to provide relief for consumers at the pump which leads to relatively stable demand. Biodiesel blend rates are increased to support exchange rates pressured by the rising cost of imported diesel. Other times, those same blend rates are lowered to reduce inflationary pressure on feedstock, then raised as inflationary pressure retreats.

Partial gasoline pool (and ethanol) recoveries to pre-pandemic levels continue in 2023, but they remain uneven across countries with different fuel taxes/subsidies and

inflation/recession pressures. In August 2022, the International Energy Agency (IEA) estimated that the global gasoline pool (including ethanol) would recover to 2.0 percent below 2019 pre-pandemic levels by the end of 2023. Looking further ahead, the IEA projects a growing number of countries will attain peak gasoline use over the coming decade, and some may have already peaked just prior to the pandemic.

Opportunities for gasoline pool growth and thus growth in ethanol use, continue to erode for various reasons. Commitments (mostly well beyond the coming decade) to phase out new sales of the internal combustion engine (ICE) for light duty vehicles, electric vehicle (EV) tax credits, a proliferation of new EV models by major auto and truck manufacturers, and public/private charging station infrastructure are several important factors. In addition, public/private financing in renewable hydrogen production and supply chains, new technology developments including ICE efficiency gains, and emerging consumer sentiment and lifestyle changes will also play a role.

Diesel pools (including all biocomponents) continue to fare better than gasoline. In August 2022, the IEA estimated that the global diesel pool would recover to 0.5 percent below 2019 pre-pandemic levels by the end of 2023. The global jet fuel market continues to struggle with the sharpest decline of all fuels in 2020 and slowest recovery since. The timeline for peak diesel extends well beyond that for gasoline, and it is decades further out for jet fuel. The renewable energy alternatives to liquid biofuels will take longer to commercialize for heavy-duty engine land transport, shipping, and jet aviation.

In the past couple of years, a flurry of new investments occurred in renewable diesel and SAF with a rapid production capacity build in Europe and the United States with more plans near-term to build capacity further. While these new fuels will come to other regions of the world, the scale of new commercial sales over the next decade is expected to be far less compared to the recent sales increase in Europe and the United States. The critical role policy support has played to place these new fuels on the market in California and Western Europe is well documented, but support is lacking elsewhere and only now emerging in a select few countries. Fats and oils will remain the primary feedstock for renewable diesel and SAF over the next decade.

With gasoline markets in decline across Europe, most of the action there remains focused on renewable diesel and SAF, renewable electricity, and electrofuels (eFuels) manufactured using carbon dioxide or carbon monoxide, together with hydrogen obtained from renewable electricity sources such as wind, solar, and nuclear power. In the long term, Russia’s war against Ukraine has only sharpened Europe’s drive toward energy transition and renewables. Brazil is expected to achieve a large increase in fuel ethanol production and use, from sugarcane and increasingly corn. Biodiesel is set to expand further with higher blending and fuel pool growth. Some renewable diesel and SAF production begins but is likely to remain limited.

Indonesia, the second largest single-country market for biodiesel, retains this status and biodiesel expands further due to fuel pool growth. Indonesia is already at B30 and fuel properties constrain any further significant blending increase under current technologies. No

fuel ethanol program is expected due to a lack of feedstock. Malaysia is also not expected to develop an ethanol market for the same reason. Unlike Indonesia, some constraints in surplus palm oil expansion limit Malaysia's plans to build biodiesel blends significantly higher. China's fuel ethanol program remains a surplus corn disposal program, imports remain nominal, and a falling blend rate is expected as the gasoline pool grows further despite various initiatives that slow gasoline pool expansion. China's biodiesel market remains nominal with periodic demand for discretionary blending. Canada's Clean Fuel Standard reinvigorates biofuel markets which have largely stagnated for years. Renewable diesel and SAF have more growth potential than ethanol although this may take time to materialize.

Fuel ethanol and biodiesel markets that are currently closed to trade (Argentina, Thailand, and India) are projected to remain closed, and imports of ethanol for non-fuel use (India, Korea, Japan, Mexico, and Europe) continue growing. Higher blending goals remain beyond reach on any sustained basis for most countries unless they open to trade. New biofuel programs are not established in any fuel markets of consequence to global fuel supply or use. Brazil is expected to drive more additional ethanol use than any other country. Demand in Brazil and Indonesia drive much of the world's biodiesel expansion, while Europe and the United States drive most of the world's expansion for renewable diesel and SAF.

The United States remains the world's leading exporter of ethanol with non-fuel end uses slowly gaining greater importance. Canada is likely to remain the top U.S. export market, while sales to Brazil remain volatile and other non-fuel markets like India, Korea, and Mexico remain important. Brazil remains the second largest ethanol exporter. The United States and Brazil account for a large majority of global ethanol exports. Argentina remains the world's leading exporter of biodiesel, while China now nearly matches that record. Both ship to Europe. The only other one-way major flow of biodiesel is from the European Union to the United Kingdom. One level below, but remaining significant, is the circular trade in biodiesel between the United States and Canada.

Macroeconomic Projections

The macroeconomic projections underlying USDA's 2023 edition of the Long-Term Annual Projections (aka Baseline) reflect worsening economic conditions in 2022 after an initially strong global recovery in 2021 following the economic impact of the COVID-19 pandemic. Economic growth continues to contract as high levels of inflation persist worldwide, COVID-19 outbreaks and lockdowns lead to lower growth in China, and negative ramifications from Russia's war against Ukraine materialize in high food and energy prices and lower global trade. In USDA's projections, the previously projected global economic recovery is characterized by slower growth, especially as inflation rates peaked in the first half of 2022, but still portends further interest rate hikes, which paints a gloomier economic outlook for the near future.

This projected slowdown in economic recovery reflects the continued risks from COVID-19. Tighter monetary policy is expected to help combat price increases, especially in Europe and the United States. In these regions, inflation exceeded expectations in the spring and early summer, and will continue to depress global economic output. Inflation has generally continued to slow in the last few months of 2022, after the Baseline projections were completed in August 2022. The slowing of price increases will provide some relief for households as energy and core price inflation continues to decrease but may be offset to a certain degree by higher interest rates.

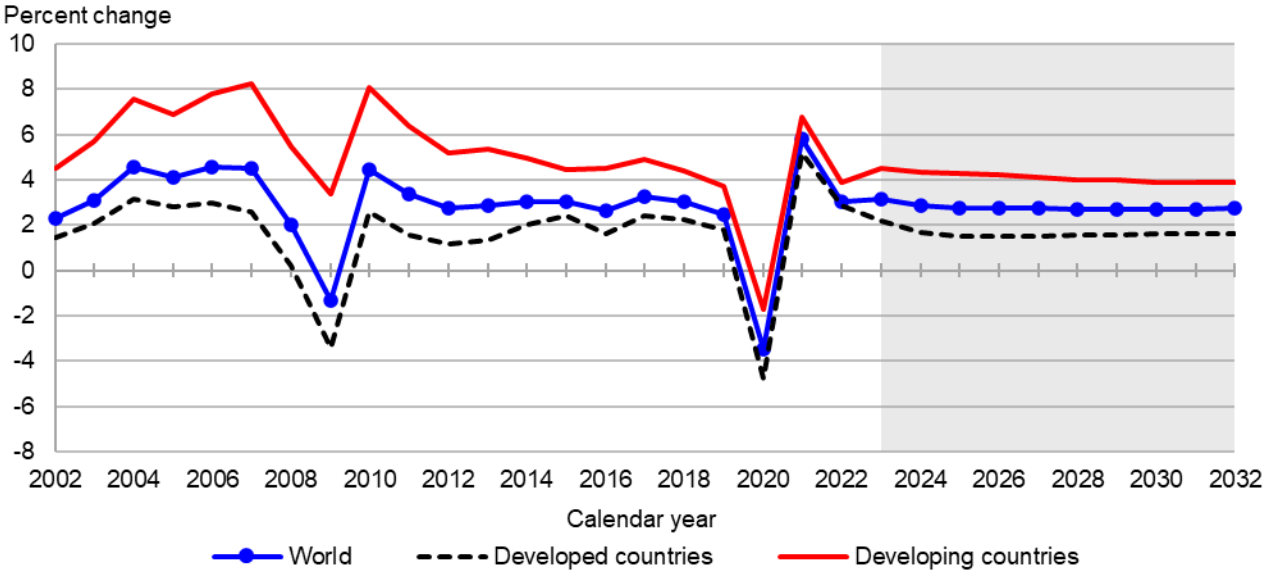
The macroeconomic assumptions and analysis underlying the Baseline are compiled from private forecast services, U.S. Government and international agency projections, and USDA, Economic Research Service regional and country experts. The projections assume no policy changes, and no additional shocks (e.g., political crises, major conflicts, or disease outbreaks). The macroeconomic projections were completed in August 2022 based on expectations at that time. The assumptions for global gross domestic product, U.S. macroeconomic indicators, exchange rates, and population data are presented in tables 1–4 at the end of this section.

Global Growth Outlook

The shocks from inflation, the global pandemic, and the war are projected to continue to disrupt markets around the world. Following a global recovery in 2021 from the COVID-19 pandemic, global real Gross Domestic Product (GDP) growth is projected to decrease from 5.8 percent in 2021 to 3.0 percent in 2022 and 3.2 percent in 2023 due to the economic shocks and tightening monetary policies. The macroeconomic forecast is that global growth will continue to decrease after 2023 and settle to a long-term growth rate of 2.7 percent. Global real GDP growth is projected to average 2.8 percent annually during the period 2023–2032 (table 1).

Due to higher price inflation and resulting contractionary monetary policy, global real GDP growth is projected to decrease in the short term of the projection period and eventually recover. The level of recovery will vary for individual countries.

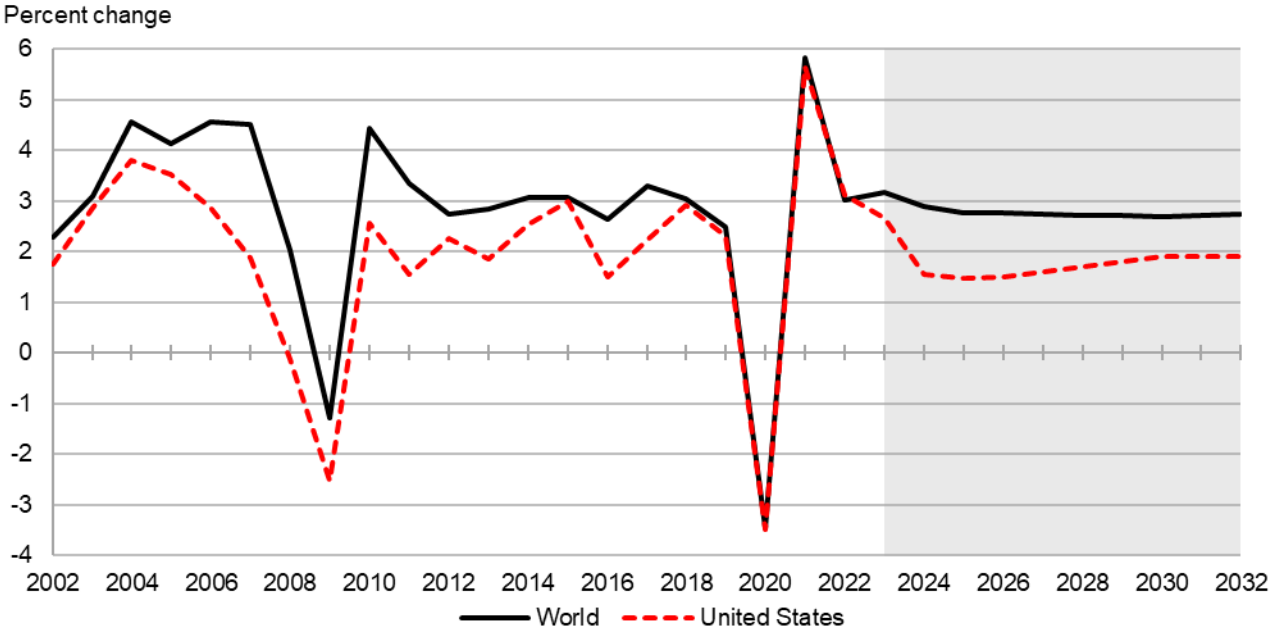
Figure 1: Real gross domestic product growth by global region, 2002-32



Note: The shaded region represents the projected period.
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

- In 2022, real GDP was expected to increase by 3.0 percent globally, a significant decrease compared to strong growth in 2021, when global GDP rebounded by 5.8 percent after the COVID-19-induced recession (recall that the macroeconomic projections were completed in August 2022). Most countries showed significantly lower growth in 2022 due to worsening economic conditions, while a handful of countries are starting to rebound from the pandemic. Inflationary pressure on food and energy, and tightening monetary policy contributed to the downturn. The United States, Canada, and several other major economies are estimated to have seen their GDP increase in 2022, but significantly less so compared to the previous year.
- During 2023–2032, projected global GDP growth is slightly below rates achieved during the pre-pandemic period. Uncertainty about the persistence of high inflation, Russia's war against Ukraine, as well as continuing variants from COVID-19 intensifies the global slowdown.
- Developing countries' real GDP growth continues to be an important driver of demand for agricultural products and is expected to continue to outpace developed country growth. During 2023–2032, developing countries' growth is projected to average 4.1 percent annually, more than double that of developed countries, which is projected to average 1.6 percent. While growth rates have mostly recovered, both developing and developed economies have fallen below pre-pandemic projected GDP growth rates.

Figure 2: U.S. and world real gross domestic product growth, 2002–32



Note: The shaded region represents the projected period.
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

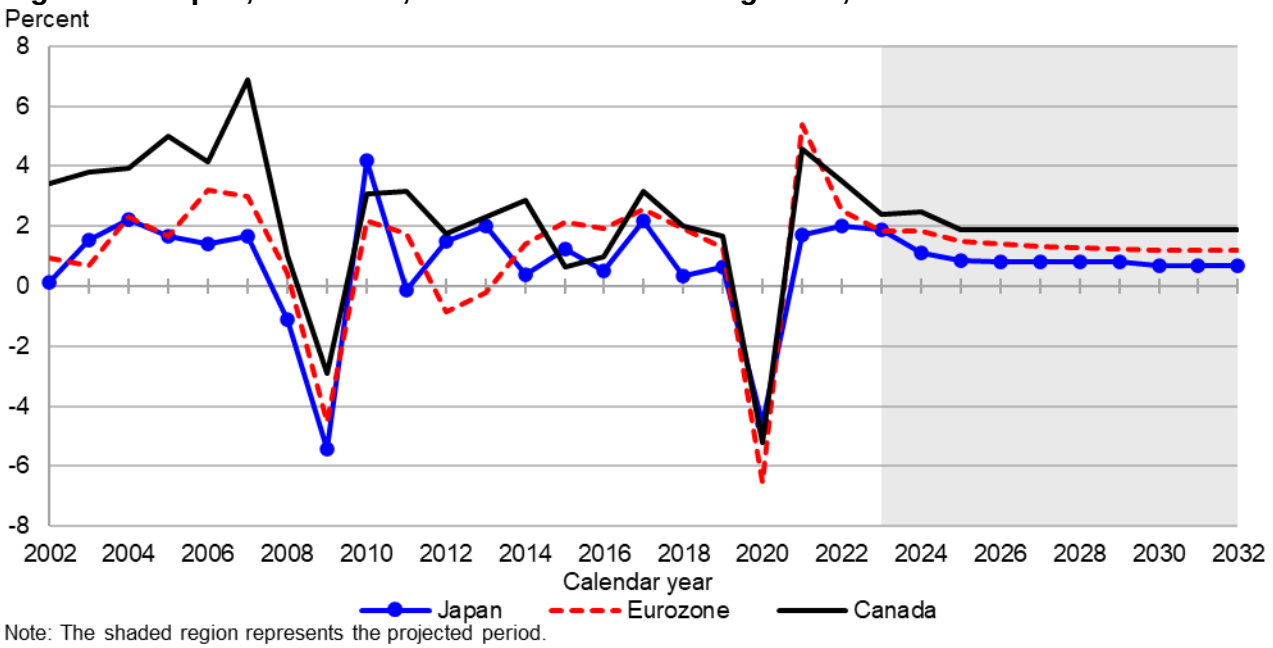
When the macroeconomic projections were completed in August 2022, U.S. real GDP growth was projected to slow to 3.1 percent in 2022 (table 2), following the initial strong recovery of 5.7 percent in 2021. Although the United States was among the leading economies to recover fully and exceed pre-pandemic GDP levels in 2021, the U.S. has also been affected more by inflation, along with Europe. According to the U.S. Bureau of Labor Statistics, the consumer price index rose by 9.1 percent over the year ending in June 2022, the highest seen in 40 years. Continuing rising costs in food and energy prices, as well as rising underlying inflation, is eroding purchasing power and prompting central bank tightening.

During the projection period from 2023–2032, the U.S. real GDP growth is projected at an annual average of 1.8 percent. The positive average projected for 2023–2032 continues beyond the initial recovery from COVID-19 but is lower due to the uncertainties ahead. The expected trend is for there to be lower long-term growth rates in the United States compared to previous decades.

Developed Country Outlook

For developed economies, excluding the United States, the growth of real GDP is expected to slow in 2022. Real GDP growth in these economies is expected to have averaged 2.7 percent in 2022, and to average 1.5 percent growth annually in the following decade from 2023–2032. Many of these economies continue to experience the impacts of the COVID-19 pandemic, enduring economic disruption to business activity and employment, in addition to the stressors from inflation and war.

Figure 3: Japan, Eurozone, and Canada real GDP growth, 2002–32



Note: The shaded region represents the projected period.
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

- The European Union (EU-27, post-Brexit) real GDP was estimated to grow 2.6 percent in 2022, following the recovery growth rate of 5.4 in 2021, with growth averaging 1.5 percent during 2023–2032. The macroeconomic assumptions in this year's Baseline continue to reflect Brexit, which separated the United Kingdom (UK) from the European Union on January 31, 2020 and left 27 countries as member States of the European Union. The UK GDP growth rate was estimated at 3.2 percent in 2022 and 0.6 percent in 2023. The UK average annual growth rate for the next decade is projected at nearly 1.3 percent, slightly lower than the EU-27's 1.5 percent. In the short term, while drought continues to impact all of Europe, Brexit-induced supply-chain issues continue to depress long-term economic growth more in the UK relative to the rest of Europe.

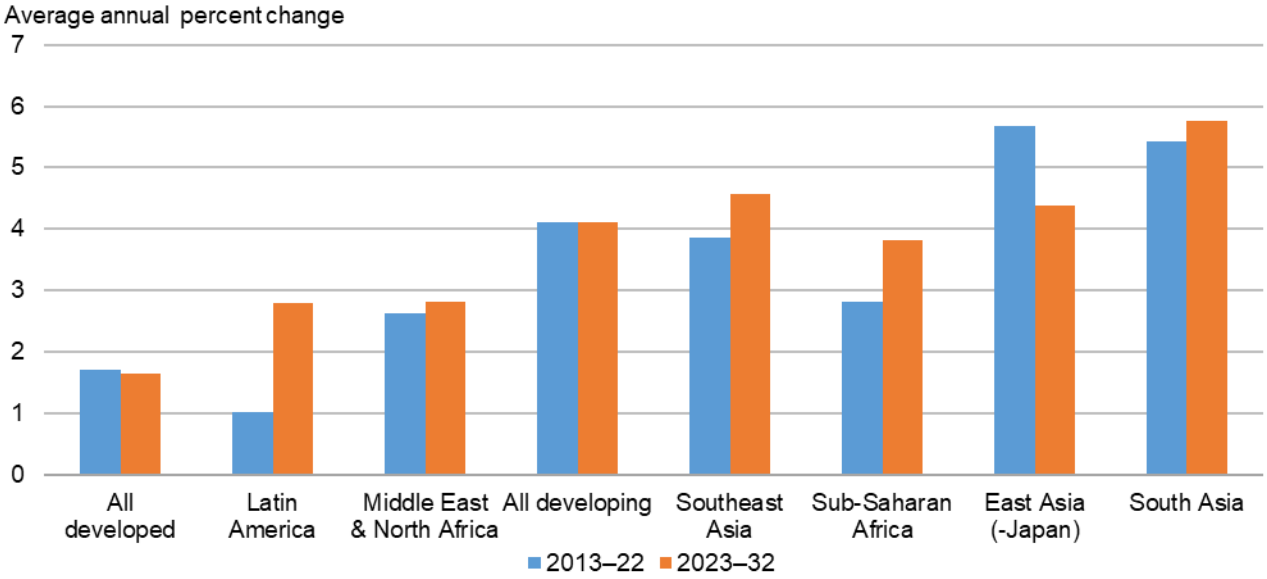
- Japan's economy was expected to grow at 2.0 percent in 2022, with a 1.9-percent growth in 2023. During 2023–2032, growth is projected to average 0.9 percent annually, continuing an established downward growth-rate trend associated with an aging and declining labor force.

- The Canadian economy, linked closely to the United States and European energy prices, was estimated to grow by 3.5 percent in 2022, followed by 2.4-percent growth in 2023, and is projected to average 2-percent growth annually over 2023–2032.

Developing Country Outlook

Developing country economies continue to recover more rapidly than developed economies. Global financial conditions continue to tighten with borrowing costs increasing, particularly in emerging market and developing economies. In addition, negative spillovers from Russia's war against Ukraine more than offset any near-term boost to commodity exporters from higher energy prices. Nevertheless, as of August 2022, the developing countries real GDP growth in 2022 was forecast at 3.9 percent, a decline from 6.8 percent in 2021.

Figure 4: Real gross domestic product growth by region, 2013–2032

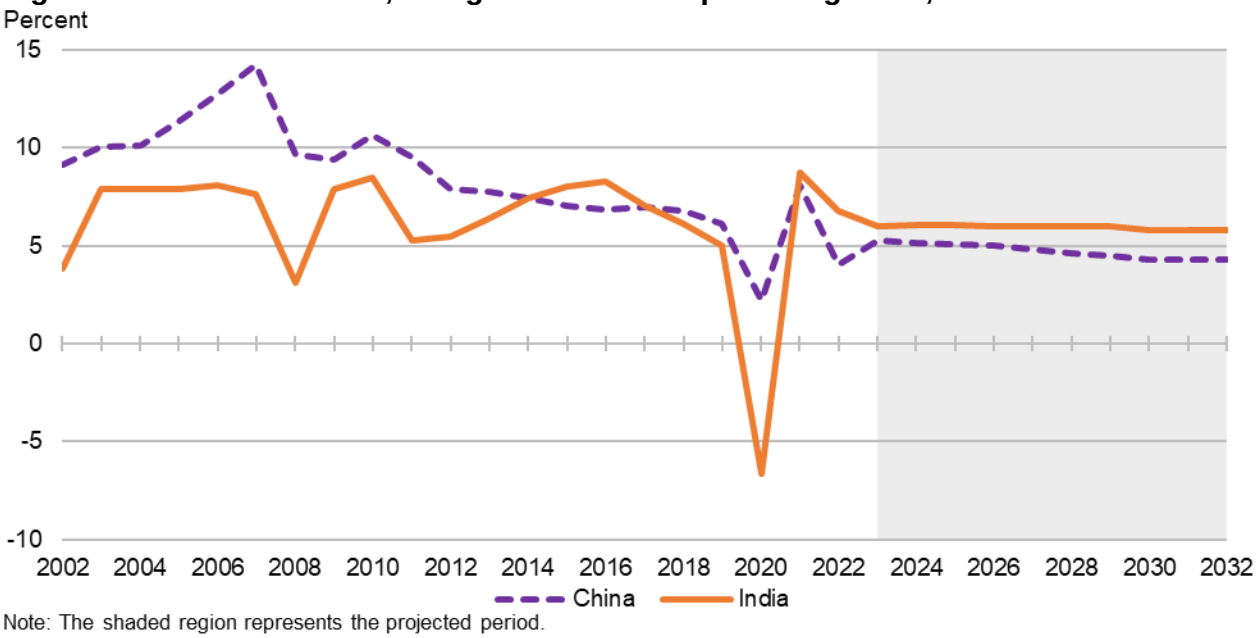


Sources: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

Developing country economic growth will remain a key factor in the global outlook for demand for agricultural products. Projected rising per capita income will likely lead to developing countries to continue spending income gains on improving and diversifying their

diets. Real GDP growth in developing regions is projected to continue to outpace growth in developed countries over 2023–2032. However, growth is projected to decelerate across developing countries due to the trade disruptions caused by the economic spillovers of the war.

Figure 5: China and India, real gross domestic product growth, 2002–32



Note: The shaded region represents the projected period.
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

- China, India, and Southeast Asian countries experienced the largest growth in real GDP in 2022.

- China's economy was estimated to grow 4.0 percent in 2022, almost double the rate of growth for the United States and the developed world. China's growth is supported by efforts to control COVID-19, fiscal spending, and strong exports. China's export reliance coupled with higher inflationary pressures in finished product markets will keep growth rates lower than pre-pandemic levels for the rest of the decade.

- Hence, China's economy is expected to slow from the prior decade (2013–22), to below 5 percent for the coming decade. Other major economies in Asia like India, Indonesia, Philippines, and Vietnam, will average higher rates of up to 6 percent annually during 2023–2032.

- Other East Asian economies, including South Korea, Taiwan, and Hong Kong, saw their rates of recovery slow in 2022. These three countries saw 4.0, 6.4, and 6.4 percent growth in 2021, respectively, and yet were forecast to grow 3.0, 3.5, and 1.6 percent in 2022. For the rest of the decade, South Korea, Taiwan, and Hong Kong are projected to average 1.9-, 2.1-, and 2.0- percent growth annually, respectively.

- In Southeast Asia, only Burma was forecast to continue a decline in real GDP in 2022 of -0.4 percent, following a significant 10-percent decline in 2021. Cambodia, Indonesia, Malaysia, Philippines, Thailand, and Vietnam are forecast to continue the recovery that began in 2021 with growth rates ranging from 3–7 percent in 2022. In the longer term, the region is projected to remain one of the fastest growing regions in the world with an average annual growth rate of 4.6 percent during 2023–2032.

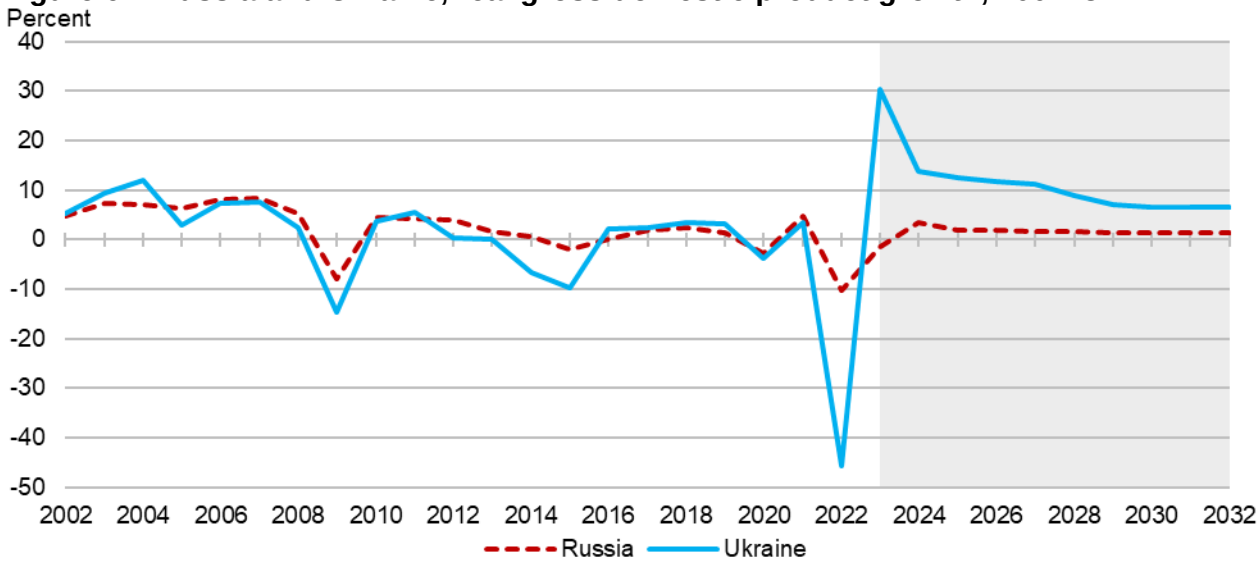
- In South Asia, India's real GDP was forecast to grow at 6.8 percent in 2022. This sets the world's second most populous country on the path of continued recovery following the severe 6.6-percent decline in GDP growth in 2020 due to a prolonged national lockdown aimed at controlling COVID-19. Bangladesh was forecast to grow at a similar rate of 6.0 percent in 2022, while Pakistan is set for more modest growth of 2.7 percent. During 2023–2032, South Asian economies collectively are projected to average 5.8-percent real GDP growth annually, with India as the region's lead driver of economic growth.

- Latin America has been among the most affected by the COVID-19 pandemic since 2020, leading to a prolonged period before reaching pre-pandemic growth levels before dropping again. Real GDP was expected to grow at 1.7 percent in 2022 in Latin America. Growth is projected at 2.8 percent annually in 2023–2032. The major economies of Latin America (e.g., Mexico, Argentina, Brazil, and Colombia) are expected to be more significantly slowed due to the costs associated with the pandemic, social and policy uncertainties, and rising inflation in product markets. The sluggish long-term recovery is largely the result of weakening investment and private consumption and rising borrowing costs, especially in Argentina and Colombia.

- Real GDP in Sub-Saharan Africa, the poorest region in the world, was forecast to continue to recover from the pandemic shock with 3.3-percent growth in 2022. This is slightly lower than the previous year's 4.2-percent growth, and a projected 3.5 percent in 2023. Growth is projected to average 3.8 percent per year during 2023–2032. Nigeria and South Africa (the region's two largest economies) were projected to experience depressed growth in 2022, at 2.7 and 1.7 percent, respectively. Reliance on natural resources, particularly oil, without equivalent diversified investments is one possible explanation for the reserved prospects of growth for these two countries. The West African community outside of Nigeria and South Africa has strong short-term economic growth and continues to out-perform its neighbors with an average annual 4.7-percent growth projected for 2023–2032.

- Most of the North Africa and the Middle East region economies were forecast to expand in 2022, though at lower rates than in 2021 (4.8 versus 5.9 percent). North Africa economic growth is projected at 3.9 percent for the rest of the decade. The benefits of higher energy prices for energy exporters are expected to outweigh those prices' negative impacts for other economies in the region.

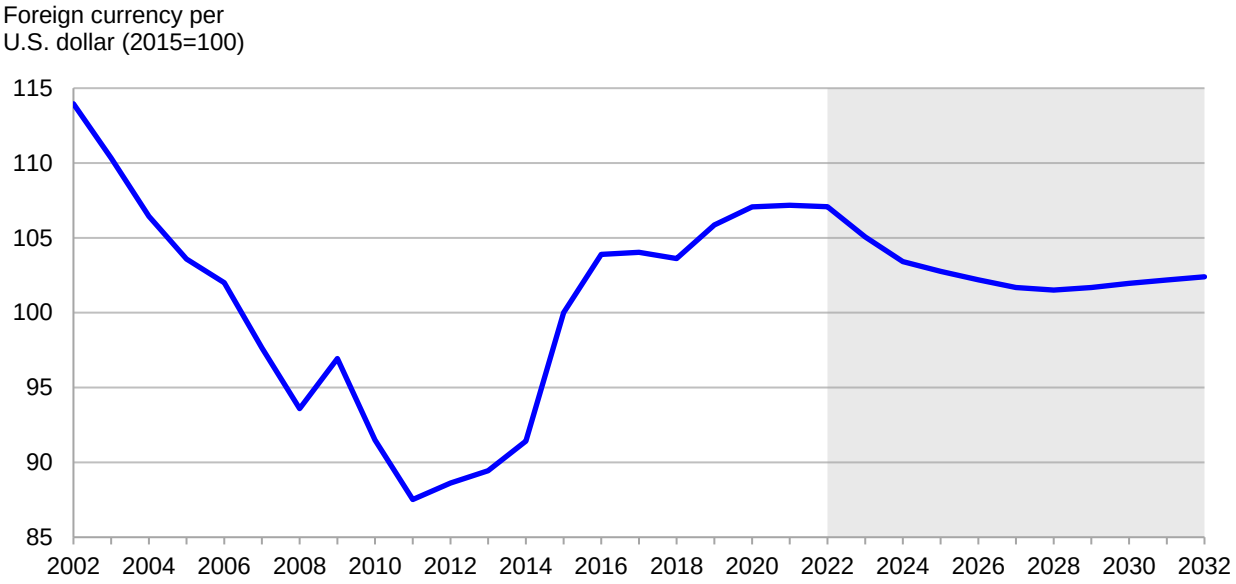
Figure 6: Russia and Ukraine, real gross domestic product growth, 2002–32



Note: The shaded region represents the projected period.
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

- The largest revisions from previous projections are the changes resulting from the ongoing Russian war against Ukraine, which began in February 2022. This war has disrupted global markets and increased geo-political tensions. Ukraine's economic output was forecast to contract by 45.7 percent in 2022. Despite expectations that Russia's war against Ukraine will continue for the foreseeable future, projected long-term growth for Ukraine is optimistic with a recovery of 30.3 percent in 2023 (still only about 70 percent of the GDP level in 2021) and an average annual growth rate of 11.5 percent from 2023–2032. For Russia, the response to its war against Ukraine has left its economy more isolated and the prospects for growth poor. Russia's economy was forecast to shrink by 10.2 percent in 2022. Russia's long-term growth from 2023–2032 is projected at only 1.5 percent due to the continued lack of access to international banking, credit, and product markets. Most remaining former Soviet States are forecast to experience markedly better prospects for growth for the remainder of the decade.

Figure 7: Agricultural trade-weighted U.S. dollar exchange rate, 2002–32



Note: The shaded region represents the projected period.
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

In 2022, the real (inflation-adjusted) agricultural trade-weighted exchange rate for the United States declined after reporting a stronger value in 2021 (table 3). The U.S. dollar, which was on upward trend since 2010, began to peak in 2020. For the projection period, the agricultural trade-weighted exchange rate of the U.S. dollar dips and then remains relatively flat. The value of the U.S. dollar versus the currencies of U.S. trade partners affects the demand for U.S. agricultural exports, particularly bulk commodities.

Over the 2023–2032 projection period, the U.S. dollar is forecast to weaken gradually in the initial years but remains strong compared to many other currencies. On average in the long run, the U.S. dollar value is expected to decrease slightly against its agricultural trade partners.

- During 2022, the U.S. dollar was mostly unchanged in real terms broadly across the currencies of both developed and developing countries, including with most of its important agricultural trading partners, except Latin America and the Middle East. Real U.S. dollar value decreased against the bordering countries of Canada and Mexico by around 3 and 2 percent, respectively. The real value of the U.S. dollar strengthened against the euro and the English pound sterling in 2022.

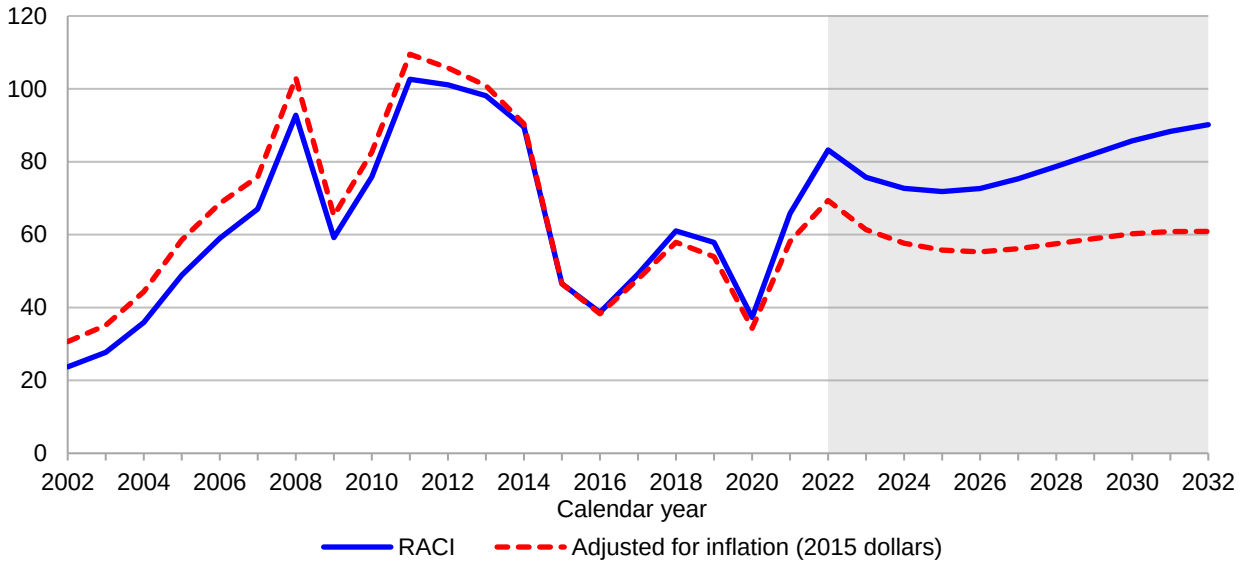
- Over the next decade, the real value of the U.S. dollar overall remains stable or declines against most of the currencies of major U.S. trading partners in North America, Europe, South America, Southeast Asia, the Middle East, and North Africa. In a few countries,

the dollar is projected to gradually appreciate relative to their currency. These include the Chinese Yuan renminbi and the Brazilian real.

Oil Price Outlook

Figure 8: Crude oil price: refiner's acquisition cost of imports, 2002–32

U.S. dollars per barrel

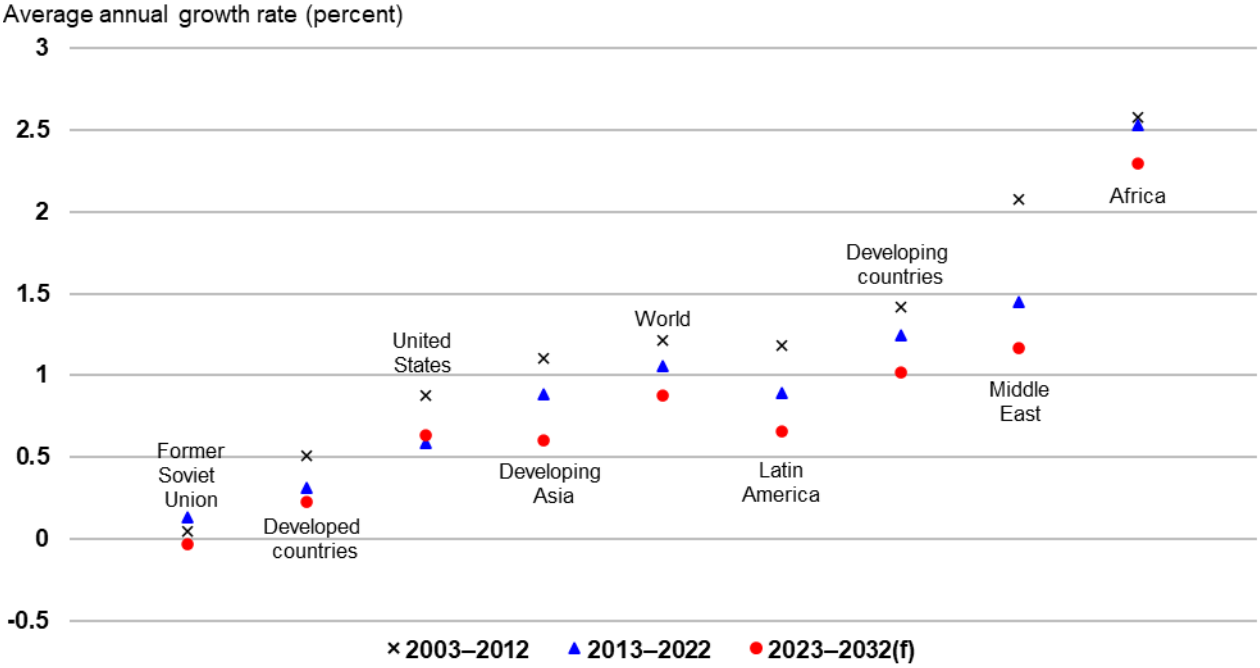


RACI = refiner's acquisition cost of imports.
Note: The shaded region represents the projected period.
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

Oil prices in 2021 completely rebounded from the pandemic induced recession price level in 2020. The forecast price of crude oil in 2022 was substantially higher than its 2021 values. This is attributable to stable fuel consumption even in the face of inflation and energy supply disruptions from the Russia's war against Ukraine. While crude oil demand is projected to slow, in the longer term, nominal oil prices are expected to rise during 2023–2032 because of supply management measures by the Organization of Petroleum Exporting Countries (OPEC) and Russia (table 2).

In the longer term, nominal crude oil prices are projected to rise from around $65 per barrel in 2021 to more than $90 per barrel in 2032. The oil price increases will likely lead to significant hikes in production costs for agricultural producers in the United States and other countries.

Figure 9. World population growth rates, 2002-32



f = forecast
Note: Developing Asia is Asia less Japan.
Source: U.S. Department of Commerce, Bureau of the Census.

World population growth is projected to continue to slow throughout 2023–2032, with annual growth projected at 0.9 percent per year compared with 1.1 percent over the prior decade (table 4).

- Developed countries have relatively low projected population growth rates, averaging 0.04 percent per year over the coming decade. The U.S. population is projected to grow faster than other developed countries; 0.6 percent per year, on average. Population in the European Union 27 is expected to be flat, while “other Europe” (which includes the UK), averages less than 0.2 percent annual growth. Japan’s population is projected to continue to decline.

- Population growth rates in developing countries are higher compared to developed countries but are also projected to slow during 2023–2032. Slowing population growth in developing regions is associated with rising incomes, literacy rates, and life expectancy, all of which tend to lower birth rates. The average annual population growth rate for developing countries is projected to increase 1.0 percent during 2023–2032.

- Across developing regions, population growth rates vary inversely with per capita income. East Asia, with generally high incomes on average, is projected to have a population growth rate near zero during 2023–2032, while lower income regions, including Southeast Asia (0.8 percent), South Asia (0.9 percent), and the Middle East (1.2 percent) have higher projected growth rates. Population growth in the lowest income region, Sub-Saharan Africa, is projected to average 2.5 percent during 2023–2032. In all cases, developing region population growth is projected to slow compared to the growth rates of previous decades.

- Average annual population growth in the former Soviet States is expected to decline to below zero during the 2023–2032 projection period. In Russia and Ukraine, populations are set to decline due to poor economic prospects. These projections, based on data from the U.S. Department of Commerce, Bureau of the Census, do not yet account for people leaving due to the war and conflict zones.

Table 1. Global real gross domestic product (GDP) shares and GDP growth assumptions to 2032

Region/country	GDP 2022	GDP share 2020-22	Per capita GDP, 2022	2022	2023	2024	2025	2026	2027	Average 2003–12	Average 2013–22	Average 2023–32
	Dollars (billions, 2015)	Percent	Dollars (2015)	Annual percent change in real GDP								
World	88,424	100.0	11,393	3.0	3.2	2.9	2.8	2.8	2.7	3.2	2.6	2.8
U.S. and Canada	22,673	25.7	61,072	3.2	2.6	1.6	1.5	1.5	1.6	1.9	2.1	1.8
Canada	1,725	2.0	45,066	3.5	2.4	2.5	1.9	1.9	1.9	3.0	1.7	2.0
United States	20,948	23.7	62,912	3.1	2.7	1.5	1.5	1.5	1.6	1.9	2.2	1.8
Latin America	5,345	6.2	8,578	1.7	2.0	2.6	2.7	2.8	2.8	3.8	1.0	2.8
Mexico	1,228	1.4	9,498	1.7	1.9	2.1	2.1	2.2	2.2	2.3	1.3	2.2
Caribbean and Central America	616	0.7	6,754	3.0	2.9	3.0	2.9	2.9	2.9	3.1	1.8	3.0
South America	3,502	4.0	8,695	1.4	1.9	2.6	2.8	2.9	3.0	4.4	0.8	3.0
Argentina	573	0.7	12,380	1.0	1.2	2.1	2.0	2.2	2.4	5.7	0.0	2.4
Brazil	1,832	2.1	8,552	0.6	1.9	2.4	2.8	2.9	3.0	3.9	0.2	2.9
Other South America	1,098	1.2	7,714	2.9	2.3	3.4	3.4	3.3	3.3	5.0	2.5	3.2
Europe	19,395	22.3	35,375	2.7	1.7	1.8	1.6	1.5	1.5	1.3	1.5	1.5
European Union 27	14,947	17.2	33,117	2.6	1.9	2.0	1.6	1.5	1.5	1.2	1.4	1.5
Other Europe 1/	1,303	1.5	42,938	2.6	2.3	1.8	1.7	1.6	1.6	2.0	1.7	1.7
Former Soviet Union (FSU)	1,932	2.5	6,730	-9.0	0.8	3.9	2.7	2.7	2.6	5.3	0.4	2.4
Russia	1,323	1.7	9,377	-10.2	-1.4	3.5	1.8	1.8	1.7	4.8	-0.2	1.5
Ukraine	55	0.1	1,264	-45.7	30.3	13.7	12.5	11.8	11.2	3.7	-5.1	11.5
Other FSU-10 2/	553	0.6	5,406	1.1	3.0	3.3	3.5	3.4	3.2	7.8	3.2	3.1
Asia and Oceania	33,034	36.7	7,704	3.9	4.6	4.3	4.2	4.2	4.0	5.7	4.3	4.0
East Asia	23,752	26.3	14,750	3.5	4.4	4.1	4.0	3.9	3.8	5.9	4.5	3.8
China	16,454	17.8	11,759	4.0	5.3	5.1	5.1	5.0	4.8	10.6	6.3	4.7
Hong Kong	337	0.4	46,343	1.6	3.9	2.4	2.0	1.9	1.8	4.6	1.7	2.0
Japan	4,507	5.3	36,216	2.0	1.9	1.1	0.8	0.8	0.8	0.8	0.6	0.9
Korea	1,732	2.0	33,396	3.0	3.0	2.2	2.0	2.0	1.9	4.0	2.6	1.9
Taiwan	678	0.7	28,774	3.5	3.0	2.2	2.0	2.0	2.0	4.5	3.3	2.1
Southeast Asia	3,140	3.5	4,622	4.9	5.1	4.7	4.7	4.6	4.5	5.6	3.9	4.6
Cambodia	25	0.0	1,428	5.1	5.9	6.1	6.3	6.3	6.3	8.0	5.4	6.2
Indonesia	1,118	1.3	4,107	4.9	5.3	5.1	5.0	5.0	5.0	5.6	4.2	5.0
Malaysia	377	0.4	11,372	6.4	4.6	4.5	4.5	4.5	4.5	5.1	3.9	4.5
Burma	77	0.1	1,347	-0.4	2.3	2.5	2.4	2.4	2.3	10.9	3.8	2.3
Philippines	405	0.5	3,552	7.0	6.3	6.2	5.7	5.3	4.9	5.2	4.9	5.1
Thailand	452	0.5	6,504	3.0	4.3	3.5	4.0	3.8	3.7	4.5	1.9	3.6
Vietnam	281	0.3	2,766	6.0	7.1	6.6	6.9	6.5	6.2	6.5	5.7	6.3
South Asia	3,728	4.1	2,020	5.9	5.7	6.0	5.9	5.8	5.8	6.5	5.4	5.8
Bangladesh	307	0.3	1,852	6.0	6.2	6.5	6.3	6.0	5.9	6.0	6.6	5.9
India	2,946	3.2	2,192	6.8	6.0	6.1	6.0	6.0	6.0	7.0	5.7	5.9
Pakistan	343	0.4	1,412	2.7	2.9	4.8	4.7	4.7	4.6	4.3	3.8	4.4
Oceania	1,833	2.1	44,118	3.4	2.9	3.0	2.9	2.7	2.6	3.0	2.4	2.6
Australia	1,581	1.8	60,495	3.5	2.9	3.0	2.9	2.8	2.7	3.1	2.3	2.7
New Zealand	213	0.2	42,228	1.9	2.4	3.0	2.3	2.2	2.1	2.3	2.9	2.1
Middle East	3,757	4.2	10,911	4.7	3.9	3.0	2.6	2.4	2.4	5.1	2.6	2.6
Iran	411	0.4	4,741	5.9	9.0	6.9	5.1	3.9	3.0	3.2	1.2	3.7
Iraq	199	0.2	4,919	8.7	6.2	3.7	2.9	2.7	2.6	7.6	2.5	3.0
Saudi Arabia	719	0.8	20,345	7.1	2.5	1.5	1.9	2.0	2.1	5.4	2.0	2.2
Turkey	1,139	1.2	13,713	1.9	2.4	1.9	1.8	1.9	1.9	5.7	4.9	1.9
Other Middle East	1,288	1.5	13,057	5.0	4.1	3.2	2.6	2.6	2.6	5.1	1.8	2.8
Africa	2,747	3.1	1,990	3.8	3.8	4.0	4.1	4.0	3.9	5.1	2.8	3.9
North Africa	832	0.9	4,018	4.9	4.6	4.4	4.4	4.2	4.0	4.3	2.8	3.9
Egypt	454	0.5	4,217	5.4	5.2	5.7	5.7	5.3	4.9	4.7	4.1	4.7
Morocco	111	0.1	3,070	1.0	3.6	2.9	3.0	3.1	3.1	4.7	2.2	3.2
Sub-Saharan Africa	1,915	2.2	1,632	3.3	3.5	3.8	4.0	3.9	3.9	5.4	2.8	3.8
South Africa, Republic	326	0.4	5,666	1.7	1.6	1.7	2.0	2.1	2.2	3.4	0.8	2.2
Nigeria	534	0.6	2,372	2.7	2.3	2.5	3.2	3.3	3.3	6.8	2.3	3.1
Other West African Community	259	0.3	1,316	4.6	5.5	5.9	5.0	4.8	4.6	4.4	5.2	4.7
Other Sub-Saharan Africa	796	0.9	1,147	3.9	4.4	4.7	4.8	4.7	4.6	6.1	3.4	4.6

Note: 1/ Other Europe now includes Great Britain. 2/ Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan.

Source: World Bank, World Development Indicators, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by USDA, Economic Research Service. Projections completed in August 2022.

Errata: On November 21, 2022, Table 1, "Global GDP Shares and GDP Growth Assumption to 2032", of the zip file containing macroeconomic projections was reposted to correct errors in historical and projected average gross domestic product (GDP) growth. No other tables were affected by the error.

Table 2. U.S. macroeconomic assumptions, 2021–32

Item	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Gross domestic product												
Nominal billion dollars	22,998	25,135	26,529	27,531	28,525	29,517	30,614	31,788	33,032	34,323	35,654	37,026
Real 2015 chain-weighted dollars	20,313	20,948	21,504	21,834	22,152	22,451	22,818	23,228	23,664	24,110	24,563	25,014
Percent change	5.7	3.1	2.7	1.5	1.5	1.3	1.6	1.8	1.9	1.9	1.9	1.8
Disposable personal income												
Nominal billion dollars	18,508	18,573	19,513	20,441	21,300	22,149	23,008	23,894	24,815	25,770	26,766	27,804
Percent change	6.2	0.4	5.1	4.8	4.2	4.0	3.9	3.9	3.9	3.8	3.9	3.9
Nominal per capita, dollars	55,971	55,780	58,201	60,559	62,688	64,764	66,848	68,993	71,217	73,522	75,927	78,432
Percent change	5.9	-0.3	4.3	4.1	3.5	3.3	3.2	3.2	3.2	3.2	3.3	3.3
Real 2015 chain-weighted dollars	16,347	15,479	15,816	16,211	16,541	16,847	17,149	17,460	17,778	18,102	18,440	18,784
Percent change	1.9	-5.3	2.2	2.5	2.0	1.8	1.8	1.8	1.8	1.8	1.9	1.9
Real per capita, 2015 chained dollars	49,439	46,488	47,176	48,027	48,682	49,260	49,824	50,414	51,021	51,646	52,307	52,987
Percent change	1.6	-6.0	1.5	1.8	1.4	1.2	1.1	1.2	1.2	1.2	1.3	1.3
Personal consumption expenditures												
Real 2015 chain-weighted dollars	13,909	14,256	14,578	14,826	15,050	15,246	15,503	15,816	16,143	16,477	16,822	17,171
Percent change	7.6	2.5	2.3	1.7	1.5	1.3	1.7	2.0	2.1	2.1	2.1	2.1
Inflation measures												
GDP chained price index, 2015=100	113.2	120.0	123.4	126.1	128.8	131.5	134.2	136.9	139.6	142.4	145.2	148.0
Percent change	4.2	6.0	2.8	2.2	2.1	2.1	2.0	2.0	2.0	2.0	2.0	2.0
CPI-U, 1982-84=100	271.0	287.5	296.4	303.5	310.5	317.7	325.1	332.8	340.7	348.7	356.9	365.2
Percent change	4.7	6.1	3.1	2.4	2.3	2.3	2.3	2.4	2.4	2.4	2.3	2.3
PPI, finished goods 1982=100	221.0	251.4	252.2	253.5	258.5	263.8	269.1	274.6	280.2	285.9	291.7	297.6
Percent change	8.9	13.7	0.3	0.5	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PPI, crude goods 1982=100	227.2	242.2	233.7	230.7	230.7	233.0	237.8	243.4	249.0	254.5	258.7	261.9
Percent change	35.6	6.6	-3.5	-1.3	0.0	1.0	2.1	2.3	2.3	2.2	1.7	1.3
Crude oil price, dollar per barrel												
EIA Refiner acquisition cost, imports	65.8	83.3	75.7	72.7	71.8	72.7	75.4	78.7	82.2	85.8	88.3	90.2
Percent change	76.5	26.5	-9.0	-4.0	-1.2	1.2	3.7	4.5	4.4	4.3	3.0	2.1
Real 2015 chain-weighted dollars	58.1	69.4	61.4	57.6	55.8	55.3	56.2	57.5	58.9	60.2	60.9	60.9
Percent change	69.4	19.4	-11.5	-6.1	-3.3	-0.9	1.6	2.4	2.4	2.3	1.0	0.1
Labor compensation per hour												
nonfarm business, 2015=100	124.6	131.0	136.0	141.1	146.5	152.3	158.6	164.8	170.6	176.6	182.7	189.0
Percent change	3.2	5.2	3.8	3.7	3.8	4.0	4.2	3.9	3.5	3.5	3.4	3.4
Interest rates, percent												
3-month Treasury bills	0.04	0.94	2.03	2.49	2.62	2.50	2.32	2.29	2.29	2.29	2.29	2.29
Bank prime rate	3.25	4.77	6.63	4.92	5.13	5.13	5.13	5.13	5.13	5.13	5.13	5.13
10-year Treasury bonds	1.44	2.41	2.86	3.05	3.19	3.46	3.72	3.80	3.80	3.80	3.80	3.80
Labor and population												
Civilian unemployment rate, percent	5.4	3.8	3.5	3.7	3.9	4.0	4.2	4.5	4.5	4.6	4.5	4.5
Civilian nonfarm employees, millions	146.1	151.4	153.8	154.7	155.2	155.7	156.2	156.6	157.4	158.1	158.9	159.7
Percent change	2.8	3.6	1.6	0.5	0.4	0.3	0.3	0.3	0.5	0.5	0.5	0.5
Total population, millions	330.7	333.0	335.3	337.5	339.8	342.0	344.2	346.3	348.4	350.5	352.5	354.5
Percent change	0.3	0.7	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.6	0.6

Note: Domestic macroeconomic assumptions were completed in August 2022. GDP=gross domestic product. CPI-U=Consumer Price Index for all urban consumers. PPI=Producer Price Index. EIA=Energy Information Administration, U.S. Dept. of Energy.

Source: U.S. Bureau of Labor Statistics, International Financial Statistics International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by USDA, Economic Research Service.

Table 3. Real exchange rate growth rates assumptions to 2032

Region/country	Local currency per U.S. dollar, 2022	2021	2022	2023	2024	2025	2026	Average 2003–12	Average 2013–22	Average 2023–32
	Index value, 2015 base 1/	Percent change in real exchange rate								
Total all countries	107.08	0.1	-0.1	-1.9	-1.6	-0.6	-0.6	-2.4	1.9	-0.4
Canada	1.24	-5.4	-2.9	-0.7	2.1	0.2	0.2	-3.8	2.3	0.4
Latin America	117.23	3.8	-3.8	-2.1	0.9	1.6	1.3	-0.9	2.9	0.3
Mexico	17.55	-6.5	-1.9	0.7	2.9	3.5	2.7	1.5	2.5	1.2
Caribbean and Central America	129.39	36.0	-10.2	-6.6	-3.1	-1.3	-0.5	-2.1	3.2	-1.1
South America	122.53	2.9	-0.6	-4.4	-0.1	-0.3	-0.2	-4.8	4.8	-0.6
Argentina	14.01	-4.2	-5.8	6.0	-11.7	-2.4	-1.9	-2.2	8.1	-1.3
Brazil	4.23	1.2	-7.2	-5.5	-0.1	1.3	1.2	-7.0	6.9	0.1
Other South America	120.40	3.7	1.6	-4.4	0.4	-0.6	-0.6	-4.2	4.3	-0.7
Europe	110.90	-2.5	8.6	-0.9	-4.1	-3.4	-1.4	-2.1	2.6	-1.0
European Union 27	108.09	-1.9	8.9	-0.9	-3.8	-3.7	-1.4	-2.4	2.6	-1.0
Other Europe 2/	114.68	-1.1	9.0	0.5	-2.7	-2.3	0.0	-2.8	2.6	0.1
Former Soviet Union (FSU)	110.49	-0.4	3.6	-5.3	-3.6	-2.2	-1.9	-6.1	5.5	-1.7
Russia	66.39	0.0	3.7	-4.9	-3.3	-1.4	-1.1	-6.8	6.0	-1.2
Ukraine	18.12	-3.1	1.8	-13.3	-6.4	-6.8	-5.4	-3.1	4.3	-5.2
Other FSU-10 3/	130.19	-0.5	4.0	-3.5	-3.4	-2.7	-2.3	-5.1	5.3	-1.9
Asia and Oceania	113.59	0.2	9.2	1.6	-2.0	-1.3	-0.8	-2.7	2.0	-0.2
East Asia	114.74	0.2	10.5	1.4	-2.7	-1.5	-0.9	-2.3	2.1	-0.2
China	6.99	-3.1	6.8	1.7	-4.2	-1.3	-0.2	-3.1	0.8	0.4
Hong Kong	8.33	3.3	4.5	0.7	0.0	0.0	0.2	0.6	-0.1	0.4
Japan	150.34	7.9	21.7	4.2	-2.5	-3.5	-3.5	-1.7	6.9	-0.4
Korea	1,313.01	-1.0	8.5	-4.2	0.1	0.9	0.8	-1.3	1.6	0.1
Taiwan	32.48	-2.8	7.2	0.2	-0.8	-0.5	-0.4	-0.3	1.1	-0.2
Southeast Asia	109.09	1.8	4.6	1.0	-0.2	-0.9	-0.8	-3.8	1.7	-0.4
Cambodia	4,041.93	1.5	2.0	0.1	-0.8	-0.9	-0.8	-2.9	-0.4	-0.6
Indonesia	14,231.46	1.1	3.0	5.0	-0.2	-3.3	-2.9	-4.1	2.7	-1.1
Malaysia	4.54	0.7	4.6	-2.2	-1.1	-0.5	-0.4	-1.9	3.6	-0.5
Myanmar	1,364.30	15.2	7.1	0.7	-0.5	0.2	0.7	1162.4	6.8	0.8
Philippines	50.57	0.0	7.3	-1.3	-1.7	-1.3	-1.2	-3.8	1.5	-1.1
Thailand	37.74	5.7	6.3	1.4	1.4	0.3	0.3	-3.7	2.0	0.5
Vietnam	23,035.57	2.7	3.2	0.4	0.0	0.3	0.2	-3.9	0.2	0.1
South Asia	111.08	-0.9	6.6	2.2	0.4	-0.7	-0.8	-3.0	0.6	-0.4
Bangladesh	71.25	-0.6	1.6	3.5	7.2	2.9	2.4	-1.3	-3.0	2.2
India	66.60	-0.7	3.3	0.5	-1.1	-1.9	-1.9	-3.4	0.5	-1.5
Pakistan	133.98	-3.8	8.5	0.1	-1.3	-1.6	-1.4	-2.8	2.5	-0.9
Oceania	109.38	-6.8	6.5	6.7	1.4	-1.0	-0.9	-6.0	3.7	0.3
Australia	1.46	-6.8	6.3	7.9	1.0	-1.9	-1.6	-6.2	4.1	0.1
New Zealand	1.56	-7.7	7.9	2.8	3.1	2.5	1.9	-5.1	2.6	1.2
Middle East	131.93	4.9	3.3	-1.9	-0.1	0.0	-0.1	-3.7	3.2	-0.5
Iran	62,584.58	-11.0	-24.1	-15.4	-0.6	-5.6	-5.4	-7.4	27.4	-5.6
Iraq	1,542.78	20.2	0.2	-3.1	-2.6	-0.8	-0.7	-15.3	2.8	-0.9
Saudi Arabia	4.07	1.6	2.8	0.6	0.9	0.9	0.9	-1.1	0.5	0.9
Turkey	5.15	10.5	9.6	-3.9	-1.7	-1.2	-1.5	-4.5	9.0	-2.2
Other Middle East	105.63	2.0	0.2	0.2	1.2	1.2	1.0	-2.3	0.3	0.6
Africa	115.12	1.2	2.8	-2.2	-2.2	-1.2	-1.0	14.8	2.1	-0.9
North Africa	124.57	4.6	7.8	-2.3	-1.5	-0.4	-0.3	-2.6	3.0	-0.6
Egypt	9.92	-1.2	12.5	-3.0	-1.8	-0.2	-0.4	-3.1	3.4	-1.1
Morocco	10.54	-2.2	9.1	-0.5	-0.6	0.3	0.4	-1.5	2.1	0.4
Sub-Saharan Africa	104.87	-2.5	-3.0	-2.1	-3.1	-2.4	-1.9	15.1	1.2	-1.3
South Africa, Republic	13.46	-10.1	4.9	1.0	-0.2	0.0	0.2	-3.8	4.1	0.5
Nigeria	194.65	0.0	-4.7	-6.9	-6.5	-4.6	-4.1	-5.9	0.3	-3.0
Other West African Community	101.57	-3.1	4.0	-1.1	-2.1	-2.4	-1.3	-2.7	2.0	-0.9
Other Sub-Saharan Africa	109.48	-1.4	-6.7	0.4	-2.1	-1.6	-1.3	15.4	1.2	-0.7

1/ index values are for regional aggregates only. 2/ Other Europe now includes Great Britain. 3/ Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan.

Source: International Financial Statistics International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by USDA, Economic Research Service. Projections completed August 2022.

Table 4. Population growth assumptions to 2032

Region/country	Population in 2022	2021	2022	2023	2024	2025	2026	Average 2003–12	Average 2013–22	Average 2023–32
	Millions	Percent change in population								
World 1/	7,761	0.9	0.9	0.9	0.9	0.9	0.9	1.2	1.1	0.9
United States and Canada	371	0.3	0.7	0.7	0.7	0.7	0.7	0.9	0.6	0.6
Canada	38	0.8	0.8	0.7	0.7	0.7	0.7	1.0	0.9	0.7
United States	333	0.3	0.7	0.7	0.7	0.7	0.7	0.9	0.6	0.6
Latin America	623	0.6	0.7	0.7	0.7	0.7	0.7	1.2	0.9	0.7
Mexico	129	0.4	0.5	0.6	0.7	0.8	0.8	1.4	1.0	0.8
Caribbean and Central America	91	0.9	0.9	0.9	0.8	0.8	0.8	1.1	0.9	0.8
South America	403	0.7	0.7	0.7	0.7	0.6	0.6	1.1	0.9	0.6
Argentina	46	0.8	0.8	0.8	0.8	0.8	0.8	1.0	0.9	0.7
Brazil	214	0.5	0.6	0.7	0.6	0.6	0.6	1.1	0.7	0.6
Other South America	142	0.8	0.7	0.7	0.7	0.7	0.7	1.3	1.0	0.6
Europe	548	0.0	0.0	0.1	0.1	0.0	0.1	0.3	0.2	0.0
European Union 27	451	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Other Europe 2/	30	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.2
Former Soviet Union (FSU)	287	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Russia	141	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.1	-0.3
Ukraine	44	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.6	-0.4	-0.5
Other FSU-10 3/	102	0.7	0.6	0.6	0.6	0.6	0.5	0.8	0.7	0.5
Asia and Oceania	4,288	0.7	0.6	0.6	0.6	0.6	0.6	1.1	0.9	0.6
East Asia	1,610	0.2	0.2	0.1	0.2	0.1	0.1	0.5	0.3	0.0
China	1,399	0.2	0.2	0.2	0.2	0.2	0.1	0.5	0.4	0.1
Hong Kong	7	0.2	0.2	0.2	0.1	0.1	0.1	0.4	0.3	0.1
Japan	124	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	0.0	-0.2	-0.5
Korea	52	0.3	0.3	0.2	0.2	0.2	0.2	0.5	0.4	0.2
Taiwan	24	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Southeast Asia	679	1.0	0.9	0.9	0.9	0.9	0.8	1.3	1.0	0.8
Cambodia	17	1.2	1.1	1.1	1.0	1.0	0.9	1.6	1.5	0.9
Indonesia	272	0.8	0.8	0.8	0.7	0.7	0.7	1.2	0.9	0.7
Malaysia	33	1.1	1.1	1.0	1.0	1.0	1.0	1.9	1.3	0.9
Burma	58	0.8	0.8	0.8	0.7	0.7	0.7	1.0	0.9	0.7
Philippines	114	2.1	1.6	1.6	1.6	1.6	1.5	1.9	1.7	1.5
Thailand	69	0.3	0.2	0.2	0.2	0.1	0.1	0.5	0.3	0.1
Vietnam	102	1.0	1.0	1.0	0.9	0.9	0.8	1.2	1.0	0.8
South Asia	1,846	1.0	0.9	0.9	0.9	0.9	0.9	1.6	1.2	0.9
Bangladesh	166	1.0	0.9	0.9	0.9	0.9	0.9	1.2	1.0	0.8
India	1,344	0.8	0.6	0.7	0.7	0.7	0.7	1.5	1.1	0.7
Pakistan	243	2.0	2.0	1.9	1.9	1.9	1.8	2.3	2.1	1.8
Oceania	42	1.5	1.5	1.4	1.3	1.3	1.3	1.6	1.5	1.2
Australia	26	1.3	1.3	1.2	1.2	1.1	1.1	1.6	1.5	1.1
New Zealand	5	1.3	1.2	1.1	1.0	0.9	0.8	1.1	1.5	0.8
Middle East	344	1.4	1.5	1.5	1.3	1.2	1.2	2.1	1.5	1.2
Iran	87	1.1	1.0	1.0	0.9	0.9	0.8	1.2	1.2	0.8
Iraq	41	2.1	2.0	2.0	2.0	2.0	1.9	2.6	2.6	1.9
Saudi Arabia	35	1.6	1.6	1.7	1.7	1.7	1.7	2.8	1.8	1.5
Turkey	83	0.6	0.7	0.7	0.6	0.6	0.6	1.2	0.8	0.6
Other Middle East	99	1.9	2.3	2.4	1.9	1.4	1.4	3.4	1.6	1.5
Africa	1,380	2.5	2.4	2.4	2.4	2.3	2.3	2.6	2.5	2.3
North Africa	207	1.5	1.5	1.4	1.3	1.2	1.2	1.8	1.9	1.1
Egypt	108	1.9	1.7	1.6	1.6	1.5	1.4	2.3	2.3	1.4
Morocco	36	1.0	0.9	0.9	0.9	0.8	0.8	1.2	1.1	0.8
Sub-Saharan Africa	1,173	2.6	2.6	2.6	2.6	2.5	2.5	2.7	2.7	2.5
South Africa, Republic	58	1.0	0.9	0.9	0.9	0.9	0.9	1.2	1.0	0.8
Nigeria	225	2.6	2.6	2.6	2.6	2.6	2.6	2.8	2.6	2.5
Other West African Community	197	2.8	2.7	2.7	2.7	2.6	2.6	2.8	2.8	2.6
Other Sub-Saharan Africa	694	2.7	2.7	2.7	2.7	2.6	2.6	2.8	2.8	2.6

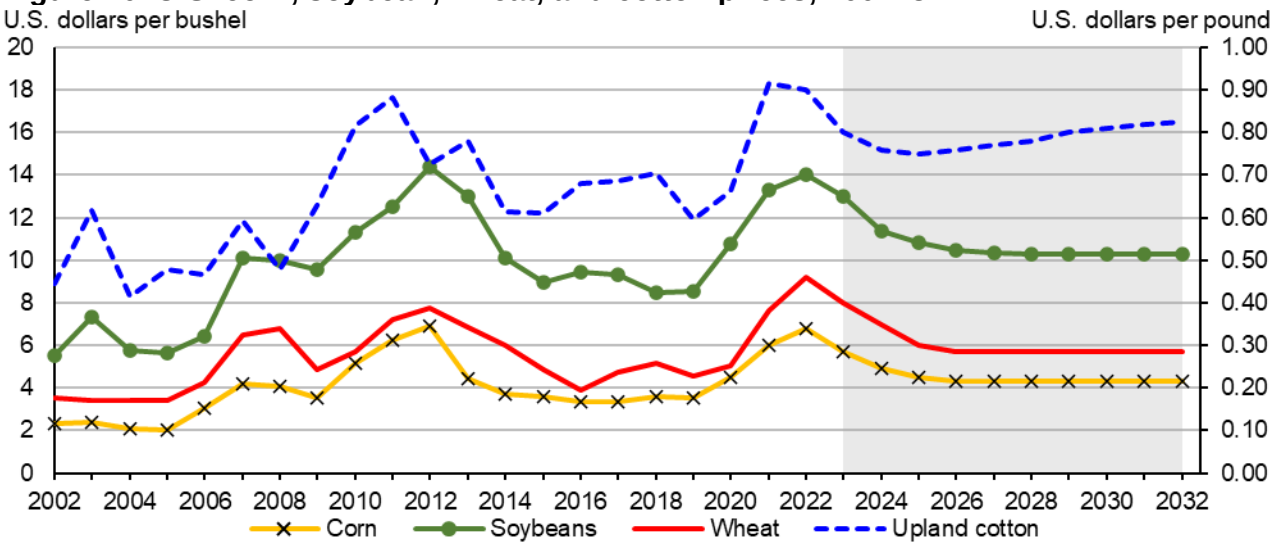
1/ Totals for the world include countries not otherwise included in the table.
2/ Other Europe now includes Great Britain.
3/ Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan.
Source: U.S. Department of Commerce, Bureau of the Census. The population assumptions were completed in August 2022.

U.S. Crops

Global economic and market circumstances including persistent inflation, drought, supply chain disruptions, high input costs, and Russia's war against Ukraine have influenced the U.S. agricultural sector and pressured commodity prices above their historic trends. Nevertheless, rising global demand for diversified diets and protein will continue to stimulate import demand for feed grains and soybeans. Increased demand for these crops—as well as for wheat, rice, and cotton—are accompanied by rising competition for market share from Brazil, Argentina, the European Union (EU), India, and others, and prices decline from recent peaks for all crops. Note that Baseline projections start in marketing year 2023/24, end in 2032/33, and data for 2022/23 and prior years are based on information as of the October 2022 *World Agricultural Supply and Demand Estimates* (*WASDE*).

Potential exporters from the United States also face challenges related to a relatively strong U.S. dollar, which tends to keep U.S. commodity prices relatively high in foreign currency terms. Although strong trade competition continues, U.S. agricultural commodities remain generally competitive in global agricultural markets. Export levels of the four major U.S. crops are expected to increase over the next decade. Upland cotton ends the projection period at record levels and corn and soybean exports rise and nearly approach prior records. Wheat exports rise from a projected 50-year low in 2022/23. Nominal prices for corn, soybeans, wheat, and cotton are expected to decline from their recent peaks in 2021/22 and/or 2022/23 (as of October 12, 2022) and stabilize at significantly lower levels after the first several years of the projection period. Of these crops, only cotton prices trend upward after the initial decline, projected to rise each year after 2025/26 through 2032/33.

Figure 10: U.S. corn, soybean, wheat, and cotton prices, 2002–32



Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

Corn prices are expected to fall steadily from a near-record peak of $6.80 per bushel in 2022/23 to $5.70 per bushel in 2023/24 and continue a downward trend through 2026/27

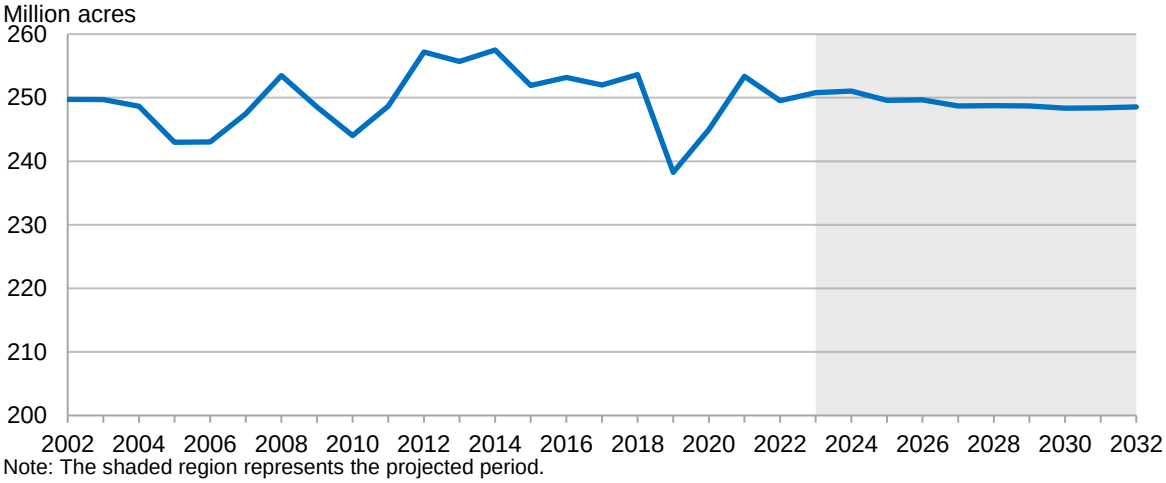
before stabilizing at $4.30 through 2032/33. Growth in domestic corn use is driven exclusively by feed and residual use, spurred by expanding corn supplies and meat production growth to meet both domestic and export demand for beef, pork, and poultry. The Baseline projects corn use for food, seed, and industrial use (including ethanol) to be essentially flat during the projection period, while exports rise by nearly 20 percent.

Soybean prices follow a similar trend as corn, falling to $13.00 per bushel in 2023/24; down $1.00 from the recent 2022/23 peak. Soybean prices continue their downward trend through 2028/29, before stabilizing at $10.30 per bushel through 2032/33. Soybean crush is expected to rise steadily to keep pace with soybean meal and soybean oil demand. Soybean exports are also expected to rise slowly, growing 8 percent over the 10-year projection period. Global import demand growth, led by China, is mainly fulfilled by increased exports from Brazil.

Wheat prices are expected to drop from a record $9.20 per bushel in 2022/23 to $8.00 in the first year of the projection period, still the second highest price on record. Prices continue to fall through 2026/27 before settling at $5.70 per bushel through 2032/33. Domestic use for wheat is projected to remain steady, rising only 2.4 percent over the 10-year projection period while exports climb at a relatively stronger rate, rising from 825 million bushels in 2023/24 to 950 million bushels in 2032/33, a 15.2 percent increase over the 10-year period.

After reaching a record of $0.914 per pound for cotton in 2021/22, the price is expected to fall to $0.80 per pound in 2023/24. Cotton prices are projected to continue to decline through 2025/26 to $0.75 per pound before turning upward in a steady rise though 2032/33, ending the projection period at $0.825 per pound. Domestic mill use for upland cotton is expected to grow slowly, rising 8.7 percent from 2023/24 to 2032/33. Upland cotton exports are projected to grow at a much faster rate, rising 51.5 percent by the end of the projection period from a relatively low base of 11.8 million bales in 2023/24.

Figure 11: Planted area for the eight major U.S. row crops, 2002–32

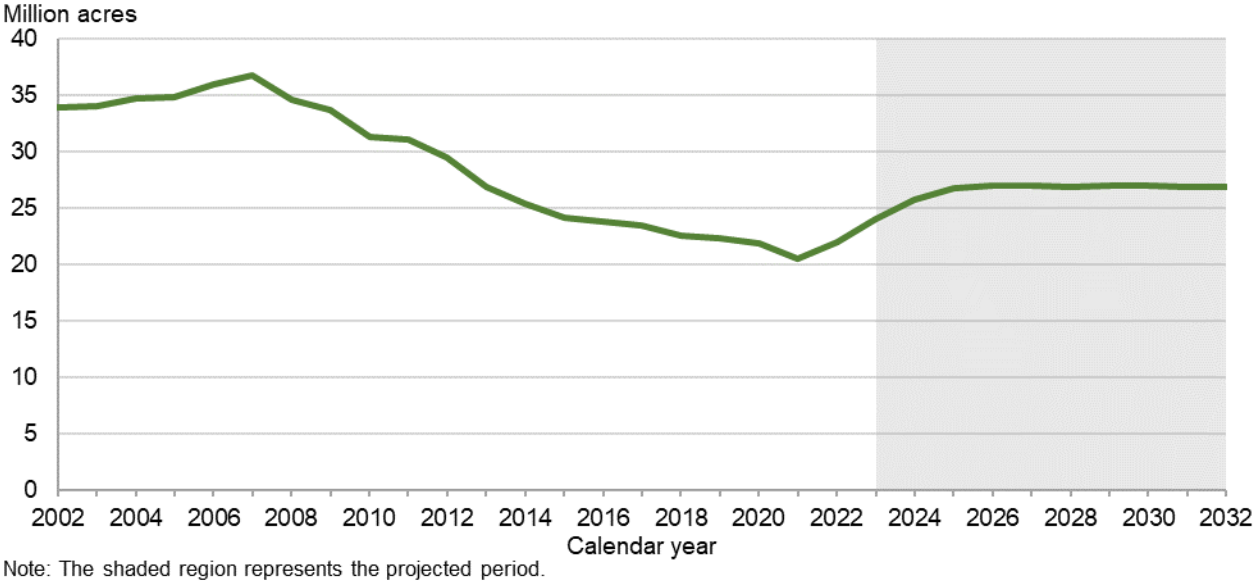


Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are

Despite prices that continued to rise from already elevated levels in 2021/22, total area planted to the 8 major field crops (barley, corn, cotton, oats, rice, sorghum, soybeans, and wheat) dipped from 253.4 million acres in 2021/22 to 249.5 million acres in 2022/23. The decrease in the 8-crop area planted was driven primarily by a reduction in corn acres. However, shifts in prevented plantings acreage—which expanded by 4.3 million acres in 2022—were also influential. Acreage changes year-to-year are led by the largest four crops: corn, soybeans, wheat, and cotton. For the projection period, the 8-crop total declines from 250.8 million acres in 2023/24 to 248.6 million in 2032/33. A ramp-up of USDA, Conservation Reserve Program (CRP) acres from 24.1 million in 2023 to 27 million acres by 2026 more than offsets the moderate decline in the 8-crop total of planted acres during the projection period. After 2026, CRP acres remain in the 26.9-million to 27-million acre range through 2032. Twenty-seven million acres is the maximum level legislated by the Agriculture Improvement Act of 2018, also known as the 2018 Farm Bill.

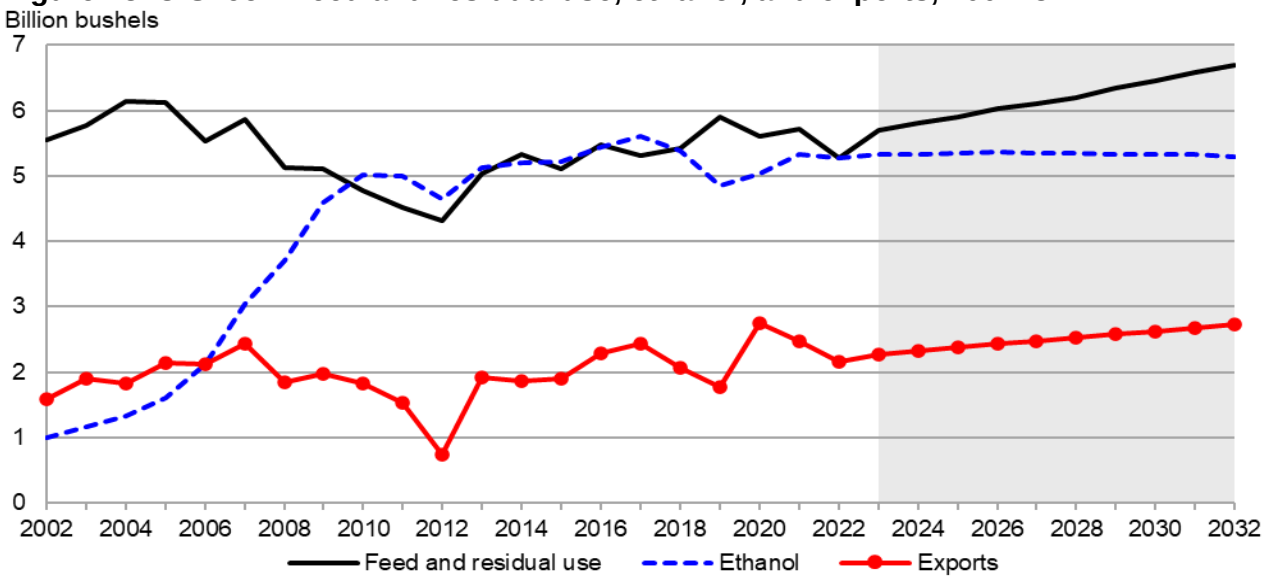
For corn, soybeans, and wheat, rising yields compensate for slow reductions in area, resulting in production rising to record levels for corn and soybeans, and rising production for wheat during the projections—but at levels well below much of the past two decades. Growth in cotton production is driven by both yield and area gains.

Figure 12: Acreage enrolled in the USDA Conservation Reserve Program, 2002–32



Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of September 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

Figure 13: U.S. corn feed and residual use, ethanol, and exports, 2002–32

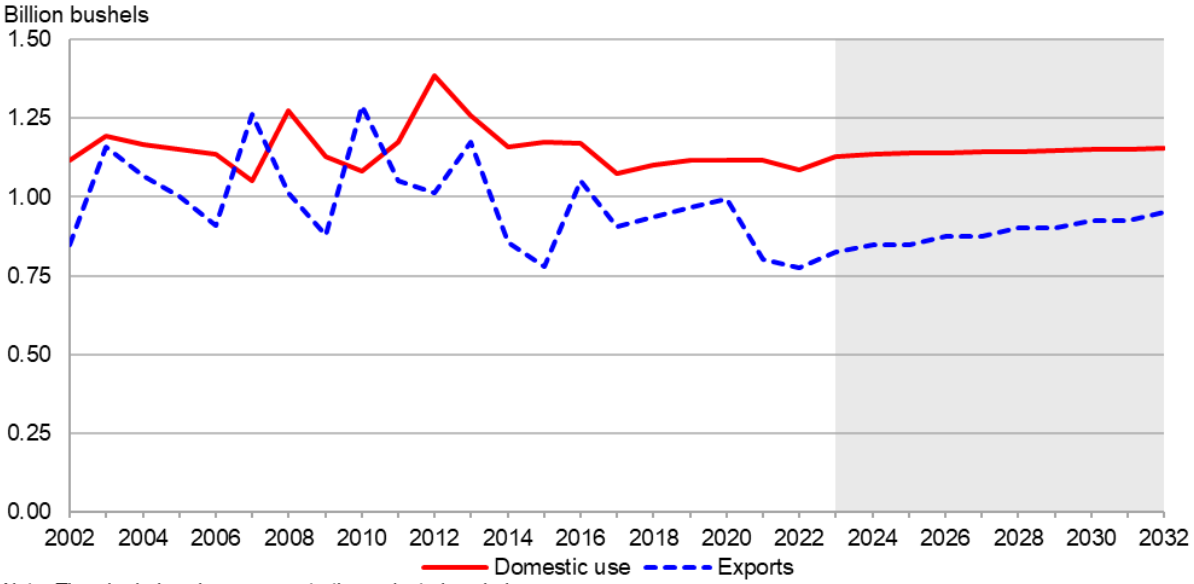


Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

The Baseline projects U.S. corn production to grow over the next decade as yield gains offset a slight decline in acreage. Planted area is projected to steadily decline after 2023/24's strong response to increased global demand and tight supplies. Exports are expected to be the fastest growing category of use. Feed and residual use also expands, supported by rising supplies and growing livestock inventories. The stocks-to-use ratio is expected to rise somewhat rapidly, from 11.6 percent in 2023/24 to 16.0 percent in 2026/27. Later in the projection period, supply and use grow at similar rates, slowing growth in the stocks-to-use ratio. Season-average nominal producer prices begin the projection period at $5.70 per bushel in 2023/24 before steadily declining to $4.30 by 2026/27 and through the end of the Baseline period as global production responds to increased global demand. Additionally, the Baseline projects the following outlook for the corn market:

- Corn used for ethanol production declines slightly over the projection period, from 5.325 billion bushels to 5.300 billion bushels by 2032/33. Expected declines in motor gasoline consumption constrains ethanol demand.
- Food, seed, and industrial (FSI) use of corn (other than ethanol production) gradually declines through the middle of the projection period, largely driven by declining high-fructose corn syrup (HFCS) production. Corn for food and beverage use grows in continuation of long-term per capita consumption trends, while glucose, dextrose, and starch are projected to remain flat.
- U.S. corn exports are projected to reach 2.725 billion bushels by 2032/33 driven by strong global demand. Somewhat higher stocks relative to use are expected to mitigate against global weather and production risks, as the United States competes for market share with other major exporters in South America, particularly as an increasing share of global trade becomes more reliant on a favorable outcome to the rainy season in Brazil's Center-West region.

Figure 14: U.S. wheat domestic use and exports, 2002–32

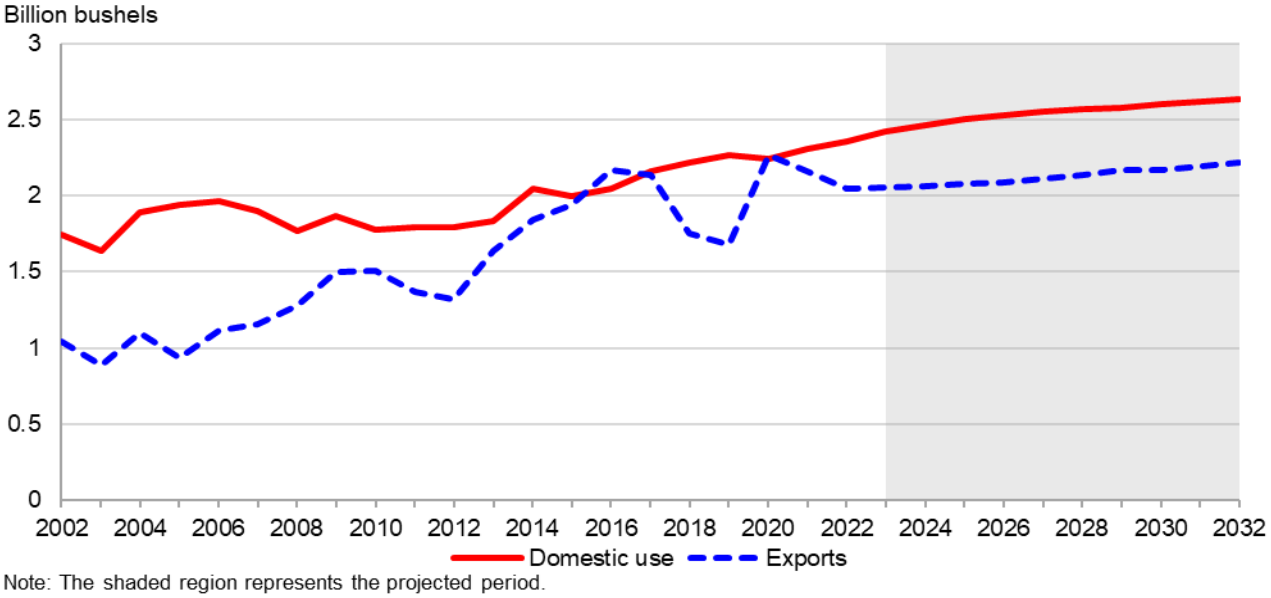


Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

U.S. plantings of wheat are projected to start at 47.5 million acres in 2023/24 and decline to 46 million acres by 2032/33, remaining very close to the recent 5-year average (2018/19–2022/23) of 46.0 million. The higher expected plantings in 2023/24 are a result of strong futures and cash prices amidst tight U.S. and global supplies. However, over the rest of the projection period, prices are expected to gradually decline to their long-term averages, and plantings are projected to trend lower due to weak relative returns compared to alternative crops. Domestic wheat use, especially for food use, is expected to grow slowly as population growth slightly outpaces declining per capita consumption. Over the long term, food use for wheat is expected to continue to exhibit slow growth, reflecting a mature market and long-term per capita trends. Exports in 2023/24 are projected to rebound by 50 million bushels from the previous year to 825 million bushels. Growth in U.S. exports and market share is expected to be minimal for the rest of the projection period based on expectations of continued large supplies in key global competitors. Additionally, the Baseline projects the following outlook for the wheat market:

- Wheat-to-corn price ratios remain relatively stable throughout the projection period and do not favor increased wheat feeding as corn supplies remain ample. Feed and residual use remains relatively flat through 2032/33, consistent with the level of production and generally limited demand for feed wheat use.
- Wheat imports, mainly from Canada, are projected to be relatively flat, but slightly lower by 2032/33.
- Rising incomes, particularly in emerging economies with rising per capita demand, support growth in global demand and a corresponding increase in global wheat trade contributing to somewhat higher U.S. exports.
- Sustained price competition from Russia and the European Union tempers U.S. exports.

Figure 15: U.S. soybean domestic use and exports, 2002–32

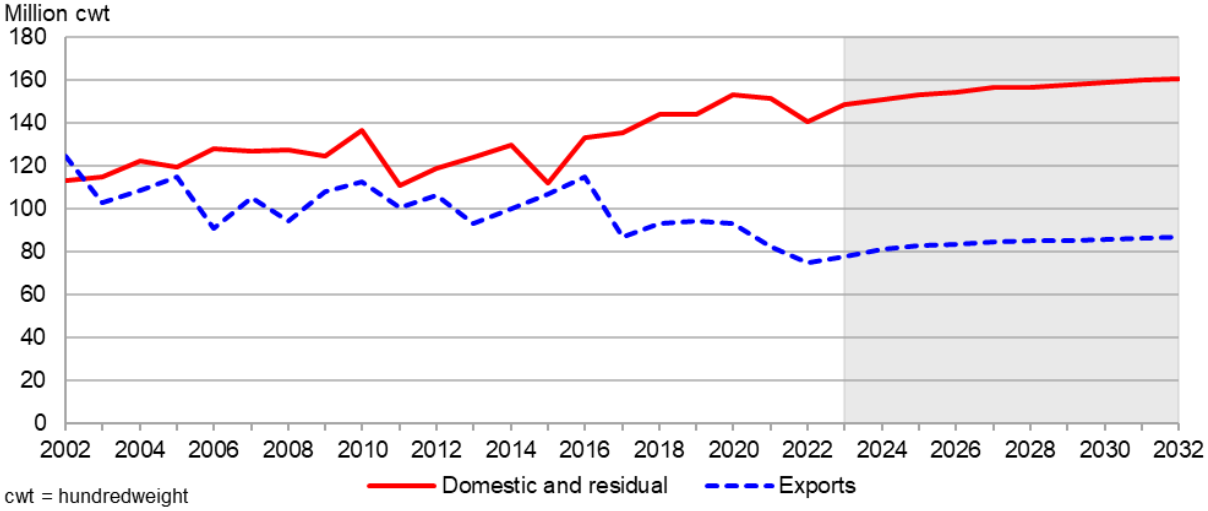


Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

U.S. soybean plantings rebounded sharply in 2021/22 and 2022/23 from the prior 2 years, and area is projected to remain steady over much of the coming decade before declining slightly near the end of the projections. Plantings remain near 87 million acres, supported by high prices and net returns relative to the 2014/14–2019/20 period. In addition, the Baseline projects the following outlook for the soybean market:

- U.S. soybean prices are projected at near record levels in 2022/23 with relatively tight stocks. Nominal soybean prices in 2023/24 start high but then decline through the middle of the projection period and then stabilize as stocks-to-use rebounds.
- Domestic soybean meal and oil demand grows steadily, supporting a continued rise in soybean crush over the next decade. Gains in crush reflect expanding animal products output and growing domestic and export demand for soybean oil.
- U.S. soybean exports maintain steady growth over the projected period as global consumption rebounds, particularly in China. The U.S. share of global soybean trade drops from 33 percent to 28 percent between 2021/22 and 2032/33, with Brazil gaining share.
- U.S. soybean oil and meal exports continue to face strong competition from South America during the projection period. Argentina's share of world soybean meal exports grows to nearly 42 percent by 2032/33. Brazil is expected to boost its soybean meal market share to about 29.5 percent by 2032/33. Despite increasing meal exports, the United States loses global share, slipping from about 18 percent to 16 percent of the market by 2032/33.
- Soybean oil use for production of biofuels increases from 11.8 billion pounds in 2022/23 to 12.15 billion pounds by 2032/33. The Federal and State policies in place as of October 2022 are assumed through 2032/33. Projections are largely driven by increasing renewable diesel for the California market and Federal mandates.

Figure 16: U.S. rice domestic and residual use and exports, 2002–32



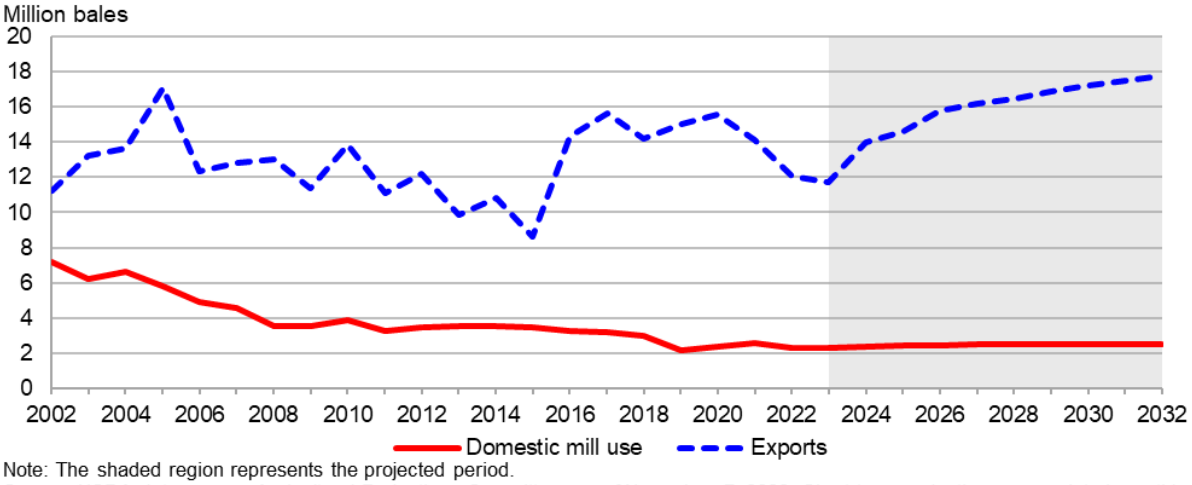
cwt = hundredweight

Notes: The shaded region represents the projected period. Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

After decreasing 12 percent in marketing year 2022/23, the Baseline projects U.S. rice planted area to increase 12.5 percent in 2023/24, rise 1–2 percent for 2024/25–2026/27, and then remain unchanged through 2032/33. Long grain area is expected to increase 11 percent in 2023/24 and remain unchanged through 2032/33. Medium- and short-grain area is projected to increase 19 percent in 2023/24, with smaller increases projected for 2024/25–2026/27 before leveling off in 2027/28. Production increases each year with yields rising annually 2024/25–2032/33. Baseline projections for rice also include the following:

- Domestic and residual use remains the primary component of demand, expanding 6 percent the first year of the Baseline, slowing to 1–2 percent growth through 2027/28 and then slowing to just 0.6 percent growth for 2029/30–2032/33. The growth in imports is driven by a rising population and increasing consumer preferences for imported Asian aromatic rice varieties. Demand for imports grows 2–3 percent per year for 2026/27–2032/33.
- U.S. rice exports slowly expand over the Baseline, with a total increase of 11.5 percent, with the bulk of the increase early in the Baseline. Long-grain exports increase almost 9 percent, with Latin America accounting for the bulk of sales, with growth limited by increasing competition from South American suppliers.
- U.S. exports of medium- and short-grain rice increase 20 percent by 2032/33, as California recovers from drought. Shipments to East Asia continue to account for the bulk of exports. Sales to North Africa and the Middle East resume.
- The U.S. share of global exports is projected to rise to 4.7 percent in 2024/25. The U.S. share declines after 2027/28 and is forecast at 4.5 percent in 2032/33. The United States is projected to ship very little rice to sub-Saharan Africa, the largest and fastest growing commercial global rice market, due to price competition from Asian suppliers.
- Nominal U.S. long-grain prices are projected to decrease through 2027/28 and remain unchanged the remainder of the Baseline. California medium- and short-grain prices decline in 2024/25 and 2025/26, and then slowly increase after 2026/27.

Figure 17: U.S. upland cotton domestic mill use and exports, 2002–32

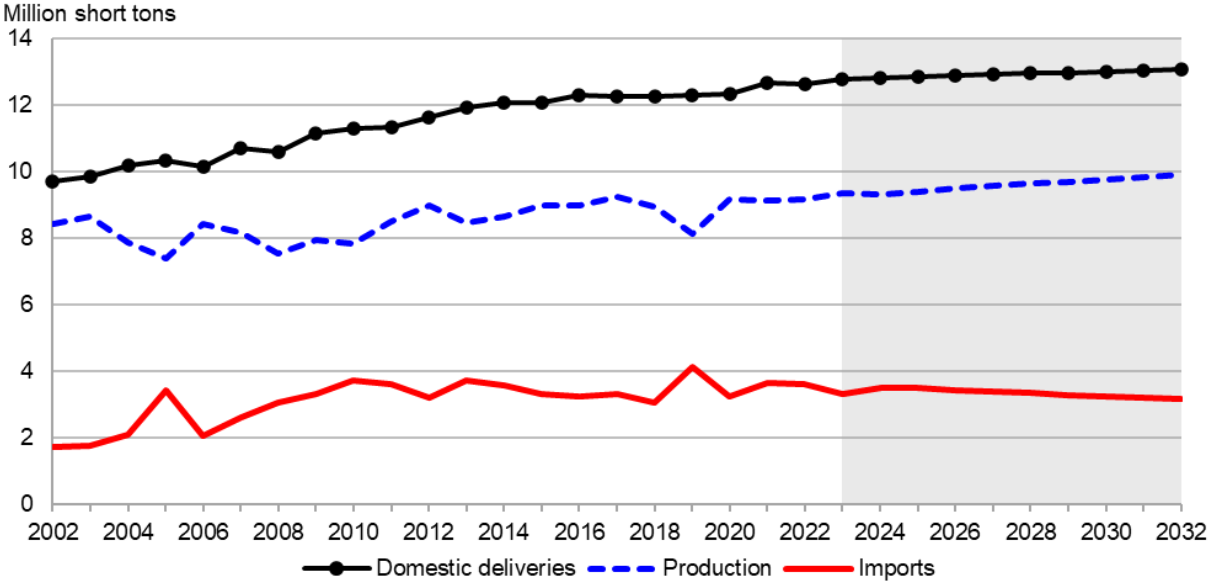


Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

The market year average prices for upland cotton start the projection period at 80 cents per pound, decline to 75 cents in 2025/26, and then rise to 82.5 cents per pound in nominal terms by 2032/33. The cotton price ratio is higher relative to corn and soybeans for 2023–32 compared with the previous 10 years. The Baseline projects upland cotton plantings in 2023/24 to fall more than 2.0 million acres below the previous 10 year average, to 9.5 million acres, and to then rise to nearly 13.3 million acres in 2032/33. The average plantings for the projection period are roughly 0.7 million acres higher than in the prior decade. Domestic mill use is projected to recover slightly over the Baseline, gradually rising from about 2.3 million bales early in the projection period to 2.5 million bales from 2027/28 through 2032/33. Upland cotton exports grow after falling in the first year of the projection, rising from about 11.8 million bales to 17.8 million bales by the final year, slightly surpassing their 2005/06 record. In addition, the Baseline projects the following for the cotton market:

- U.S. mill use gradually recovers from the pandemic-related shocks that drove it to the lowest levels since the 19th century. Although mill use rebounds, it accounts for only about 14 percent of total U.S. disappearance of upland cotton over the projection period, compared with nearly one-third of total use in the early 2000s. Increased competition from foreign manufacturing of both cotton and synthetic fibers, such as polyester, has reduced U.S. mill use significantly since the late 1990s.
- U.S. upland cotton export growth remains strong and exports trend higher after 2023/24 to slightly above their 2005/06 record in the final year of the projections. The United States remains the world's largest cotton exporter. With growing international demand and strong export growth in Brazil and to a lesser extent in India and West Africa, the U.S. trade share for all cotton (Upland plus Extra Long Staple) rises marginally to average 34 percent during the Baseline period. Brazil, India, and the countries that are part of the Economic Community of West African States exported roughly 16.5 million bales combined in 2021/22 and the Baseline projects their exports to increase to 22.5 million bales by 2032/33. Bangladesh, China, and Vietnam are expected to remain the largest importers, accounting for 57 percent of total imports in 2032/33.

Figure 18. U.S. sugar domestic deliveries, production, and imports, 2002–32



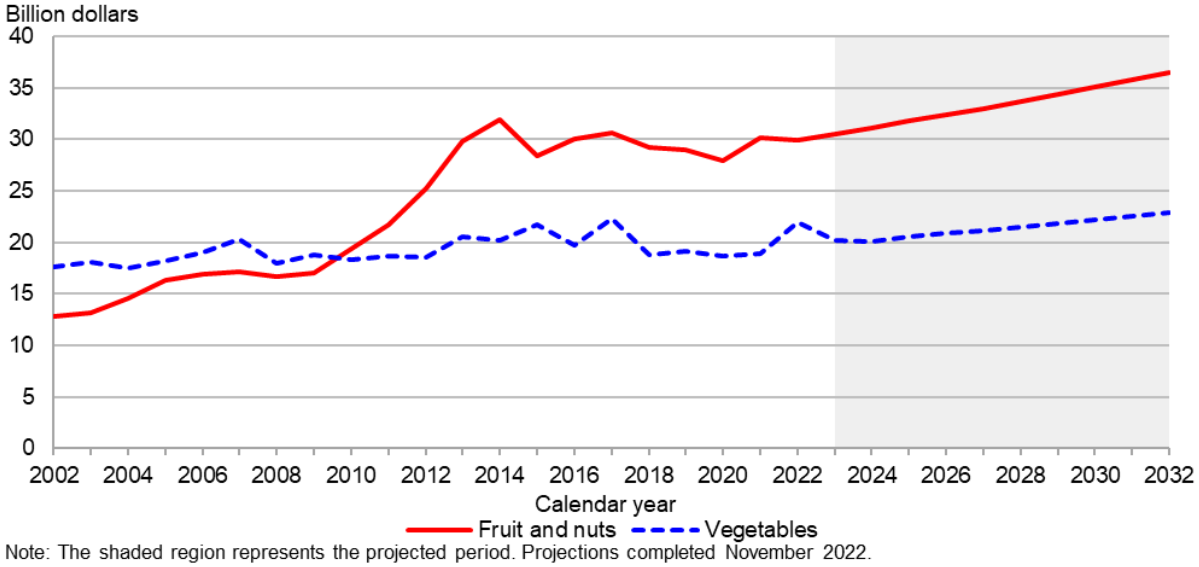
Notes: The shaded region represents the projected period. Short tons are 2,000 pounds.
Source: USDA, Interagency Agricultural Projections Committee, as of October 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

The Baseline projects total caloric sweetener deliveries (which include non-sugar sweeteners such as high-fructose corn syrup) to rise during the projection period. Growth is primarily due to increases in domestic sugar use from 12.8 million short tons, raw value (STRV) in 2023/24 to 13.1 million STRV in 2032/33, which is in line with population growth. Domestic sugar use is projected to be primarily met by increases in domestic production, with imports projected at the minimum levels stipulated in trade agreements.

- Domestic sugar production increases from 9.3 million STRV in 2023/24 to 9.9 million by 2032/33, with both production of beet and cane sugar expected to rise. Beet sugar production rises from 5.2 million STRV in 2023/24 to 5.4 million in 2032/33. Sugarbeet harvested area gradually declines after 2023/24 due to higher input costs and competition from other high-priced crops but increasing yields and factory sucrose recovery rates offset lower area. Cane sugar production, which is less affected by higher input costs partly due to multiyear sugarcane production cycle, increases from 4.1 million STRV in 2023/24 to 4.5 million by 2032/33, with modest increases in harvested area, yields, and recovery rates.
- Total imports are projected to decline from 3.3 million STRV in 2023/24 to 3.2 million in 2032/33, primarily driven by lower expected imports from Mexico. The Baseline expects most U.S. sugar imports to be obtained through multilateral or bilateral trade agreements.
- Trade with Mexico will continue to be governed by the terms of the Suspension Agreements signed between the Mexican sugar industry, the Government of Mexico, and the U.S. Department of Commerce in 2014 and amended in 2017. Being the residual supplier to the U.S. market as defined by the agreements, imports from Mexico are expected to decline from 1.4 million STRV in 2023/24 to 1.2 million in 2032/33, partly due to the increases in U.S. domestic production to meet sugar use.

- U.S. prices for both sugarcane and sugarbeet growers are fairly stable in nominal terms through 2032/33, as relatively tight projected ending stock levels to maintain a 13.5 percent stocks-to-use ratio support raw and refined sugar prices. There are no projected forfeitures to the Commodity Credit Corporation (CCC), nor public expenditures under the U.S. sugar program.

Figure 19. Farm value of U.S. fruit, nut, and vegetable production, 2002–32



Note: The shaded region represents the projected period. Projections completed November 2022.
Source: USDA, Interagency Agricultural Projections Committee.

The total combined farm value of fruit, tree nuts, vegetable, and pulse crop production is projected to reach $59 billion by calendar year 2032, up from $49 billion in 2021. By 2032, the value of fruit (citrus and non-citrus) represents 41 percent of the total value, tree nuts approximately 21 percent, and all vegetable and pulse crops roughly 39 percent. The baseline outlook for these crops also includes:

- Combined production of fruit, tree nuts, vegetables, and pulses grow slightly over the next decade, reaching 172 billion pounds by 2032, up from 165 billion in 2021. By 2032, fruit contributes 30 percent of total output, tree nuts approximately 5 percent, while all vegetable and pulse crops roughly 70 percent.

- Over the Baseline period, vegetable and pulse crop production is expected to grow more slowly than in the previous decade—rising by 4 percent between 2023 and 2032. This primarily reflects technical measurement challenges associated with documenting the growth of protected culture-which displaces field-grown area, and to rising import competition. Imports are expected to continue to rise as U.S. consumers demand a more diverse, competitively priced, year-round vegetable supply. Technical issues largely center on the rapid growth of the protected culture subsector (mostly greenhouses and urban vertical farms) that is slowly replacing field-grown production for several major fresh vegetables. With some exceptions, this sector is still not well

represented in traditional USDA data collection programs that have recorded declining field-grown area and production for some crops. In recent years there has been a rapid rise of import volume across many fresh and processed vegetables, including imports of organic foods produced in the Southern hemisphere. The projections assume imports continue to rise.

- The vegetable category is split into five main sub-categories: fresh, processing, potatoes, pulses, and other. Fresh-market domestic output share declines from 29 percent to 27 percent of vegetable production as imports largely fill stronger demand through 2032. Processing vegetable production share increases from 30 percent to 32 percent over the 10-year period based largely on renewed growth in processing tomato output. Potatoes will account for 36 percent of vegetable production by 2032, a 1-percent decline in the production share from 2021, according to baseline projections. Pulse crops are projected to increase from 3 percent to 4 percent share of all vegetable production by 2032.

- Despite expanding production of higher-priced vegetables such as broccoli and organic vegetables, the value of fresh-market vegetable production, excluding melons, increases by less than 1 percent between 2021–23 and 2030–32 as price pressure continues from strong import growth. The value of production for fresh market vegetables accounts for a 54 percent share of vegetable and pulse receipts by 2032—down slightly from 55 percent in 2021.

- In terms of production, key fresh-market vegetables over the next 10 years include lettuce, onions, carrots, and sweet potatoes. Within the lettuce subsector, growth is projected in romaine while field-grown leaf production and iceberg output decline. Field-grown leaf lettuce share is expected to be limited by rising protected culture output. Production of onions is expected to remain steady.

- Vegetables for processing account for about one-third of annual vegetable and pulse output. In 2021, 64 percent of processing vegetable production consisted of tomatoes, a share that is projected to increase to 68 percent by 2032. Over the Baseline period, processing tomato production levels are projected to be lowest in 2022 due to transitory acreage limits (caused by drought and revenue-based competition with field crops), yield reduction caused by drought and pest/disease pressure. Although there is much uncertainty surrounding the availability of irrigation water in California—a key vegetable producing State—the Baseline projections assume processing tomato output will rebound as field crop prices return to long-run trend and industry-wide pest/disease management protocols are adopted.

- Domestic area and production of most major processing vegetables are projected higher through 2032. Comparing average domestic per capita availability trends between 2021–23 and 2030–32, 80 percent of processing vegetables (e.g., cabbage, carrots,

cauliflower, chili peppers, spinach, and tomatoes) are expected to exhibit higher domestic per capita availability.

- Partly because of maturing domestic demand, limited export growth, and rising productivity per acre, nominal prices of vegetables used for processing have historically risen much more slowly than those for the fresh market. Comparing average price trends from 2021–23 and 2030–32, nominal processing vegetable prices rise about 12 percent while constant dollar prices are down 22 percent over that same period.

- Potatoes are forecast to account for 24 percent of vegetable farm value by 2032, a 2-percent increase from 2022, according to Baseline projections. Projected potato production grows 9 percent as value rises 10 percent over the 2022–32 Baseline period. While planted acres are forecast to increase in 2023, total planted acres in the top 13 potato producing States are forecast to remain flat through the remainder of the Baseline period. The long-term potato forecast assumes average weather and adequate water supplies, an upward yield trend, and steady demand at home and abroad for processed potatoes.

- Commercial domestic mushroom production is forecast to decline slightly in the early part of the projection period, followed by steady production. Mushroom farm value is projected to reach about $1.2 billion by 2032, a 15 percent increase over the 10-year period.

- Production of pulse crops between the 3-year periods 2021–23 and 2030–32 is expected to rise about 13 percent. This increase is projected even though pulse production likely reached a peak during the 2021–23 period. Assuming trend yields, increased production will boost stocks and weaken pulse prices from current elevated levels. Dry edible peas, lentils, and chickpeas continue exhibiting the strongest growth in comparison to dry beans and the total value of all pulse crop production trends higher through 2032.

- Total U.S. fruit and tree nut production is expected to reach nearly 52 billion pounds in 2032 with annual production levels remaining below 2021 totals throughout the Baseline period. Citrus output declines from 11.2 billion pounds in 2022 to 9.8 billion pounds in 2032, which is offset by gains in noncitrus fruit and tree nuts.

- Total citrus production levels are projected to decline through the decade largely due to further attrition of bearing acreage in Florida’s orange and grapefruit industries. Production in California however, the top producing State of fresh market oranges, lemons, and tangerines, is projected to remain steady. Total value of citrus production in the United States is projected to remain steady because of higher prices due to smaller domestic supply.

- Tree nut production is expected to increase from 7.3 billion pounds in 2022 to 9.2 billion pounds in 2032. Tree nut value continues to grow over the Baseline period in response to increasing domestic and foreign demand. The strong year-over-year increase in tree nut acreage experienced in the past decade is expected to slow and plateau during the projection period.
- The farm value of fruit and tree nuts grows to reach $36.4 billion by 2032, up from $29.9 billion in 2022, led by the farm value of selected noncitrus fruit and tree nuts. In 2021, grapes, strawberries, and apples represented 70 percent of noncitrus fruit farm value. The share of noncitrus fruit farm value for these commodities are expected to increase slightly over the projection period.

Table 5: U.S. acreage for major field crops and Conservation Reserve Program (CRP) assumptions, long-term projections

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
						Million acres						
Planted acreage, eight major crops												
Corn	93.3	88.6	92.0	91.0	90.0	90.0	89.0	89.0	89.0	89.0	89.0	89.0
Sorghum	7.3	6.4	6.9	6.7	6.6	6.6	6.6	6.6	6.5	6.5	6.5	6.5
Barley	2.7	2.9	2.7	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.4	2.4
Oats	2.6	2.6	2.7	2.6	2.6	2.6	2.5	2.4	2.3	2.3	2.3	2.3
Wheat	46.7	45.7	47.5	47.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0
Rice	2.5	2.2	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Upland cotton	11.1	13.6	9.5	11.5	12.2	12.4	12.5	12.7	12.8	13.0	13.1	13.3
Soybeans	87.2	87.5	87.0	87.0	87.0	87.0	87.0	87.0	87.0	86.5	86.5	86.5
Total	253.4	249.5	250.8	251.1	249.6	249.7	248.7	248.8	248.7	248.4	248.4	248.6
CRP acreage assumptions												
Total CRP	20.5	22.0	24.1	25.7	26.8	27.0	27.0	26.9	27.0	27.0	26.9	26.9
Total planted plus CRP	273.9	271.5	274.9	276.8	276.4	276.6	275.7	275.6	275.7	275.3	275.3	275.4
Harvested acreage, eight major crops												
Corn	85.3	80.8	84.1	83.1	82.1	82.1	81.1	81.1	81.1	81.1	81.1	81.1
Sorghum	6.5	5.5	6.1	5.9	5.8	5.8	5.8	5.8	5.7	5.7	5.7	5.7
Barley	2.0	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2
Oats	0.7	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
Wheat	37.1	35.5	39.0	38.6	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8
Rice	2.5	2.2	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Upland cotton	10.1	7.7	7.8	9.5	10.1	10.2	10.3	10.4	10.6	10.7	10.8	10.9
Soybeans	86.3	86.6	86.2	86.2	86.2	86.2	86.2	86.2	86.2	85.7	85.7	85.7
Total	230.5	221.6	228.8	228.8	227.4	227.5	226.7	226.8	226.7	226.3	226.4	226.5

Note: The projections were completed in October 2022. CRP data is as of end of September 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 6: U.S. corn long-term projections

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (million acres):												
Planted acres	93.3	88.6	92.0	91.0	90.0	90.0	89.0	89.0	89.0	89.0	89.0	89.0
Harvested acres	85.3	80.8	84.1	83.1	82.1	82.1	81.1	81.1	81.1	81.1	81.1	81.1
Yield:												
Bushels per harvested acre	176.7	171.9	181.5	183.5	185.5	187.5	189.5	191.5	193.5	195.5	197.5	199.5
Supply and use (million bushels):												
Beginning stocks	1,235	1,377	1,172	1,712	2,092	2,282	2,437	2,472	2,517	2,557	2,607	2,647
Production	15,074	13,895	15,265	15,250	15,230	15,395	15,370	15,530	15,695	15,855	16,015	16,180
Imports	24	50	25	25	25	25	25	25	25	25	25	25
Supply	16,333	15,322	16,462	16,987	17,347	17,702	17,832	18,027	18,237	18,437	18,647	18,852
Feed and residual	5,715	5,275	5,700	5,800	5,900	6,025	6,100	6,200	6,350	6,450	6,575	6,700
Food, seed, and industrial	6,769	6,725	6,775	6,770	6,790	6,815	6,785	6,785	6,755	6,755	6,750	6,720
Ethanol and byproducts	5,328	5,275	5,325	5,325	5,350	5,375	5,350	5,350	5,325	5,325	5,325	5,300
Domestic use	12,484	12,000	12,475	12,570	12,690	12,840	12,885	12,985	13,105	13,205	13,325	13,420
Exports	2,471	2,150	2,275	2,325	2,375	2,425	2,475	2,525	2,575	2,625	2,675	2,725
Total use	14,956	14,150	14,750	14,895	15,065	15,265	15,360	15,510	15,680	15,830	16,000	16,145
Ending stocks	1,377	1,172	1,712	2,092	2,282	2,437	2,472	2,517	2,557	2,607	2,647	2,707
Stocks-to-use ratio, percent	9.2	8.3	11.6	14.0	15.1	16.0	16.1	16.2	16.3	16.5	16.5	16.8
Prices (dollars per bushel):												
Farm price	6.00	6.80	5.70	4.90	4.50	4.30	4.30	4.30	4.30	4.30	4.30	4.30
Variable costs of production (dollars):												
Per acre	360	472	461	411	397	382	376	376	378	380	382	383
Returns over variable costs (dollars per acre):												
Net returns	701	697	573	489	437	425	439	448	455	461	467	475

Note: Totals may not add due to rounding. Marketing year beginning September 1 for corn.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 7: U.S. sorghum long-term projections

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (million acres):												
Planted acres	7.3	6.4	6.9	6.7	6.6	6.6	6.6	6.6	6.5	6.5	6.5	6.5
Harvested acres	6.5	5.5	6.1	5.9	5.8	5.8	5.8	5.8	5.7	5.7	5.7	5.7
Yield:												
Bushels per harvested acre	69.0	44.6	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2	69.2
Supply and use (million bushels):												
Beginning stocks	20	53	23	40	43	39	35	31	27	26	25	24
Production	448	245	422	408	401	401	401	401	394	394	394	394
Imports	0	0	0	0	0	0	0	0	0	0	0	0
Supply	468	298	445	448	444	440	436	432	421	420	419	418
Feed and residual	81	65	95	95	95	95	95	95	85	85	85	85
Food, seed, and industrial	40	25	25	25	25	25	25	25	25	25	25	25
Domestic use	121	90	120	120	120	120	120	120	110	110	110	110
Exports	294	185	285	285	285	285	285	285	285	285	285	285
Total use	415	275	405	405	405	405	405	405	395	395	395	395
Ending stocks	53	23	40	43	39	35	31	27	26	25	24	23
Stocks-to-use ratio, percent	12.8	8.3	9.9	10.6	9.6	8.6	7.7	6.7	6.6	6.3	6.1	5.8
Prices (dollars per bushel):												
Farm price	5.94	6.65	5.60	4.80	4.40	4.20	4.20	4.20	4.20	4.20	4.20	4.20
Variable costs of production (dollars):												
Per acre	147	191	186	170	166	161	160	160	161	162	164	164
Returns over variable costs (dollars per acre):												
Net returns	262	106	202	162	138	130	131	131	130	128	127	126

Note: Totals may not add due to rounding. Marketing year beginning September 1 for sorghum.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 8: U.S. barley long-term projections

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (million acres):												
Planted acres	2.7	2.9	2.7	2.7	2.6	2.5	2.5	2.5	2.5	2.5	2.4	2.4
Harvested acres	2.0	2.4	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.0	2.0
Yield:												
Bushels per harvested acre	60.3	71.7	76.1	76.8	77.5	78.1	78.8	79.5	80.2	80.8	81.5	82.2
Supply and use (million bushels):												
Beginning stocks	71	42	63	74	82	84	82	81	82	84	88	85
Production	120	174	167	169	163	164	165	167	168	170	163	164
Imports	15	14	12	12	12	12	12	12	12	12	12	12
Supply	206	230	242	255	257	260	259	260	262	266	263	261
Feed and residual	20	30	30	35	35	40	40	40	40	40	40	40
Food, seed, and industrial	137	130	130	130	130	130	130	130	130	130	130	130
Domestic use	157	160	160	165	165	170	170	170	170	170	170	170
Exports	7	7	8	8	8	8	8	8	8	8	8	8
Total use	164	167	168	173	173	178	178	178	178	178	178	178
Ending stocks	42	63	74	82	84	82	81	82	84	88	85	83
Stocks-to-use ratio, percent	25.7	38.0	44.0	47.4	48.6	46.1	45.5	46.1	47.2	49.4	47.8	46.6
Prices (dollars per bushel):												
Farm price	5.31	7.25	6.50	5.75	5.40	5.20	5.20	5.20	5.20	5.20	5.20	5.20
Variable costs of production (dollars):												
Per acre	154	203	197	178	173	167	165	166	166	168	169	169
Returns over variable costs (dollars per acre):												
Net returns	166	317	298	264	245	239	244	248	251	252	255	258

Note: Totals may not add due to rounding. Marketing year beginning June 1 for barley.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 9: U.S. oats long-term projections

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (million acres):												
Planted acres	2.6	2.6	2.7	2.6	2.6	2.6	2.5	2.4	2.3	2.3	2.3	2.3
Harvested acres	0.7	0.9	0.9	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.7	0.7
Yield:												
Bushels per harvested acre	61.3	64.8	66.5	66.8	67.1	67.4	67.7	68.0	68.3	68.5	68.8	69.1
Supply and use (million bushels):												
Beginning stocks	38	31	30	37	36	36	35	34	32	29	30	31
Production	40	58	60	53	54	54	54	54	48	48	48	48
Imports	81	85	90	90	90	90	90	90	90	90	90	90
Supply	159	173	180	180	180	180	179	178	170	167	168	169
Feed and residual	46	60	60	60	60	60	60	60	55	50	50	50
Food, seed, and industrial	79	81	81	82	82	83	83	84	84	85	85	86
Domestic use	125	141	141	142	142	143	143	144	139	135	135	136
Exports	3	2	2	2	2	2	2	2	2	2	2	2
Total use	128	143	143	144	144	145	145	146	141	137	137	138
Ending stocks	31	30	37	36	36	35	34	32	29	30	31	31
Stocks-to-use ratio, percent	24.1	21.3	25.9	25.0	25.0	24.1	23.4	21.9	20.6	21.9	22.6	22.5
Prices (dollars per bushel):												
Farm price	4.55	5.70	3.55	3.35	3.20	3.20	3.20	3.20	3.20	3.15	3.10	3.10
Variable costs of production (dollars):												
Per acre	136	180	175	158	154	149	147	148	149	150	151	152
Returns over variable costs (dollars per acre):												
Net returns	142	189	61	66	61	67	69	70	70	66	62	62

Note: Totals may not add due to rounding. Marketing year beginning June 1 for oats.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 10: U.S. wheat long-term projections

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (million acres):												
Planted acres	46.7	45.7	47.5	47.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0	46.0
Harvested acres	37.1	35.5	39.0	38.6	37.8	37.8	37.8	37.8	37.8	37.8	37.8	37.8
Yield:												
Bushels per harvested acre	44.3	46.5	49.2	49.6	50.0	50.4	50.7	51.1	51.5	51.9	52.3	52.7
Supply and use (million bushels):												
Beginning stocks	845	669	576	663	710	730	738	745	741	750	747	757
Production	1,646	1,650	1,919	1,915	1,890	1,905	1,916	1,932	1,947	1,962	1,977	1,992
Imports	95	120	120	120	120	120	110	110	110	110	110	110
Supply	2,587	2,439	2,615	2,698	2,720	2,755	2,764	2,787	2,798	2,822	2,834	2,859
Food	972	970	972	974	976	978	980	982	984	986	988	990
Seed	60	68	65	64	64	64	64	64	64	64	64	64
Feed and residual	86	50	90	100	100	100	100	100	100	100	100	100
Domestic use	1,117	1,088	1,127	1,138	1,140	1,142	1,144	1,146	1,148	1,150	1,152	1,154
Exports	800	775	825	850	850	875	875	900	900	925	925	950
Total use	1,917	1,863	1,952	1,988	1,990	2,017	2,019	2,046	2,048	2,075	2,077	2,104
Ending stocks	669	576	663	710	730	738	745	741	750	747	757	755
Stocks-to-use ratio, percent	34.9	30.9	34.0	35.7	36.7	36.6	36.9	36.2	36.6	36.0	36.4	35.9
Prices (dollars per bushel):												
Farm price	7.63	9.20	8.00	7.00	6.00	5.70	5.70	5.70	5.70	5.70	5.70	5.70
Variable costs of production (dollars):												
Per acre	141	187	182	163	159	153	151	151	152	154	155	156
Returns over variable costs (dollars per acre):												
Net returns	197	241	211	184	141	135	138	140	141	142	143	145

Note: Totals may not add due to rounding. Marketing year beginning June 1 for wheat.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 11: U.S. soybeans and soybean products long-term projections

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Soybeans												
Area (million acres):												
Planted	87.2	87.5	87.0	87.0	87.0	87.0	87.0	87.0	87.0	86.5	86.5	86.5
Harvested	86.3	86.6	86.2	86.2	86.2	86.2	86.2	86.2	86.2	85.7	85.7	85.7
Yield, bushels per harvested acre	51.7	49.8	52.0	52.5	53.0	53.5	54.0	54.5	55.0	55.5	56.0	56.5
Supply (million bushels)												
Beginning stocks, September 1	257	274	200	226	243	254	270	281	296	302	303	303
Production	4,465	4,313	4,480	4,525	4,570	4,610	4,655	4,700	4,740	4,755	4,800	4,840
Imports	16	15	15	15	15	15	15	15	15	15	15	15
Total supply	4,738	4,602	4,695	4,766	4,828	4,879	4,940	4,996	5,051	5,072	5,118	5,158
Use (million bushels)												
Crush	2,204	2,235	2,295	2,340	2,375	2,400	2,425	2,440	2,455	2,475	2,495	2,510
Seed and residual	103	122	123	124	124	124	124	125	124	124	124	125
Exports	2,158	2,045	2,050	2,060	2,075	2,085	2,110	2,135	2,170	2,170	2,195	2,215
Total use	4,465	4,402	4,468	4,524	4,574	4,609	4,659	4,700	4,749	4,769	4,814	4,850
Ending stocks, August 31												
Total ending stocks	274	200	226	243	254	270	281	296	302	303	303	309
Stocks-to-use ratio, percent	6.1	4.5	5.1	5.4	5.6	5.9	6.0	6.3	6.4	6.3	6.3	6.4
Prices (dollars per bushel)												
Soybean price, farm	13.30	14.00	13.00	11.40	10.85	10.45	10.35	10.30	10.30	10.30	10.30	10.30
Variable costs of production (dollars):												
Per acre	199	240	235	222	219	215	214	214	215	217	218	219
Returns over variable costs (dollars per acre):												
Net returns	489	457	441	376	356	345	345	347	351	355	359	363
Soybean oil (million pounds)												
Beginning stocks, October 1	2,131	2,051	1,846	1,941	2,031	2,151	2,131	2,221	2,256	2,261	2,296	2,436
Production	26,165	26,195	26,795	27,340	27,770	28,080	28,390	28,585	28,780	29,035	29,290	29,485
Imports	305	500	500	450	450	350	350	350	325	300	300	275
Total supply	28,601	28,746	29,141	29,731	30,251	30,581	30,871	31,156	31,361	31,596	31,886	32,196
Domestic disappearance	24,775	25,500	25,800	26,050	26,200	26,350	26,500	26,650	26,750	26,850	26,950	27,050
Biofuel 1/	10,200	11,800	11,900	11,950	12,000	12,050	12,100	12,150	12,150	12,150	12,150	12,150
Food, feed, and other industrial	14,575	13,700	13,900	14,100	14,200	14,300	14,400	14,500	14,600	14,700	14,800	14,900
Exports	1,775	1,400	1,400	1,650	1,900	2,100	2,150	2,250	2,350	2,450	2,500	2,650
Total use	26,550	26,900	27,200	27,700	28,100	28,450	28,650	28,900	29,100	29,300	29,450	29,700
Ending stocks, September 30	2,051	1,846	1,941	2,031	2,151	2,131	2,221	2,256	2,261	2,296	2,436	2,496
Soybean oil price (dollars per pound)	0.730	0.690	0.570	0.505	0.470	0.455	0.450	0.440	0.440	0.440	0.440	0.440
Soybean meal (thousand short tons)												
Beginning stocks, October 1	341	400	450	450	450	450	450	450	450	450	450	450
Production	51,834	52,600	54,125	55,175	56,025	56,575	57,150	57,550	57,900	58,300	58,800	59,200
Imports	625	600	600	600	600	600	600	600	600	600	600	600
Total supply	52,800	53,600	55,175	56,225	57,075	57,625	58,200	58,600	58,950	59,350	59,850	60,250
Domestic disappearance	38,800	39,450	40,225	41,025	41,725	42,375	43,000	43,600	44,200	44,800	45,400	46,000
Exports	13,600	13,700	14,500	14,750	14,900	14,800	14,750	14,550	14,300	14,100	14,000	13,800
Total use	52,400	53,150	54,725	55,775	56,625	57,175	57,750	58,150	58,500	58,900	59,400	59,800
Ending stocks, September 30	400	450	450	450	450	450	450	450	450	450	450	450
Soybean meal price (dollars per ton)	440	390	380	352	348	340	341	346	348	350	351	353
Crushing yields (pounds per bushel)												
Soybean oil	11.84	11.72	11.68	11.68	11.69	11.70	11.71	11.72	11.72	11.73	11.74	11.75
Soybean meal	46.90	47.10	47.19	47.18	47.18	47.17	47.16	47.16	47.15	47.15	47.14	47.13
Crush margin (dollars per bushel)	5.65	3.27	2.62	2.80	2.85	2.89	2.95	3.00	3.05	3.10	3.14	3.19

Note: Totals may not add due to rounding. Marketing year beginning September 1 for soybeans; October 1 for soybean oil and soybean meal.
1/ Reflects soybean oil used for biofuel as reported by the U.S. Department of Energy, Energy Information Administration.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

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

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (thousand acres):												
Planted	2,532	2,223	2,500	2,550	2,575	2,600	2,600	2,600	2,600	2,600	2,600	2,600
Harvested	2,488	2,177	2,459	2,510	2,534	2,559	2,559	2,559	2,559	2,559	2,559	2,559
Yield:												
Pounds per harvested acre	7,709	7,599	7,593	7,622	7,652	7,675	7,691	7,706	7,718	7,730	7,745	7,769
Supply and use (million hundredweight):												
Beginning stocks	43.7	39.7	33.2	35.4	37.4	37.3	39.0	39.0	39.5	39.7	39.8	39.7
Production	191.8	165.4	186.7	191.3	193.9	196.4	196.8	197.2	197.5	197.8	198.2	198.8
Imports	37.8	44.0	42.5	42.8	42.5	43.3	44.3	45.3	46.3	47.3	48.3	49.8
Total supply	273.2	249.2	262.4	269.4	273.8	277.0	280.0	281.5	283.2	284.8	286.2	288.3
Domestic use and residual	151.4	141.0	149.0	151.0	153.5	154.5	156.5	157.0	158.0	159.0	160.0	161.0
Exports	82.2	75.0	78.0	81.0	83.0	83.5	84.5	85.0	85.5	86.0	86.5	87.0
Total use	233.5	216.0	227.0	232.0	236.5	238.0	241.0	242.0	243.5	245.0	246.5	248.0
Ending stocks	39.7	33.2	35.4	37.4	37.3	39.0	39.0	39.5	39.7	39.8	39.7	40.3
Stocks-to-use ratio, percent	17.0	15.4	15.6	16.1	15.8	16.4	16.2	16.3	16.3	16.2	16.1	16.2
Price (dollars per hundredweight):												
Average farm price	15.70	19.40	18.10	17.10	16.50	16.10	15.70	15.80	15.80	15.80	15.90	15.90
Variable costs of production (dollars):												
Per acre	580	725	702	664	657	641	642	645	649	655	661	665
Returns over variable costs (dollars per acre):												
Net returns	630	750	672	639	606	594	566	572	570	566	571	571

Note: Totals may not add due to rounding. Marketing year beginning August 1 for rice.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

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

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (thousand acres):												
Planted	1,970	1,802	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000
Harvested	1,936	1,778	1,968	1,968	1,968	1,968	1,968	1,968	1,968	1,968	1,968	1,968
Yield:												
Pounds per harvested acre	7,471	7,454	7,400	7,410	7,430	7,440	7,450	7,460	7,470	7,480	7,490	7,510
Supply and use (million hundredweight):												
Beginning stocks	29.7	24.6	23.2	25.8	26.3	26.0	26.7	26.5	27.1	27.3	27.8	27.9
Production	144.6	132.5	145.6	145.8	146.2	146.4	146.6	146.8	147.0	147.2	147.4	147.8
Imports	30.7	34.0	33.0	33.8	34.5	35.3	36.3	37.3	38.3	39.3	40.3	41.8
Total supply	205.1	191.2	201.8	205.3	207.0	207.7	209.5	210.6	212.3	213.8	215.4	217.5
Domestic use and residual	119.8	112.0	118.0	119.0	120.0	120.0	121.5	122.0	123.0	124.0	125.0	126.0
Exports	60.6	56.0	58.0	60.0	61.0	61.0	61.5	61.5	62.0	62.0	62.5	63.0
Total use	180.4	168.0	176.0	179.0	181.0	181.0	183.0	183.5	185.0	186.0	187.5	189.0
Ending stocks	24.6	23.2	25.8	26.3	26.0	26.7	26.5	27.1	27.3	27.8	27.9	28.5
Stocks-to-use ratio, percent	13.7	13.8	14.6	14.7	14.4	14.7	14.5	14.8	14.8	14.9	14.9	15.1
Price (dollars per hundredweight):												
Average farm price	13.70	16.50	15.00	14.00	13.50	13.00	12.50	12.50	12.50	12.50	12.50	12.50

Note: Totals may not add due to rounding. Marketing year beginning August 1 for rice.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 14. U.S. rice long-term projections, medium- and short-grain rice, rough basis

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (thousand acres):												
Planted	562	421	500	550	575	600	600	600	600	600	600	600
Harvested	552	399	491	542	566	591	591	591	591	591	591	591
Yield:												
Pounds per harvested acre	8,543	8,247	8,370	8,400	8,430	8,460	8,490	8,520	8,550	8,570	8,600	8,630
Supply and use (million hundredweight):												
Beginning stocks	11.5	13.0	7.9	7.5	9.0	9.2	10.2	10.4	10.3	10.3	9.9	9.7
Production	47.2	32.9	41.1	45.5	47.7	50.0	50.2	50.4	50.5	50.6	50.8	51.0
Imports	7.1	10.0	9.5	9.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Total supply	66.2	55.9	58.5	62.0	64.7	67.2	68.4	68.8	68.8	68.9	68.7	68.7
Domestic use and residual	31.6	29.0	31.0	32.0	33.5	34.5	35.0	35.0	35.0	35.0	35.0	35.0
Exports	21.5	19.0	20.0	21.0	22.0	22.5	23.0	23.5	23.5	24.0	24.0	24.0
Total use	53.1	48.0	51.0	53.0	55.5	57.0	58.0	58.5	58.5	59.0	59.0	59.0
Ending stocks	13.0	7.9	7.5	9.0	9.2	10.2	10.4	10.3	10.3	9.9	9.7	9.7
Stocks-to-use ratio, percent	24.6	16.6	14.8	17.1	16.7	18.0	18.0	17.7	17.7	16.9	16.5	16.5
Price (dollars per hundredweight):												
Average farm price	22.00	27.90	27.40	26.40	25.50	25.40	25.30	25.50	25.60	25.80	25.90	26.00
California	25.70	33.00	33.00	32.00	31.00	31.00	31.20	31.40	31.60	31.80	32.00	32.20
Other States	14.10	17.00	15.50	14.40	13.90	13.40	12.90	12.90	12.90	12.90	12.90	12.90

Note: Totals may not add due to rounding. Marketing year beginning August 1 for rice; California marketing year beginning October 1.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 15: U.S. upland cotton long-term projections

Item	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Area (million acres):												
Planted acres	11.1	13.6	9.5	11.5	12.2	12.4	12.5	12.7	12.8	13.0	13.1	13.3
Harvested acres	10.1	7.7	7.8	9.5	10.1	10.2	10.3	10.4	10.6	10.7	10.8	10.9
Yield:												
Pounds per harvested acre	813	831	850	855	860	865	870	875	880	885	890	895
Supply and use (thousand bales):												
Beginning stocks	2,989	3,727	2,749	2,650	3,250	4,300	4,500	4,550	4,600	4,650	4,700	4,750
Production	17,191	13,344	13,900	16,900	18,000	18,400	18,700	19,000	19,400	19,700	20,000	20,400
Imports	1	0	0	0	0	0	0	0	0	0	0	0
Supply	20,181	17,071	16,649	19,550	21,250	22,700	23,200	23,550	24,000	24,350	24,700	25,150
Domestic use	2,538	2,290	2,300	2,350	2,400	2,450	2,500	2,500	2,500	2,500	2,500	2,500
Exports	14,160	12,065	11,750	14,000	14,600	15,800	16,200	16,500	16,900	17,200	17,500	17,800
Total use	16,698	14,355	14,050	16,350	17,000	18,250	18,700	19,000	19,400	19,700	20,000	20,300
Unaccounted 1/	244	33	51	50	50	50	50	50	50	50	50	50
Ending stocks	3,727	2,749	2,650	3,250	4,300	4,500	4,550	4,600	4,650	4,700	4,750	4,900
Stocks-to-use ratio, percent	22.3	19.1	18.9	19.9	25.3	24.7	24.3	24.2	24.0	23.9	23.7	24.1
Prices (dollars per pound):												
Farm price	0.914	0.900	0.800	0.760	0.750	0.760	0.770	0.780	0.800	0.810	0.820	0.825
Variable costs of production (dollars):												
Per acre	474	547	538	513	509	501	502	506	510	516	521	525
Returns over variable costs (dollars per acre):												
Net returns*	395	374	300	264	259	276	287	296	313	320	328	332

Note: Marketing year beginning August 1 for upland cotton.

* Includes revenue from cottonseed, beginning with USDA Agricultural Projections to 2026. Previously, net returns were calculated using an assumed cottonseed to lint ratio. The net return values now use projections of cottonseed prices and yields, so they are not directly comparable to values from years prior to 2017.

The projections were completed in October 2022.

1/ Reflects the difference between the previous season's supply less total use and ending stocks.

Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 16: U.S. sugar long-term projections

Item	Units	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Sugarbeets													
Planted area	1,000 acres	1,160	1,173	1,117	1,098	1,095	1,096	1,092	1,087	1,082	1,078	1,073	1,069
Harvested area	1,000 acres	1,108	1,149	1,065	1,047	1,044	1,045	1,041	1,036	1,032	1,028	1,023	1,020
Yield	Tons/acre	33.2	29.0	32.4	32.7	33.0	33.3	33.6	33.9	34.1	34.4	34.6	34.9
Production	Million short tons	36.8	33.4	34.5	34.3	34.5	34.8	35.0	35.1	35.2	35.3	35.5	35.6
Sugarcane													
Harvested area	1,000 acres	888	875	867	866	869	871	874	877	879	882	885	888
Yield	Tons/acre	34.9	37.2	37.0	37.2	37.4	37.6	37.8	38.0	38.2	38.4	38.6	38.8
Production	Million short tons	31.0	32.5	32.0	32.2	32.5	32.7	33.0	33.3	33.6	33.9	34.2	34.4
Supply:													
Beginning stocks	1,000 short tons, raw value	1,704	1,773	1,872	1,730	1,735	1,740	1,744	1,748	1,752	1,755	1,759	1,763
Production	1,000 short tons, raw value	9,117	9,154	9,338	9,330	9,406	9,502	9,571	9,636	9,702	9,767	9,832	9,897
Beet sugar	1,000 short tons, raw value	5,078	5,106	5,249	5,212	5,244	5,295	5,318	5,338	5,358	5,377	5,394	5,412
Cane sugar	1,000 short tons, raw value	4,039	4,048	4,089	4,118	4,162	4,207	4,252	4,298	4,344	4,390	4,438	4,485
Total Imports	1,000 short tons, raw value	3,644	3,610	3,336	3,527	3,491	3,422	3,381	3,343	3,306	3,268	3,231	3,194
TRQ Imports 1/	1,000 short tons, raw value	1,579	1,691	1,628	1,632	1,636	1,640	1,643	1,647	1,651	1,652	1,652	1,653
Imports from Mexico	1,000 short tons, raw value	1,379	1,619	1,407	1,558	1,543	1,470	1,427	1,386	1,345	1,308	1,271	1,234
Other imports	1,000 short tons, raw value	686	300	300	337	313	312	311	310	309	309	308	307
Total supply	1,000 short tons, raw value	14,463	14,537	14,546	14,587	14,632	14,664	14,696	14,727	14,759	14,791	14,823	14,854
Use:													
Exports	1,000 short tons, raw value	35	35	35	35	35	35	35	35	35	35	35	35
Domestic deliveries	1,000 short tons, raw value	12,655	12,630	12,781	12,817	12,857	12,885	12,913	12,941	12,969	12,997	13,025	13,053
Total use	1,000 short tons, raw value	12,690	12,665	12,816	12,852	12,892	12,920	12,948	12,976	13,004	13,032	13,060	13,088
Ending stocks	1,000 short tons, raw value	1,773	1,872	1,730	1,735	1,740	1,744	1,748	1,752	1,755	1,759	1,763	1,767
Raw sugar price:													
New York, No. 16 contract 2/	Cents/lb.	35.14	28.43	29.44	28.81	28.87	28.96	29.02	29.09	29.15	29.20	29.29	29.33
Raw sugar loan rate	Cents/lb.	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75	19.75
Beet sugar loan rate	Cents/lb.	25.38	25.38	25.38	25.38	25.38	25.38	25.38	25.38	25.38	25.38	25.38	25.38
Grower prices:													
Sugarbeets	Dollars/ton	48.51	63.41	56.90	52.87	51.53	51.69	51.79	51.86	51.97	52.07	52.14	52.26
Sugarcane	Dollars/ton	41.25	34.32	36.79	36.65	36.86	37.09	37.31	37.53	37.74	37.95	38.19	38.40

Note: Data shown is for an October-September year. The projections were completed in October 2022.

1/ TRQ=Tariff-Rate Quota. 2/Price for July-September quarter.

Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 17. Fruit, nuts, and vegetables long-term projections to 2032

Item	Unit	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Production, farm weight													
Fruit and nuts	Mil. lbs.	53,364	49,915	48,855	50,033	50,287	50,469	50,656	50,848	51,044	51,246	51,452	51,664
Citrus	Mil. lbs.	13,812	11,222	9,816	10,642	10,536	10,430	10,326	10,223	10,120	10,019	9,919	9,820
Noncitrus	Mil. lbs.	31,660	31,349	31,474	31,600	31,726	31,853	31,981	32,109	32,237	32,366	32,495	32,625
Tree nuts	Mil. lbs.	7,892	7,344	7,565	7,792	8,025	8,186	8,350	8,517	8,687	8,861	9,038	9,219
Vegetables [1]	Mil. lbs.	111,442	110,695	116,500	116,396	117,199	117,535	118,194	118,531	118,977	119,415	119,962	120,237
Fresh market [2]	Mil. lbs.	32,075	32,252	32,954	32,218	32,332	32,344	32,167	32,193	32,170	32,113	32,080	32,034
Processing [2]	Mil. lbs.	33,887	33,508	36,125	36,681	36,847	37,040	37,302	37,528	37,815	38,050	38,298	38,557
Potatoes	Mil. lbs.	40,983	39,224	41,331	41,559	41,780	42,021	42,651	42,697	42,941	43,233	43,577	43,650
Pulses [3]	Mil. lbs.	3,740	5,009	5,391	5,248	5,559	5,449	5,395	5,435	5,374	5,343	5,335	5,323
Mushrooms	Mil. lbs.	758	702	698	690	681	680	679	677	676	675	674	673
Total fruit, nuts, vegetables	Mil. lbs.	164,807	160,610	165,354	166,430	167,486	168,004	168,850	169,378	170,021	170,660	171,415	171,901
Farm value													
Fruit and nuts	Million dollars	30,163	29,930	30,455	31,125	31,742	32,372	33,016	33,673	34,345	35,031	35,732	36,448
Citrus	Million dollars	3,355	2,910	2,847	2,916	2,918	2,920	2,922	2,924	2,925	2,926	2,926	2,926
Noncitrus	Million dollars	17,066	17,450	17,799	18,155	18,518	18,888	19,266	19,652	20,045	20,445	20,854	21,271
Tree nuts	Million dollars	9,742	9,570	9,809	10,054	10,306	10,563	10,828	11,098	11,376	11,660	11,952	12,250
Vegetables [1]	Million dollars	18,849	21,954	20,213	20,091	20,575	20,901	21,160	21,530	21,858	22,193	22,541	22,897
Fresh market [2]	Million dollars	10,375	12,631	10,804	10,704	10,996	11,228	11,363	11,593	11,801	11,996	12,207	12,414
Processing [2]	Million dollars	1,975	2,228	2,394	2,307	2,353	2,407	2,458	2,507	2,564	2,629	2,686	2,753
Potatoes	Million dollars	4,174	4,375	4,488	4,537	4,589	4,614	4,635	4,664	4,692	4,721	4,751	4,782
Pulses [3]	Million dollars	1,260	1,701	1,496	1,505	1,593	1,590	1,625	1,669	1,686	1,715	1,747	1,780
Mushrooms	Million dollars	1,064	1,018	1,030	1,038	1,044	1,062	1,080	1,097	1,115	1,133	1,150	1,167

[1] Utilized field-grown production, as reported by USDA, NASS beginning in 2021, is used for fresh market vegetables, processing vegetables, and potatoes.

[2] Includes melons and sweet potatoes, as reported by USDA, NASS beginning in 2021.

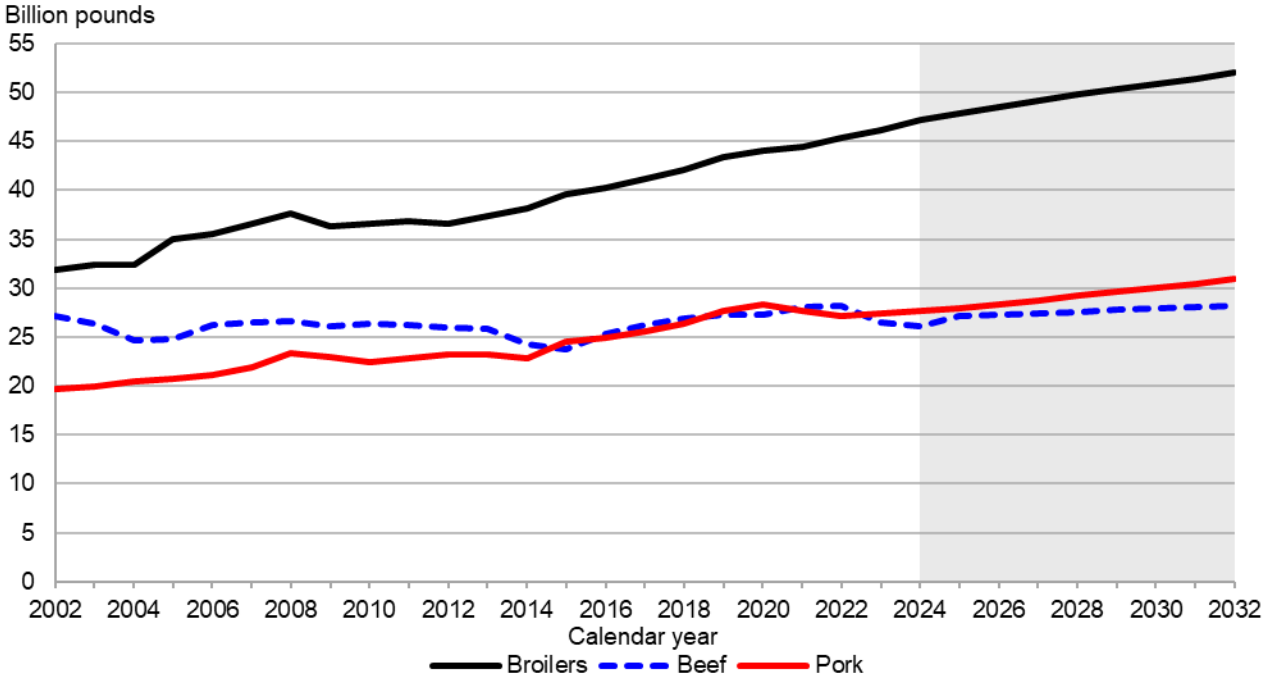
[3] Pulses include edible dry beans, peas, lentils, and chickpeas.

Note: Base year data are NASS reported estimates. Totals may not add due to rounding. The projections were completed in December 2022.

Source: USDA, Interagency Agricultural Projections Committee.

U.S. Livestock

Figure 20: U.S. animal product production, 2002–32



Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

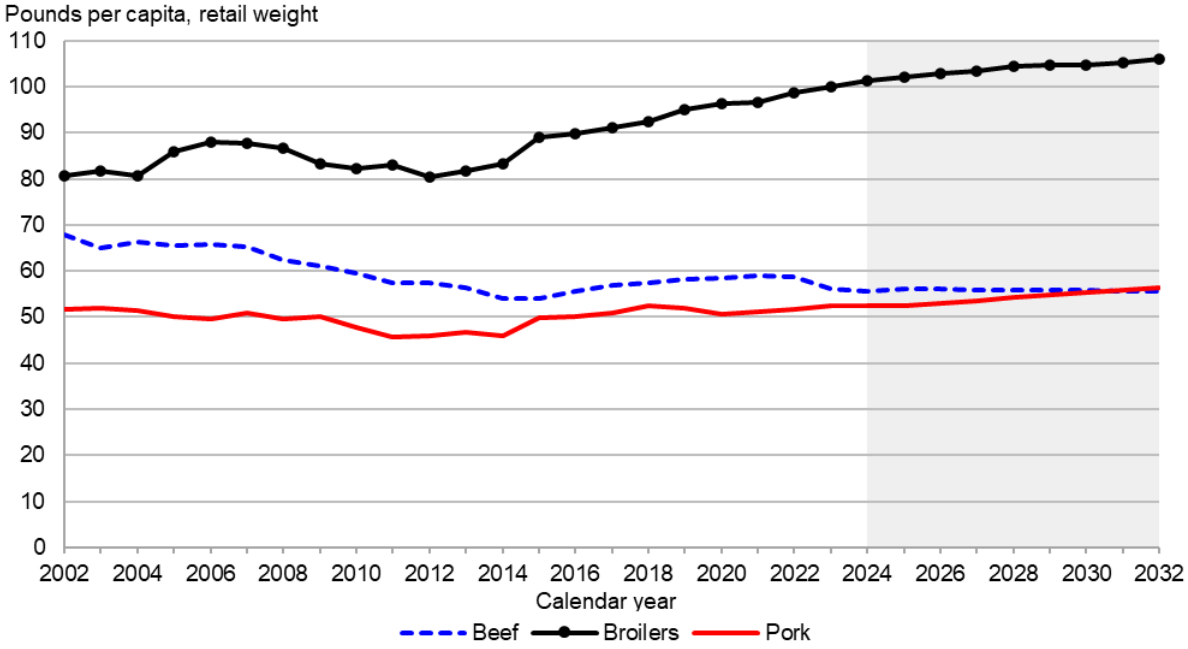
Key factors that shape the 2024–32 livestock-poultry Baseline estimates include modest rates of real GDP growth, moderating prices of feed grains and oilseeds compared to recent history, and drought conditions that began in late 2020. The drought forced a reduction in cattle numbers that is expected to constrain beef production to modest rates of increase in the near term as cattle numbers rebuild. Consistent, moderate growth in both pork and broiler production however, offsets weak beef production, and results in rising 2024–32 per capita retail weight meat disappearance. The projection period for livestock, poultry, and animal products begins with calendar year 2024. The projections and data for 2023 and prior years are based on information available in the October 2022 publication of the *World Agricultural Supply and Demand Estimates* (*WASDE*).

- Beef production is expected to decline in 2024 reflecting tighter cattle supplies leading into the projection period. Higher cattle prices in 2023 will likely incentivize heifer retention, after which modest herd growth is expected through the end of the projection period. Increasing slaughter weights will further support production gains as the herd expands. Beef production is expected to increase during the projection period, starting in 2025 at year-over-year rates that average almost 1.0 percent.
- The U.S. hog sector grows moderately over the projection period. Pork production increases at an average year-over-year rate of 1.4 percent. In 2024 almost 129 million head of hogs are projected to be slaughtered, producing about 28 billion pounds of pork. In 2032 production is projected to be about 31 billion pounds on a slaughter of 140

million head. Farrowings increase moderately over the period, with litter rate growth accounting for most of the pig crop increases.

- Broiler production is expected to continue increasing steadily over the forecast period, driven by greater domestic and foreign demand. Production growth will largely reflect the growing number of birds slaughtered each year. After contracting each year from 2018 to 2022, with 2022 being the most extreme due to an outbreak of Highly Pathogenic Avian Influenza (HPAI), turkey production is expected to increase gradually over the projection period.
- Milk production is anticipated to rise throughout the projection period reaching 253.7 billion pounds in 2032. While the U.S. dairy herd is projected to decline from 2023 to 2024, it is expected to grow during 2026 through 2032. Milk per cow is expected to rise through the projection period (see dairy section later in this report).

Figure 21: U.S. per capita meat disappearance, 2002–32



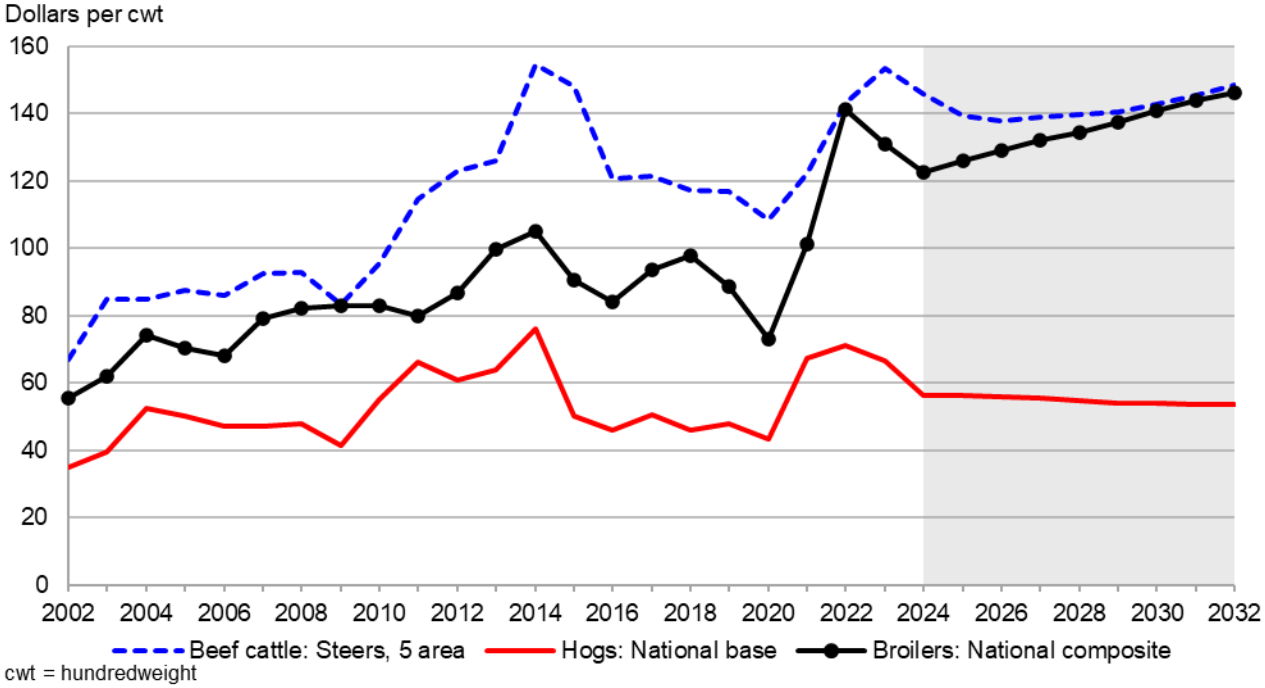
Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

U.S. per capita disappearance of total red meat (beef, veal, pork, lamb, and mutton) and poultry (broilers and turkey) is projected at 228.4 pounds in 2024 and 236.3 pounds in 2032, with poultry meat continuing to account for most of the projected growth in disappearance.

- Per capita retail weight beef disappearance is expected to decline early in the first year of the projection period on lower production. Beef production is expected to modestly increase for the rest of the period, but beef exports are expected to grow at a faster pace than imports, lowering domestic disappearance over time. Beef disappearance is projected at 55.7 pounds per capita in 2024 and is expected to be 55.5 pounds per capita by 2032.

- Expected per capita retail weight pork disappearance over the projection period averages 54.2 pounds. The period begins at 52.5 pounds per person, and increases at an annual rate of just under 1.0 percent, finishing the period at 56.3 pounds per capita.
- Broiler per capita disappearance is expected to increase steadily, growing from 101.4 pounds in 2024 to 106.0 pounds by 2032. Per capita turkey disappearance is expected to bounce back from the 2022 low of 14.7 pounds to 15.8 pounds in 2024. From there, per capita disappearance of turkey will level out at 16.0 pounds through 2028, then fall to 15.5 pounds by 2032.

Figure 22: U.S. nominal livestock prices, 2002–32



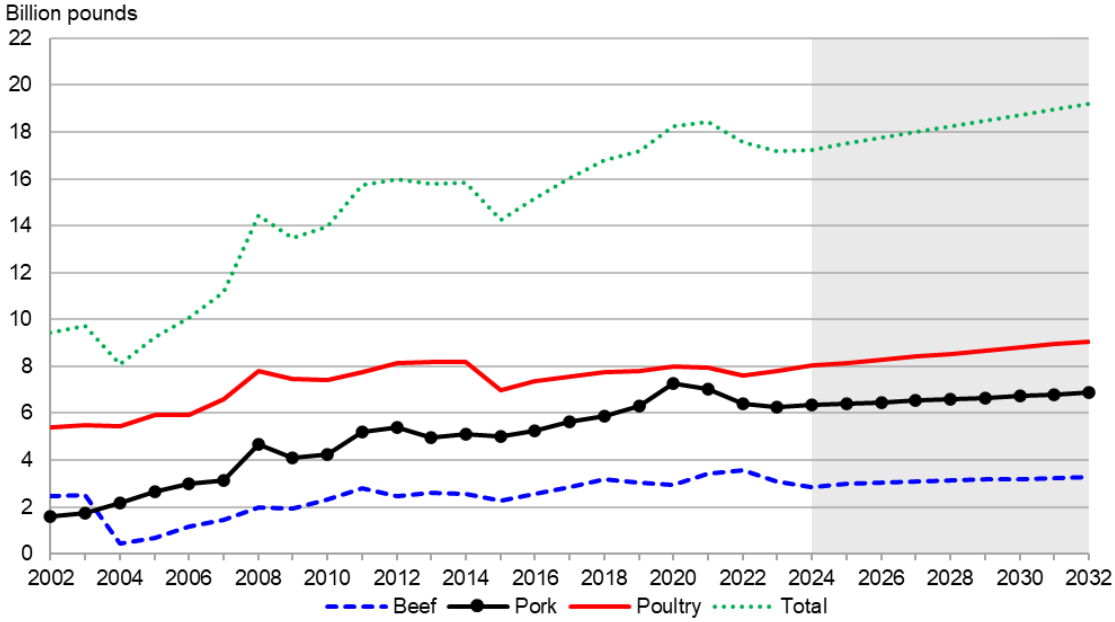
cwt = hundredweight
Notes: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

- In 2022 and 2023, steer prices in the 5-area marketing region are forecast to rise reflecting tightening cattle supplies. As producers respond to higher cattle prices, U.S. cattle inventories are expected to expand in 2025, and cattle prices are projected to decline through 2026 to $137.82 per hundredweight (cwt). For the remainder of the period, steer prices are expected to gradually rise to $148.73 per cwt in 2032 reflecting strong global demand for U.S. beef and relatively tight supplies for the domestic market.
- Pork production grows moderately in the projection period. Hog prices—national base lean prices for live-equivalent 51–52 percent lean hogs—are expected to average about $54.80 per hundredweight. Strong processor demand for hogs—deriving primarily from robust domestic pork demand and moderate export demand—support hog prices over the projection period. Although comparatively high relative to history, hog prices are projected to remain substantially below elevated prices in 2021 and projected at still high levels through 2023. The initial jump in prices during 2021 reflected strong consumer demand for pork to be prepared at home. Prices through 2023 are also

expected to be supported by constrained supplies. Prices after 2024 gradually decline as production grows through 2032 and competition with other meats increases.

- After 2 years of particularly strong prices in 2022 and 2023, wholesale broiler prices are expected to begin the projection period lower, at 122.8 cents per pound as production increases. They will then increase steadily to 146.3 cents per pound in 2032, as demand remains strong. Wholesale turkey prices are expected to fall from a 2022 peak to 147.8 cents per pound in 2024, then level off, declining only slightly from 143.6 cents in 2025 to 142.7 cents in 2032.

Figure 23: U.S. meat exports, 2002–32



Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

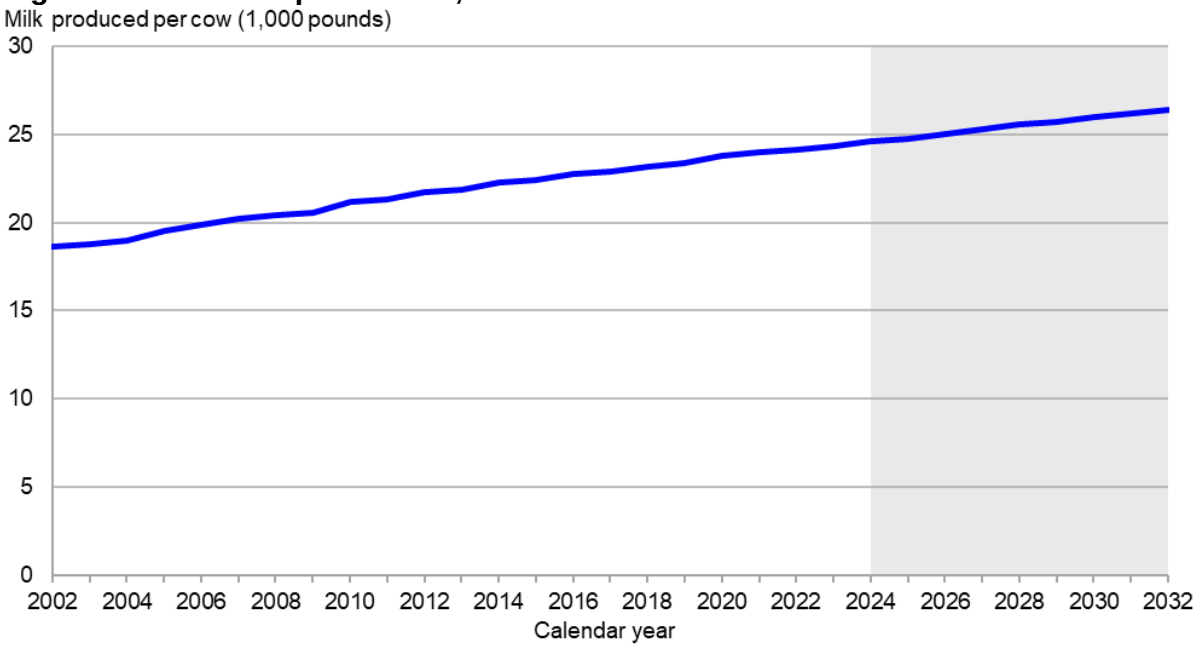
The real exchange rate of the U.S. dollar is expected to depreciate fractionally against the currencies of agricultural trade partners during 2024–32, although from a relatively high level. This may lend some marginal support to U.S. red meat and poultry exports, that are projected to rise through 2032, largely based on increased U.S. red meat and poultry supplies.

- The decline in U.S. beef production from 2023 to 2024 leads to a decline in available supplies for export. During the projection period of 2024 to 2032, U.S. beef exports are expected to grow almost 15.0 percent from 2.9 billion pounds to 3.3 billion pounds. Brazil is projected to be the largest global beef exporter, while India remains second, followed by Australia and the United States. Among the major global beef exporters, U.S. market share is expected to decline fractionally, largely due to growth in exports by Brazil and India.
- The annual percent change in U.S. pork exports averages about 1.0 percent over the projection period. Efficiency gains in hog production and pork processing continue to enhance the sectors' international competitiveness. Although the United States is expected to face increased competition in export markets, it is projected to maintain its

position as the second largest exporter of pork behind the European Union (EU). U.S. exports are projected to remain well ahead of other major exporters—Brazil and Canada.

- U.S poultry exports are expected to increase steadily over the next 10 years. Broiler export growth is expected to continue to benefit from gains in production efficiency along with increasing global demand, climbing from 7.49 billion pounds in 2024 to 8.43 billion pounds in 2032. Turkey exports dropped sharply in 2022, reflecting the impacts of HPAI, but are expected to bounce back to 500 million pounds in 2024. Turkey exports will continue to climb through the projection period, reaching 575 million pounds in 2032.

Figure 24: U.S. milk production, 2002–32



Note: The shaded region represents the projected period.
Source: USDA, Interagency Agricultural Projections Committee, as of November 7, 2022. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

Milk production is projected to rise at a compound annual growth rate (CAGR) of 1.1 percent per year over the projection period, reaching 253.7 billion pounds in 2032. With relatively high feed prices compared to farm-level milk prices, the dairy herd is projected to decline in 2024, remain flat in 2025, but then start rising in 2026. As domestic demand for dairy products grows and exports increase, milk prices are expected to rise relative to feed prices, and the dairy herd is expected to increase. Technological and genetic advances will contribute to increasing cow milk yields as well as milk-fat and skim-solids (protein, lactose, and minerals) content of the milk. In 2032, milk production per cow is projected to average 26,415 pounds.

- Domestic use on a milk-fat, milk-equivalent basis is projected to increase by a CAGR of 1.2 percent over the projection period. On a skim solids basis, domestic use is projected to increase at a modest CAGR of 0.6 percent for 2024 to 2032. Demand for cheese is expected to rise based on climbing consumption of prepared foods and food eaten

away-from-home. Butter demand is also expected to expand. However, the decline in per capita consumption of fluid milk products is expected to continue. Domestic demand for dry skim milk products (nonfat dry milk, skim milk powder, and dry skim milk for animal consumption) is expected to be relatively stable through the forecast period.

- Global demand for U.S. dairy products is expected to continue to rise over the projection period, with growth projected for exports of products with high skim-solids content such as dry skim milk products (nonfat dry milk and skim milk powder), whey products, and lactose. On a skim-solids basis, dairy exports are expected to grow to 26.0 percent of milk production by 2032. On a milk-fat basis, however, exports are expected to remain comparatively low, totaling 4.5 percent of milk production in 2032.
- The nominal all-milk price is projected to decrease from its high level in 2022, falling through 2025; it then rises from 2028 through 2032. Adjusted for inflation, the all-milk price decreases throughout the projection period.

Table 18: Per capita meat consumption, retail weight

Item	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
						Pounds						
Beef	58.9	58.8	56.1	55.7	56.1	56.2	56.0	55.9	55.9	55.8	55.7	55.5
Veal	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Pork	51.1	51.6	52.4	52.5	52.6	53.0	53.6	54.2	54.8	55.3	55.8	56.3
Lamb and mutton	1.4	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
Total red meat	111.5	111.8	109.9	109.7	110.1	110.6	111.0	111.6	112.2	112.5	112.9	113.3
Broilers	96.6	98.8	100.1	101.4	102.1	102.8	103.4	104.3	104.7	104.8	105.2	106.0
Other chicken	1.5	1.6	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Turkeys	15.3	14.7	15.8	15.8	16.0	16.0	16.0	16.0	15.9	15.8	15.7	15.5
Total poultry	113.4	115.0	117.4	118.7	119.7	120.3	120.9	121.8	122.1	122.1	122.4	123.0
Red meat and poultry	224.9	226.8	227.3	228.4	229.8	231.0	231.9	233.4	234.2	234.6	235.3	236.3

Note: Totals may not add due to rounding. The projections were completed in October 2022.

Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 19: Beef long-term projections

Item	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Beginning stocks	Million lbs.	716	676	730	640	635	650	650	650	650	650	650	650
Commercial production	Million lbs.	27,948	28,136	26,365	26,029	27,016	27,237	27,342	27,532	27,729	27,875	28,012	28,100
Change from previous year	Percent	2.85	0.67	-6.29	-1.28	3.79	0.82	0.39	0.70	0.72	0.52	0.49	0.31
Farm production	Million lbs.	68	68	68	68	68	68	68	68	68	68	68	68
Total production	Million lbs.	28,016	28,204	26,433	26,096	27,084	27,305	27,410	27,600	27,797	27,942	28,080	28,167
Imports	Million lbs.	3,346	3,389	3,350	3,627	3,131	3,155	3,164	3,182	3,201	3,214	3,227	3,233
Total supply	Million lbs.	32,078	32,268	30,513	30,363	30,850	31,110	31,224	31,432	31,648	31,807	31,956	32,050
Exports	Million lbs.	3,441	3,571	3,070	2,863	2,972	3,023	3,062	3,111	3,161	3,206	3,249	3,288
Ending stocks	Million lbs.	676	730	640	635	650	650	650	650	650	650	650	650
Total disappearance	Million lbs.	27,962	27,967	26,803	26,865	27,228	27,437	27,511	27,671	27,837	27,951	28,057	28,113
Per capita, retail weight	Pounds	58.9	58.8	56.1	55.7	56.1	56.2	56.0	55.9	55.9	55.8	55.7	55.5
Change from previous year	Percent	0.80	-0.17	-4.59	-0.69	0.68	0.11	-0.36	-0.04	-0.01	-0.18	-0.20	-0.36
Prices:													
Beef cattle, farm	$/cwt 1/	120.84	141.20	151.40	143.82	137.33	135.94	137.05	137.70	138.76	140.90	143.51	146.70
Calves, farm	$/cwt	168.67	189.06	229.71	218.20	208.35	206.24	207.94	208.92	210.53	213.78	217.73	222.58
Steers, 5-area 2/	$/cwt	122.40	143.15	153.50	145.81	139.23	137.82	138.95	139.61	140.68	142.85	145.50	148.73
Feeder steers, Oklahoma City	$/cwt	146.95	164.93	200.75	187.99	176.99	174.53	176.18	177.02	178.57	181.94	186.13	191.32
Feed price ratio:													
Beef cattle-corn	Ratio	23.1	15.8	14.9	16.9	18.8	20.2	21.3	21.4	21.6	21.9	22.3	22.8
Cattle inventory	1,000 head	93,790	91,902	89,400	88,600	90,414	91,026	91,520	92,207	92,786	93,185	93,543	93,742
Beef cow inventory	1,000 head	30,844	30,125	29,040	28,653	29,124	29,709	30,227	30,620	30,917	31,135	31,269	31,320
Total cow inventory	1,000 head	40,286	39,500	38,500	38,106	38,578	39,162	39,680	40,074	40,370	40,588	40,723	40,773

Note: Totals may not add due to rounding. 1/ Cwt = hundredweight (100 pounds). 2/ Texas/Oklahoma/New Mexico; Kansas; Nebraska; Colorado; Iowa/Minnesota feedlots. The projections were completed in October 2022

Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 20: Pork long-term projections

Item	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Beginning stocks	Million lbs.	467	446	550	570	546	552	559	568	578	587	595	603
Commercial production	Million lbs.	27,675	27,148	27,345	27,615	27,879	28,275	28,713	29,201	29,646	30,055	30,462	30,909
Change from previous year	Percent	-2.22	-1.90	0.73	0.99	0.96	1.42	1.55	1.70	1.52	1.38	1.35	1.47
Farm production	Million lbs.	15.0	15.0	15.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total production	Million lbs.	27,690	27,162	27,360	27,629	27,893	28,289	28,727	29,215	29,660	30,069	30,476	30,923
Imports	Million lbs.	1,180	1,477	1,505	1,524	1,543	1,562	1,582	1,601	1,621	1,642	1,662	1,683
Total supply	Million lbs.	29,337	29,085	29,415	29,723	29,983	30,403	30,868	31,384	31,859	32,297	32,733	33,209
Exports	Million lbs.	7,026	6,389	6,280	6,343	6,406	6,470	6,535	6,600	6,666	6,733	6,800	6,868
Ending stocks	Million lbs.	446	550	570	546	552	559	568	578	587	595	603	612
Total disappearance	Million lbs.	21,865	22,146	22,565	22,834	23,025	23,373	23,765	24,206	24,606	24,969	25,330	25,729
Per capita, retail weight	Pounds	51.1	51.6	52.4	52.5	52.6	53.0	53.6	54.2	54.8	55.3	55.8	56.3
Change from previous year	Percent	1.01	0.98	1.55	0.18	0.17	0.85	1.03	1.22	1.04	0.88	0.86	1.01
Prices:													
Hogs, farm	$/cwt 1/	68.48	73.10	68.73	57.77	57.81	57.44	57.03	56.23	55.69	55.48	55.33	55.01
National base, live equivalent	$/cwt	67.29	71.08	66.75	56.11	56.15	55.78	55.39	54.61	54.08	53.88	53.74	53.42
Feed price ratio:													
Hog-corn	Ratio	12.7	11.8	13.3	13.0	14.1	14.7	14.6	14.4	14.2	14.2	14.2	14.1
Hog inventory, December 1, previous year	1,000 head	77,312	74,446	74,000	74,175	74,650	75,471	76,401	77,456	78,393	79,227	80,052	80,978

Note: Totals may not add due to rounding. 1/ Cwt = hundredweight (100 pounds). The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 21: Young chicken long-term projections

Item	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Beginning stocks	Million lbs.	830	705	820	790	800	805	810	815	820	825	830	835
Federally inspected slaughter	Million lbs.	44,899	45,899	46,625	47,694	48,371	49,017	49,659	50,402	50,931	51,353	51,896	52,559
Change from previous year	Percent	0.71	2.23	1.58	2.29	1.42	1.34	1.31	1.50	1.05	0.83	1.06	1.28
Production	Million lbs.	44,419	45,408	46,126	47,184	47,853	48,493	49,127	49,863	50,386	50,804	51,341	51,996
Total supply	Million lbs.	45,403	46,301	47,116	48,138	48,816	49,467	50,108	50,854	51,384	51,811	52,353	53,014
Change from previous year	Percent	0.48	1.98	1.76	2.17	1.41	1.33	1.30	1.49	1.04	0.83	1.05	1.26
Exports	Million lbs.	7,355	7,168	7,370	7,490	7,610	7,730	7,850	7,970	8,090	8,210	8,330	8,430
Ending stocks	Million lbs.	705	820	790	800	805	810	815	820	825	830	835	840
Disappearance	Million lbs.	37,343	38,312	38,956	39,848	40,401	40,927	41,443	42,064	42,469	42,771	43,188	43,744
Per capita, retail weight	Pounds	96.6	98.8	100.1	101.4	102.1	102.8	103.4	104.3	104.7	104.8	105.2	106.0
Change from previous year	Percent	0.4	2.3	1.3	1.3	0.7	0.6	0.6	0.9	0.4	0.1	0.4	0.7
Prices:													
Broilers, farm	Cents/lb.	55.8	84.0	77.5	72.6	74.5	76.3	78.2	79.5	81.4	83.4	85.2	86.6
Broilers, National composite	Cents/lb.	101.2	141.4	131.0	122.8	125.9	129.1	132.1	134.5	137.5	141.0	144.0	146.3
Feed price ratio:													
Broiler-feed 1/	Ratio	3.8	4.1	3.7	3.9	4.5	4.9	5.2	5.3	5.3	5.5	5.6	5.6

Note: Totals may not add due to rounding. 1/ Broiler feed price based on 58 percent corn price and 42 percent soybean price, as used by USDA, National Agricultural Statistics Service. The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 22: Turkey long-term projections

Item	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Beginning stocks	Million lbs.	223	166	165	170	173	177	180	183	187	190	193	196
Production	Million lbs.	5,558	5,204	5,610	5,753	5,875	5,920	5,949	5,983	5,996	6,003	6,006	6,006
Total supply	Million lbs.	5,804	5,452	5,860	6,003	6,129	6,178	6,212	6,249	6,267	6,277	6,284	6,287
Change from previous year	Percent	-3.22	-6.06	7.48	2.43	2.11	0.80	0.55	0.61	0.28	0.17	0.10	0.06
Exports	Million lbs.	548	404	415	500	510	519	529	538	548	557	567	575
Ending stocks	Million lbs.	166	165	170	173	177	180	183	187	190	193	196	200
Disappearance	Million lbs.	5,090	4,883	5,275	5,329	5,443	5,479	5,500	5,525	5,529	5,527	5,521	5,512
Per capita, retail weight	Pounds	15.3	14.7	15.8	15.8	16.0	16.0	16.0	16.0	15.9	15.8	15.7	15.5
Change from previous year	Percent	-2.91	-3.92	7.48	-0.07	1.46	0.01	-0.25	-0.17	-0.53	-0.63	-0.69	-0.71
Prices:													
Turkey, farm	Cents/lb.	82.2	103.9	102.8	100.3	97.8	97.3	97.3	96.8	96.9	97.0	97.0	97.1
Hen turkeys, National	Cents/lb.	122.8	152.9	151.0	147.4	143.7	142.9	142.9	142.3	142.3	142.5	142.5	142.7
Feed price ratio:													
Turkey-feed 1/	Ratio	6.2	7.1	5.1	4.9	5.3	6.0	6.3	6.5	6.5	6.4	6.4	6.4

Note: Totals may not add due to rounding.
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.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 23: Egg long-term projections

Item	Units	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Beginning stocks	Million dozen	25	19	19	21	24	24	24	25	25	26	26	27
Production	Million dozen	9,238	9,042	9,560	9,703	9,825	9,917	10,005	10,096	10,190	10,284	10,378	10,472
Change from previous year	Percent	-0.49	-2.12	5.73	1.50	1.25	0.94	0.88	0.92	0.92	0.93	0.91	0.91
Imports	Million dozen	18	24	20	18	18	16	17	17	16	16	16	16
Total supply	Million dozen	9,280	9,085	9,599	9,742	9,866	9,958	10,046	10,138	10,231	10,327	10,420	10,515
Change from previous year	Percent	-0.54	-2.10	5.66	1.49	1.28	0.93	0.88	0.92	0.92	0.93	0.90	0.91
Hatching use	Million dozen	1,104	1,126	1,160	1,173	1,178	1,184	1,191	1,198	1,206	1,213	1,220	1,227
Exports	Million dozen	392	223	270	274	284	290	294	298	302	305	309	312
Ending stocks	Million dozen	19	19	21	24	24	24	25	25	26	26	27	27
Disappearance	Million dozen	7,765	7,717	8,148	8,272	8,380	8,459	8,535	8,616	8,698	8,783	8,865	8,949
Per capita	Number	280.5	278.0	292.4	294.1	296.0	296.8	297.6	298.5	299.6	300.7	301.8	302.9
Change from previous year	Percent	-2.11	-0.89	5.18	0.58	0.64	0.28	0.26	0.32	0.34	0.37	0.36	0.39
Prices:													
Eggs, farm	Cents/dozen	99.3	204.4	144.3	116.1	116.7	122.3	125.6	128.2	130.1	132.0	133.8	135.8
New York, Grade A large	Cents/dozen	118.5	242.0	170.0	136.8	137.4	144.0	147.9	150.9	153.2	155.4	157.6	159.9
Feed price ratio:													
Egg-feed 1/	Ratio	5.8	11.1	5.5	4.2	4.8	5.7	6.2	6.6	6.7	6.8	6.8	6.9

Note: Totals may not add due to rounding.
1/ Egg feed price based on 75 percent corn price and 25 percent soybean price, as used by USDA, National Agricultural Statistics Service.
The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

Table 24. Dairy long-term projections

Item	Units	2021	2022	2023	2024 1/	2025	2026	2027	2028 1/	2029	2030	2031	2032 1/
Milk production and marketings													
Number of milk cows	Thousand	9,448	9,410	9,425	9,415	9,415	9,425	9,445	9,475	9,500	9,540	9,575	9,605
Milk per cow	Pounds	23,948	24,110	24,320	24,590	24,770	25,015	25,265	25,570	25,730	25,965	26,190	26,415
Milk production	Billion lbs.	226.3	226.9	229.2	231.5	233.2	235.8	238.6	242.3	244.4	247.7	250.8	253.7
Farm use	Billion lbs.	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
Marketings	Billion lbs.	225.2	225.8	228.2	230.4	232.1	234.7	237.5	241.2	243.3	246.5	249.6	252.5
Supply and use, milk-fat basis:													
Beginning commercial stocks	Billion lbs.	15.6	14.3	14.3	15.8	16.3	16.6	16.8	17.1	17.5	17.6	17.9	18.2
Marketings	Billion lbs.	225.2	225.8	228.2	230.4	232.1	234.7	237.5	241.2	243.3	246.5	249.6	252.5
Imports	Billion lbs.	6.5	7.2	7.2	7.0	6.9	6.8	6.6	6.4	6.4	6.2	6.2	6.1
Commercial supply	Billion lbs.	247.4	247.3	249.6	253.2	255.3	258.1	260.9	264.7	267.2	270.3	273.7	276.8
Domestic commercial use 2/	Billion lbs.	221.5	219.5	221.2	224.5	226.4	229.1	231.4	234.7	237.5	240.3	243.7	246.8
Commercial exports	Billion lbs.	11.5	13.5	12.6	12.4	12.3	12.2	12.4	12.5	12.1	12.1	11.8	11.5
Ending commercial stocks	Billion lbs.	14.3	14.3	15.8	16.3	16.6	16.8	17.1	17.5	17.6	17.9	18.2	18.5
Supply and use, skim-solids basis:													
Beginning commercial stocks	Billion lbs.	10.9	11.1	12.0	12.4	12.8	13.1	13.3	13.4	13.6	13.7	13.8	13.9
Marketings	Billion lbs.	225.2	225.8	228.2	230.4	232.1	234.7	237.5	241.2	243.3	246.5	249.6	252.5
Imports	Billion lbs.	5.8	6.5	6.1	6.1	6.0	5.9	5.8	5.6	5.6	5.4	5.3	5.3
Commercial supply	Billion lbs.	241.9	243.4	246.2	248.9	250.9	253.7	256.6	260.2	262.5	265.6	268.7	271.7
Domestic commercial use 2/	Billion lbs.	180.0	179.2	181.6	182.3	182.6	183.7	184.9	186.7	187.4	188.9	190.4	191.7
Commercial exports	Billion lbs.	50.8	52.2	52.2	53.8	55.2	56.7	58.3	59.9	61.4	62.9	64.4	65.9
Ending commercial stocks	Billion lbs.	11.1	12.0	12.4	12.8	13.1	13.3	13.4	13.6	13.7	13.8	13.9	14.1
Price received by dairy farmers													
All milk	$/hundredweight	18.53	25.60	22.90	21.90	21.65	21.90	21.90	21.95	22.75	22.85	23.15	23.45
Wholesale dairy product prices													
Butter	$/lb.	1.73	2.88	2.44	2.43	2.41	2.46	2.38	2.34	2.47	2.43	2.48	2.52
Cheddar cheese	$/lb.	1.68	2.10	1.98	1.90	1.89	1.92	1.94	1.96	2.00	2.03	2.06	2.08
Nonfat dry milk	$/lb.	1.27	1.69	1.49	1.35	1.28	1.26	1.26	1.27	1.34	1.34	1.35	1.35
Dry whey	$/lb.	0.57	0.61	0.48	0.46	0.45	0.45	0.46	0.46	0.47	0.48	0.48	0.49

Note: Totals may not add due to rounding. 1/ Leap year. 2/ Domestic commercial use for 2020 includes significant milk marketed but not processed. The projections were completed in October 2022.
Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projections Committee.

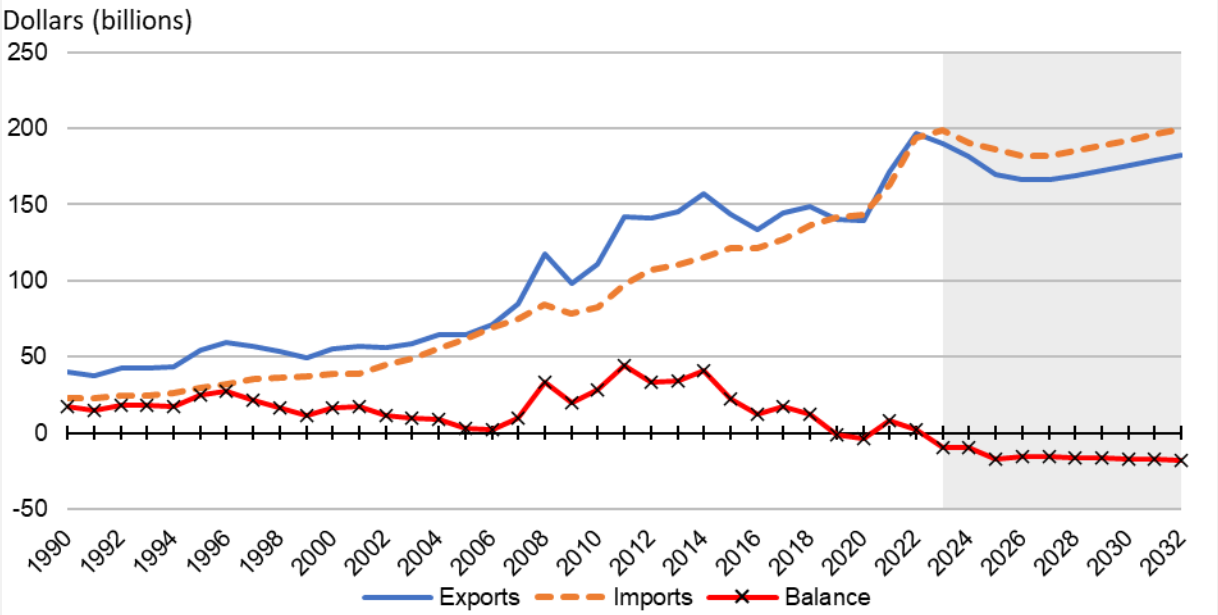
Breakout Box: U.S. Agricultural Trade Projections

U.S agricultural trade is projected using data released by the U.S. Department of Commerce, Bureau of the Census on November 2, 2022. It includes values and volumes of U.S. imports and exports through September 30, 2022. This section covers fiscal years (FY) October 1 through September 31, 2021 through 2032 with projections beginning in FY 2023.

As the United States and global economies adjust after the fluctuations caused by the Coronavirus COVID-19 pandemic and Russia's war against Ukraine, gross domestic product (GDP) growth is expected to slow over the next few years. Inflation is a significant concern as countries seek limit it by tightening monetary policy potentially at the expense of national economic activity. This has the potential to further depress demand, especially for some of the more elastic (price sensitive) agricultural commodities. Another important consideration is the projected strong U.S. dollar, which acts as a headwind to the export forecast but also facilitates relatively strong import demand in 2023.These macroeconomic conditions are expected to be most acute between 2023 and 2025, negatively affecting trade before imports and exports can begin to gradually rebound. Longer-term strength in per capita incomes, especially in developing countries, is projected to support the export of some U.S. commodities, such as livestock and meats.

In 2023, projected total U.S. agricultural exports are expected to decrease by 3.2 percent to $190.0 billion, down from a record $196.4 billion in 2022. The decline in value is mainly due to reductions in soybeans, cotton, and corn exports that are partially offset by gains in beef, poultry, and wheat. Agricultural imports are expected to reach a record $199.1 billion in 2023. This is up from $194.0 billion in 2022 and is largely driven by higher imports of horticultural products and sugar and tropical products, which together accounted for 65 percent of U.S. imports in 2022. Macroeconomic conditions are expected to slow U.S. exports earlier than imports, leading to a negative trade balance. The negative trade balance persists partly due to the ongoing trend towards importing horticultural products to satisfy increasing demand for year-round produce from increasingly competitive sources.

Figure 25. U.S. agricultural trade long-term projections, 1990–2032



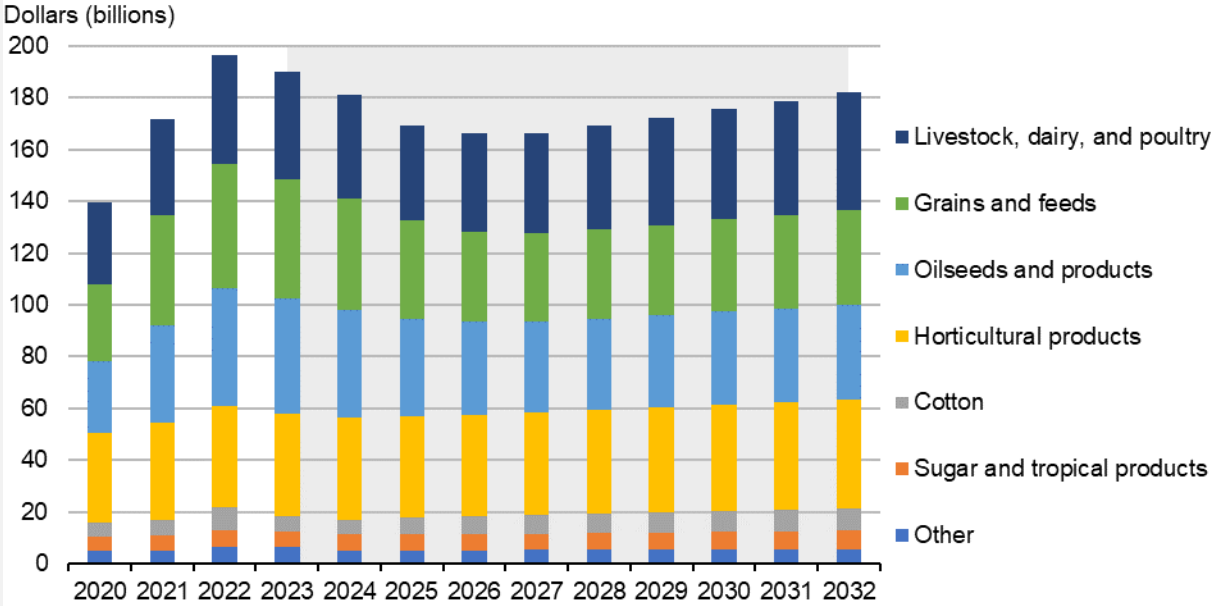
Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

Over the projection period of 2022 through 2032 agricultural exports are expected to decline at an annual rate averaging 0.7 percent per year, ending at $182.2 billion in 2032. The entirety of that decline occurs in 2022–2026 where agricultural exports fall 3.8 percent annually. By 2027 export growth is forecast to resume at an annual rate of 1.9 percent through 2032.

A large source of the export weakness during 2022–2026 is associated with grains and feeds, which are forecast to decline from $48.0 billion in 2022 to a low of $34.0 billion in 2027. Similarly, oilseeds and products decline from $45.6 billion in 2022 to a low of $35.2 billion in 2027. These declines are partly due to the record exports of those commodities to countries such and China and Mexico in 2022, and as reduced export volumes are expected with lower commodity prices also expected to follow. After 2027 exports of these commodities rebound with an annual growth rate of 1.6 and 0.6 percent ending at $36.6 billion and $36.3 billion, respectively, in 2032. Livestock, dairy and poultry is the third largest export group at $41.8 billion in 2022 and is forecast to grow 0.9 percent per year to $45.7 billion in 2032. The livestock, dairy, and poultry product group has a relatively moderate decline to $37.1 billion in 2025 resulting from forecast decreases in exports of pork and beef—both in terms of quantity and unit values of those products. Animal product exports are then expected to resume growth in 2026 through the forecast horizon.

The record exports of corn and soybeans to China and Mexico in 2021 and 2022 shifted the share of exports toward bulk commodities and away from high value products. As exports in bulk commodities slow in 2023, exports of high value products begin to reclaim a larger share of the total, growing from a low of 62 percent in 2022 to 67 percent in 2032.

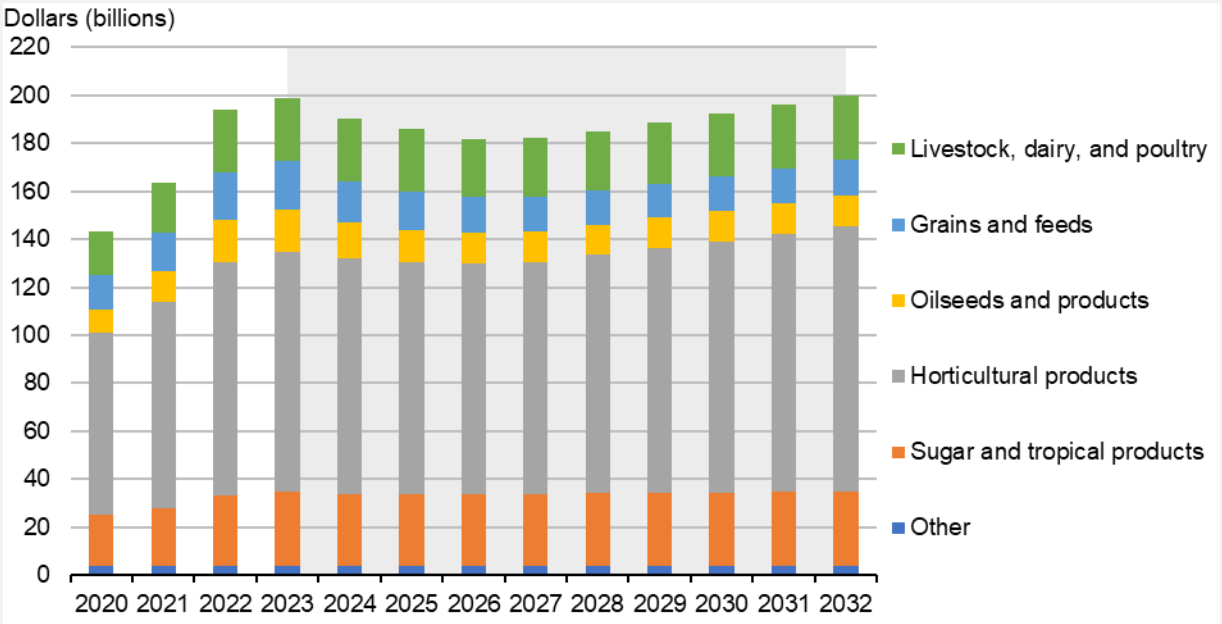
Figure 26. Projected U.S. agricultural exports by commodity group, 2020–32



Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

The value of U.S. agricultural imports is projected to increase by an average annual rate of 0.3 percent over the 2022–32 period. Shadowing exports, the downturn in imports starts in 2024, followed by a return to growth after reaching a low of $181.6 billion in 2026. Between 2027 and 2032 the annual growth rate of imports is 2.0 percent, with a value of $200.0 billion in 2032. The largest source of imports is horticultural products, comprising 50 percent of the total and growing 1.3 percent over the forecast period. Horticultural products decline from a high of $100.3 billion in 2023 to a low of $96.3 billion in 2026. Between 2027 and 2032 horticultural exports are expected to grow at an annual rate of 2.8 percent per year to $110.3 billion in 2032. Within the broad horticultural products group, fresh fruits and vegetables, at $29.0 billion in 2022, was the largest component, growing at a relatively strong annual rate of 2.0 percent over the forecast period. Key commodities include avocados, berries, and citrus from countries such as Mexico, Chile, and Peru. This growth has largely been driven by desire for year-round supply, changing consumer preferences, and increasingly competitive foreign production.

Figure 27. Projected U.S. agricultural imports by commodity group, 2020–32



Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census.

-End

Table 25: U.S. agricultural trade long-term projections to 2032, fiscal years

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
						Dollars (billions)							
Agricultural exports (value)													
Livestock, dairy, and poultry	31.6	36.9	41.8	41.4	40.3	37.1	37.9	38.9	40.1	41.3	42.8	44.3	45.7
Livestock and meats	20.1	23.7	25.8	25.3	23.6	20.9	21.3	21.7	22.2	22.7	23.3	23.9	24.6
Dairy products	6.5	7.3	9.1	8.9	8.8	8.5	8.5	8.7	9.0	9.2	9.6	9.9	10.2
Poultry products	5.1	6.0	6.9	7.2	7.9	7.6	8.0	8.5	8.9	9.4	9.9	10.4	10.9
Grains and feeds	29.9	42.6	48.0	46.2	42.7	38.0	34.8	34.0	34.4	35.1	35.5	36.2	36.6
Coarse grains	9.3	19.4	22.0	20.3	18.6	16.3	15.3	14.9	15.1	15.4	15.7	16.0	16.2
Feeds and fodder	7.9	9.1	10.6	10.6	9.8	8.7	8.0	7.8	7.9	8.0	8.1	8.3	8.4
Oilseeds and products	27.6	37.7	45.6	44.3	41.8	37.4	36.3	35.2	35.3	35.5	36.0	36.0	36.3
Soybeans and products	23.2	32.9	40.6	39.7	37.4	33.5	32.4	31.5	31.5	31.7	32.1	32.1	32.4
Horticultural products 1/	34.8	37.5	39.3	39.6	39.3	39.1	39.1	39.4	39.9	40.4	40.9	41.4	42.0
Fruits and vegetables, fresh	7.0	7.1	7.0	7.2	7.1	7.0	6.8	6.8	6.7	6.7	6.6	6.6	6.6
Fruits and veg., processed	6.5	7.0	7.3	7.3	7.2	7.0	6.9	6.8	6.8	6.8	6.8	6.8	6.8
Tree nuts, whole & processed	8.5	8.8	9.8	9.5	9.7	9.9	10.1	10.3	10.5	10.7	10.9	11.1	11.3
Cotton	5.6	6.2	8.8	6.1	5.8	6.5	6.7	7.4	7.7	7.9	8.3	8.6	8.8
Sugar and tropical products	5.4	5.7	6.2	6.0	6.1	6.1	6.2	6.3	6.5	6.7	6.9	7.2	7.4
Other exports 1/	4.9	5.2	6.6	6.3	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Total agricultural exports	139.7	171.7	196.4	190.0	181.2	169.5	166.3	166.5	169.1	172.2	175.7	178.9	182.2
Major bulk commodities 2/	41.7	62.4	75.1	70.1	65.2	59.2	56.2	55.5	56.1	56.9	58.0	58.7	59.6
High-value product exports 3/	98.0	109.4	121.3	120.0	116.1	110.3	110.1	111.0	113.1	115.3	117.6	120.2	122.6
						Percent							
High-value product share	70.1%	63.7%	61.8%	63.1%	64.0%	65.1%	66.2%	66.7%	66.9%	66.9%	67.0%	67.2%	67.3%
						Million metric tons							
Agricultural exports (volume)													
Volume in million metric tons	127.6	170.1	154.6	139.5	146.6	149.4	151.3	153.7	155.8	158.4	160.7	162.7	164.7
						Billion dollars							
Agricultural imports (value)													
Livestock, dairy, and poultry	18.2	21.0	26.0	26.3	26.3	26.5	24.0	24.3	24.8	25.2	25.7	26.3	26.9
Livestock and meats	14.2	16.4	20.1	20.5	20.7	20.9	18.4	18.6	19.0	19.4	19.8	20.3	20.8
Dairy products	3.3	3.7	4.6	4.3	4.3	4.3	4.4	4.4	4.5	4.5	4.6	4.6	4.7
Grains and feeds	14.3	15.8	19.8	20.4	16.8	15.7	14.7	14.5	14.2	14.3	14.5	14.6	14.7
Grain products	9.8	11.2	13.7	13.7	10.8	9.8	9.0	8.8	8.5	8.6	8.6	8.7	8.8
Oilseeds and products	9.8	12.6	17.9	17.5	15.3	13.6	12.9	12.7	12.7	12.7	12.8	13.0	13.1
Vegetable oils	5.7	7.6	10.9	10.2	8.5	7.4	6.9	6.8	6.8	6.7	6.8	6.9	7.0
Horticultural products	75.8	86.1	97.2	100.3	98.2	96.8	96.3	96.9	99.4	102.0	104.7	107.4	110.3
Fruits and vegetables, fresh	23.9	26.0	29.0	30.4	29.9	29.5	29.5	29.9	30.8	31.7	32.7	33.7	34.8
Fruits and vegetables, processed	11.3	13.0	15.7	16.0	15.7	15.4	15.3	15.4	15.7	16.1	16.5	16.9	17.3
Sugar and tropical products	21.7	23.9	29.1	30.7	29.7	29.8	29.7	29.9	30.1	30.3	30.5	30.7	30.9
Sugar and related products	5.1	5.4	6.8	7.2	6.9	7.2	7.1	7.0	6.9	6.9	6.8	6.7	6.7
Cocoa, coffee, and products	10.9	12.1	15.7	16.4	15.9	15.7	15.7	15.9	16.0	16.2	16.3	16.5	16.6
Other imports 4/	3.5	3.9	4.0	3.9	3.9	3.9	3.9	4.0	4.0	4.0	4.0	4.0	4.0
Total agricultural imports	143.4	163.3	194.0	199.1	190.3	186.2	181.6	182.2	185.1	188.5	192.2	196.0	200.0
Net agricultural trade balance	-3.7	8.4	2.4	-9.1	-9.0	-16.7	-15.3	-15.7	-15.9	-16.3	-16.5	-17.1	-17.8

1/ Includes planting seeds, tobacco, and cotton linters and waste.

2/ Includes bulk grains, soybeans, cotton, and tobacco.

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

4/ Includes planting seeds, tobacco, cotton, and non-beverage alcohol.

Notes: U.S. trade value projections were completed in December 2022. For updates of the nearby year forecasts, see USDA's *Outlook for U.S. Agricultural Trade* report, published in February, May, August, and November.

Source: USDA, Economic Research Service based on data from U.S. Department of Commerce, Bureau of the Census

U.S. Farm Income

Net farm income and net cash income are projected to decrease in 2023, following 3 consecutive years of increases starting in calendar year 2020. Net farm income is projected to decrease by $1.7 billion (1.0 percent) from $160.5 billion in 2022 to $158.8 billion in 2023. Net cash farm income is projected to decrease by $33.5 billion (17.8 percent) from $187.9 billion in 2022 to $154.4 billion in 2023. Lower cash receipts and Government payments, including those from Coronavirus (COVID-19) related programs, are the primary contributors to the projected decline in net farm income for 2023 relative to 2022.

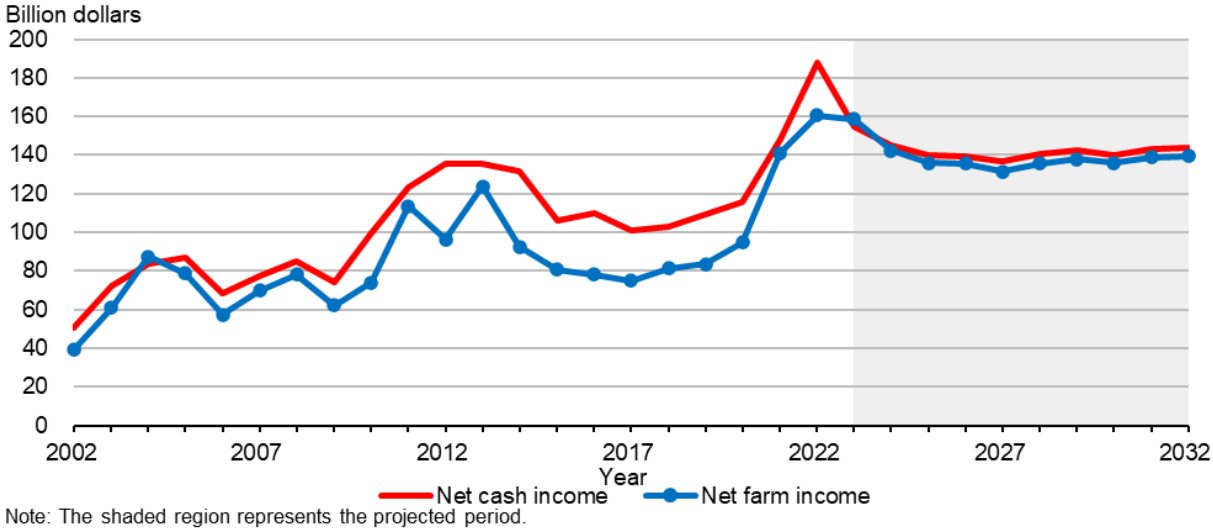
Farmers received an estimated $16.5 billion in direct Government payments, including from COVID-19-related programs and standing farm bill programs in 2022. Direct Government payments are forecast to be 25.5 percent lower at $12.3 billion in 2023. The decline in payments is also due to projected higher commodity prices in 2022/23, which will reduce Government payments from programs such as the Price Loss Coverage (PLC). Authors assume no further COVID-19 related program payments after 2023, but the projections do include additional payments authorized under the Inflation Reduction Act (IRA). Conservation payments (including payments from the Conservation Reserve Program and Natural Resources Conservation Service programs) are collectively forecast to account for the largest share of direct Government payments to the agricultural sector over 2023–32. These projections assume there will be additional conservation payments of $1.5 billion in 2023, $3.9 billion in 2024, $6.5 billion in 2025, and $6.0 billion in 2026–in addition to $2.0 billion for direct assistance of distressed borrowers–using the authority under the IRA.

- Acreage enrolled in the Conservation Reserve Program (CRP) is assumed to be at or slightly less than the legislative maximum of 27 million acres under the Agriculture Improvement Act of 2018, commonly known as the 2018 Farm Bill. CRP payments are projected to stay at $2.1 billion in 2022, gradually increasing to $2.3 billion in 2032, primarily due to marginal increases in acres enrolled to the cap.

- Payments under the Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs are projected to decrease from about $353.6 million in 2022 to $282.4 million in 2023. ARC and PLC payments are projected to decrease further in 2024. These payments are expected to increase to $363.8 million in 2025. For the 2023–32 projection period, producers are assumed to be able to change their base acre election between the ARC and PLC programs on an annual basis. From 2026–28, ARC payments are projected to increase before tapering lower through 2032.

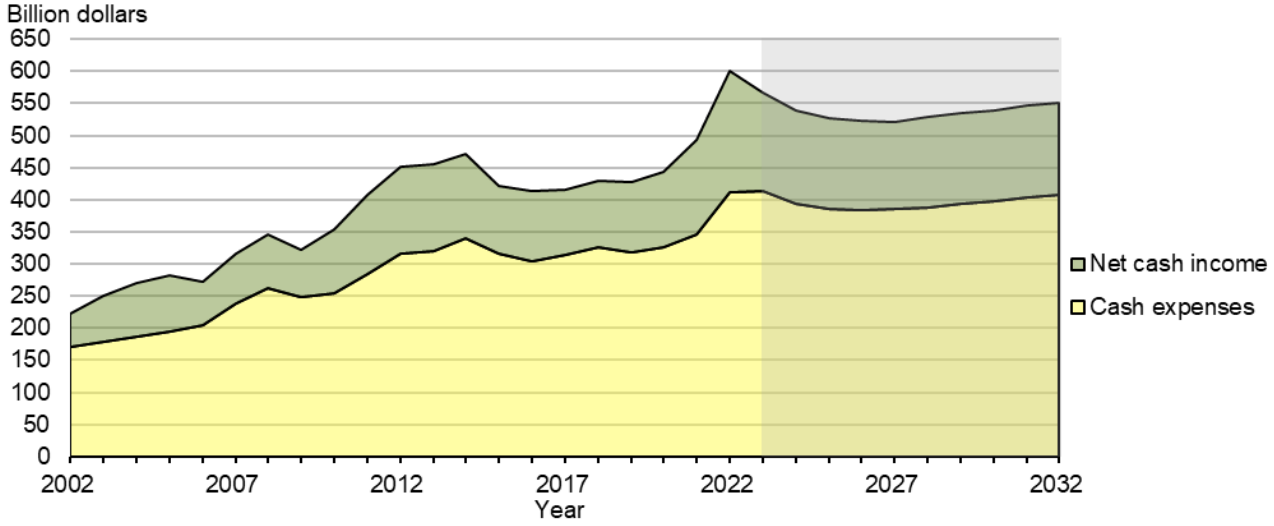
- Total farm production expenses are projected to rise slightly to $443.1 billion in 2023 because of increases in non-farm origin inputs, such as interest expenses, labor expenses, and net rent. Production expenses are then projected to decrease to $415.8 by 2026, but are expected to increase each year thereafter, ending at $442.9 billion at the end of the projection period.

Figure 28. U.S farm income indicators, 2002–32



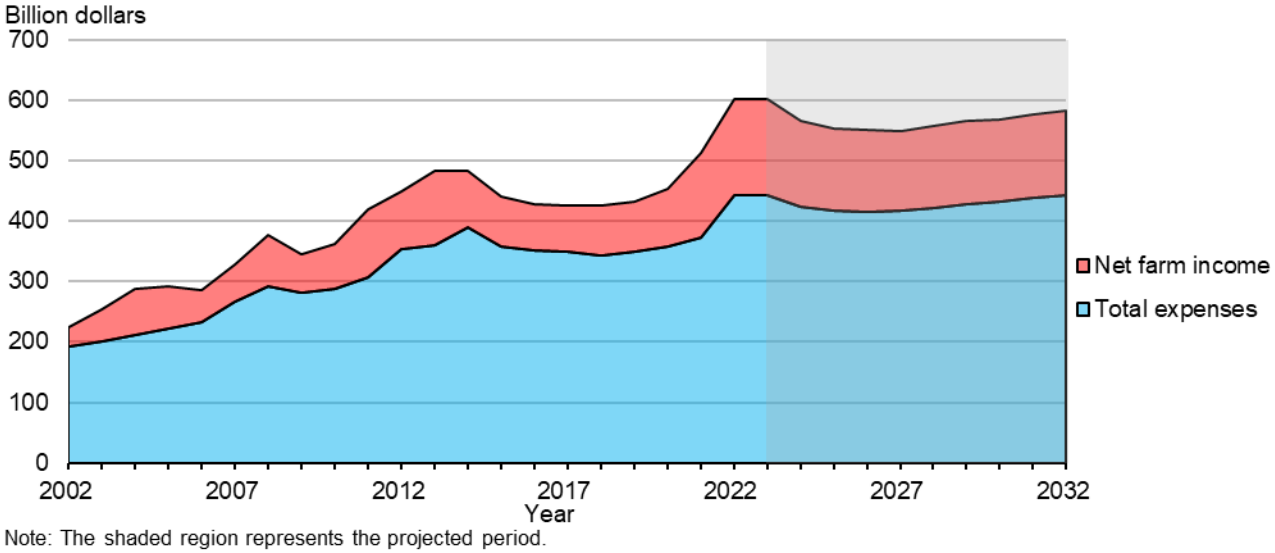
Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service.

Figure 29. U.S. farm gross cash income, 2002–32



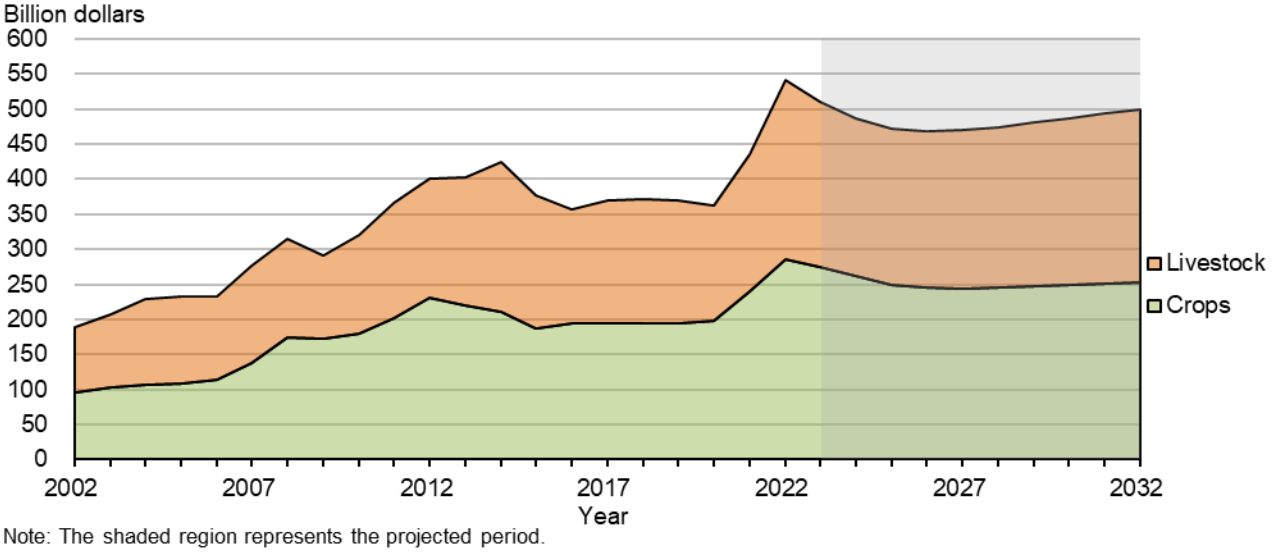
Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service.

Figure 30. U.S. total gross farm income, 2002–32



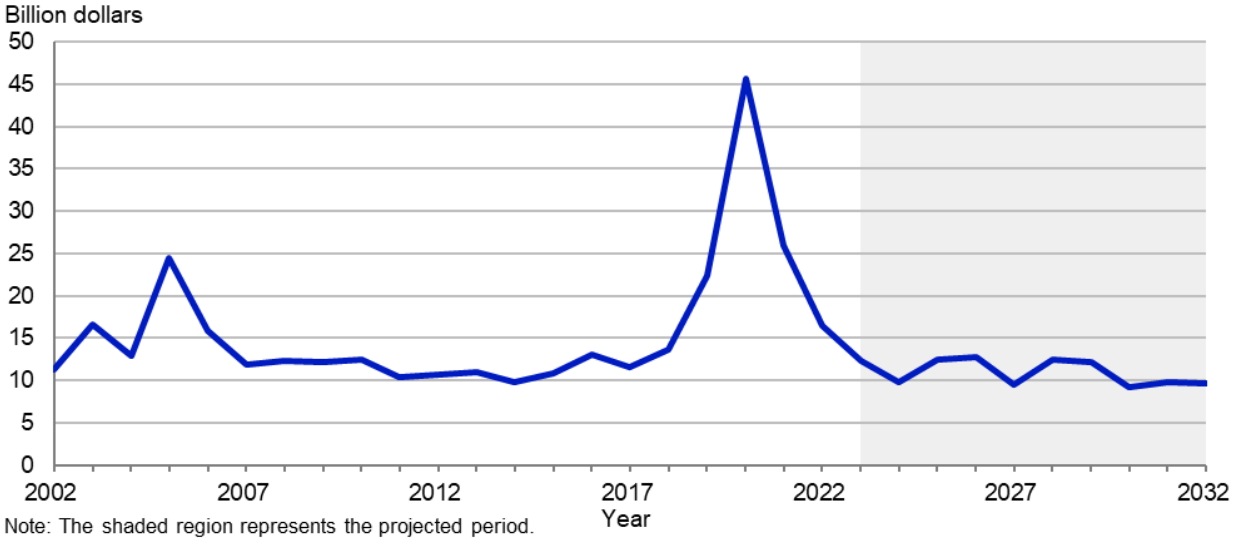
Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service.

Figure 31. U.S. farm cash receipts, 2002–32



Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service.

Figure 32. Total direct government payments, 2002–32



Note: The shaded region represents the projected period.
Source: USDA, Economic Research Service.

Table 26. Farm receipts, expenses, and income, long-term projections to 2032

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
						Billion dollars						
Cash income statement												
Cash receipts	435.8	541.5	511.1	486.0	471.9	468.5	470.3	474.4	481.1	486.2	493.1	498.9
Crops	240.0	285.5	275.4	262.7	249.7	244.7	244.0	245.6	247.9	249.4	251.8	252.9
Livestock	195.8	256.0	235.8	223.3	222.2	223.8	226.3	228.8	233.2	236.8	241.3	246.0
Direct Government payments	25.9	16.5	12.3	9.7	12.5	12.7	9.5	12.4	12.1	9.2	9.8	9.6
Farm-related income	32.2	41.9	43.5	42.2	41.6	41.4	41.7	42.1	42.4	42.6	42.9	43.1
Gross cash income	494.0	600.0	567.0	538.0	525.9	522.7	521.5	528.9	535.5	538.0	545.9	551.7
Cash expenses	345.4	412.1	412.6	392.6	385.8	383.1	384.9	388.6	392.8	397.8	402.7	408.1
Net cash income	148.5	187.9	154.4	145.4	140.2	139.6	136.6	140.3	142.7	140.2	143.2	143.6
Farm income statement												
Gross cash income	494.0	600.0	567.0	538.0	525.9	522.7	521.5	528.9	535.5	538.0	545.9	551.7
Non-money income	20.8	23.5	24.8	25.1	25.2	25.4	25.6	25.8	26.2	26.2	26.5	26.5
Value of inventory change	-1.6	-21.0	10.2	3.4	2.8	3.3	2.7	3.4	3.3	4.0	4.0	4.2
Total gross income	513.1	602.5	601.9	566.5	554.0	551.4	549.8	558.0	565.0	568.1	576.4	582.4
Total expenses	372.2	442.0	443.1	424.2	418.1	415.8	418.2	422.5	427.2	432.1	437.6	442.9
Net farm income	141.0	160.5	158.8	142.3	135.9	135.5	131.5	135.6	137.8	136.0	138.8	139.5

Notes: The projections were completed in December 2022. History for 2021 and short-term forecasts for 2022 are from USDA, Economic Research Service, December 1, 2022. This projection included estimates of Inflation Reduction Act (IRA) investments that were announced in 2022.
Source: USDA, Economic Research Service.

Agricultural Trade

Global demand and trade are projected to continue rising for all commodities over the projection period, 2023/24 through 2032/33. Growth in global agricultural trade is driven primarily by rising food and feed demand in low- and middle-income countries. The projected growth in trade is less than the previous decade, but still exhibits strong growth over the next decade.

The major factors driving increasing food demand and trade projections are a decline in food prices compared to recent high prices, rising household incomes, steady and strong global population growth, and continued urbanization in low- and middle-income countries.

The Asian economies exhibit the strongest growth in demand due to rising income and urbanization. Although Africa lags in expanding food demand and agricultural trade as compared to Asia, the region does contribute the largest share to increasing global population and substantial increasing food demand driven by population growth. High-income countries are not the major drivers of growing demand and imports but are expected to maintain gradual expansion and steady levels of large imports for many commodities. China is the largest importer of many commodities throughout the projection period.

Prices

A period of lower projected prices is expected to follow the recent surge of global food prices. Lower food costs and lower feed costs for livestock production support increasing consumption that is most pronounced in the low- and middle-income countries. The lower global prices support stronger import demand for most countries throughout the world. A number of international commodity prices are declining and sustained at lower levels over the projection period in nominal terms.

The international coarse grains, wheat, rice, soybeans, soybean oil prices (all nominal) are all projected to decline from recent highs in 2020/21 and 2022/23 for about the first 3 to 4 years of the projection and then remain flat. Soybean meal has higher prices by the end of the projection, which causes the cost of feed to increase in many low- to middle-income countries that must import soybean meal because they lack or have limited soybean crushing facilities.

General International Assumptions

Trade projections to 2032 are based on economic relationships affecting production, consumption, and trade during the projection period. The development and use of technology and changes in consumer preferences are assumed to continue to evolve based on their past performance and the consensus judgment of USDA analysts regarding future developments. The projections also reflect the effects of trade agreements, sanitary and phytosanitary restrictions, and domestic policies in place or fully authorized by October 2022. International macroeconomic assumptions used in the projections were completed in late August 2022.

The livestock prices for beef and poultry decline the first couple of years in the projection and then increase by about 8 percent and 13 percent respectively by the end of the projection. Higher livestock prices are expected to weaken import demand. Pork prices are expected to decline fastest in the first couple years of the projection before declines gradually slow in later years. Lower global pork prices have an impact on global markets, especially China, which has projected increasing imports as the country continues to recover from African swine fever.

Income

Household income is among the most critical factors in determining a family's food consumption behavior and purchases. In low-income countries many families typically eat staple foods, a smaller variety of foods, and relatively low meat consumption if any at all. A larger share of their food is locally produced and with little processing. In middle-income and especially upper middle-income countries many household food consumption patterns are more diversified with little consumption of traditional staple foods. One indicator of increasing household incomes is per capita GDP and the growth rate.

Some of the of low- and middle-income countries have the strongest growth in GDP per capita income. The South Asia region projected per capita GDP growth rate is 4.9 percent, with India growing at 5.1 percent over the projection period. Southeast Asian countries have strong growth at 3.7 percent; highest is Vietnam at 5.4 percent over the projection period. Some of the lowest per capita GDP growth rates include both low- and high-income countries. Sub-Saharan Africa has the world's lowest per capita GDP and the lowest average growth rates at 1.2 percent over the projection period, with Nigeria at 0.2 percent and the other West Africa region strong at 2.0 percent. High-income countries have low growth in per capita GDP, but household incomes are at a high level or base relative to low- and middle-income countries.

Population

Increasing populations of countries exert one of the largest impacts on global demand and trade for agricultural commodities, feed, and food products. The countries with higher population growth rates and younger age demographics are the low- and middle-income countries. Countries or regions with large current populations such as Asia, which accounts for 55 percent of the world's population, have large impacts even with low growth rates. Africa has the highest population growth rate at 2.3 percent per year followed by the Middle East at 1.2 percent per year. The lowest population growth rates are negative, which include Japan, Russia, and Ukraine. Europe's population growth is flat with a zero-growth rate over the next decade. Africa contributes almost 50 percent of the share to the world's population growth over the next decade followed by Asia with 36 percent of share in population growth. The world has a projected growth rate of 0.9 percent, projected to add 706 million people over the next decade, which is among the largest factors driving increased global food demand and agriculture trade.

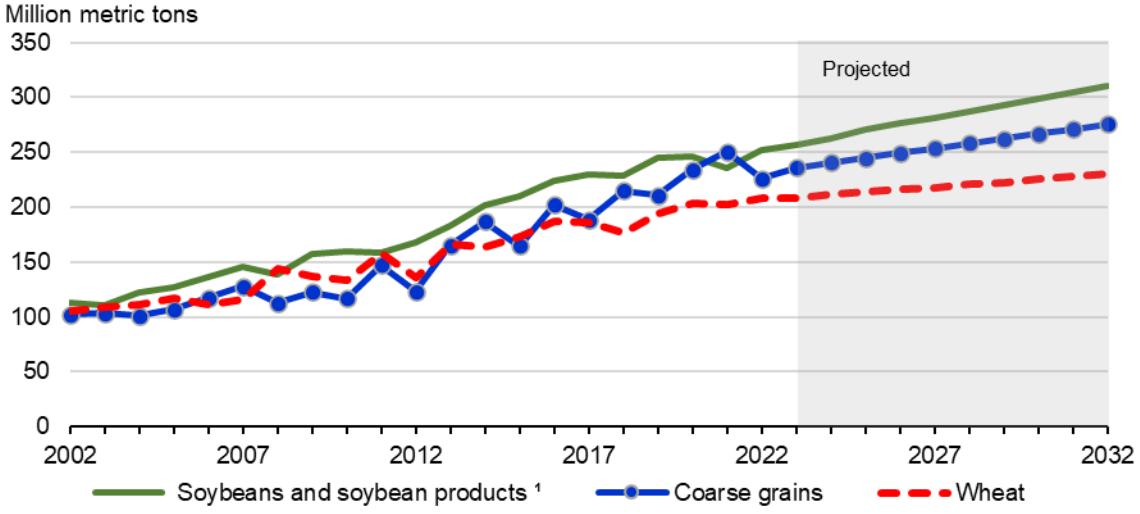
Urbanization

A milestone was reached in 2006/07 as the world's urban population surpassed the rural population—the first time in history that mankind had more people living in urban areas than rural areas. A large variation of urbanization exists among countries and regions across the world. The regions with the lowest urbanization rates are East Africa and Southern Asia at 29 percent and 37 percent respectively. High-income countries have had high levels of urbanization for many decades with rates of 85 percent for Europe and North America.

This continuous urbanization and changing demographics have numerous large impacts on the world including how people access and purchase food. The urban family has less time for food preparations and shifts toward more convenient food and eating away from home. In an urban setting new opportunities arise for eating a more diversified diet with greater and easier access to different types of markets and food products. With urbanization there is a gradual shift from smaller village markets and wet markets to larger well-developed wholesale markets and detailed food supply chains, with numerous stages in the procurement, cold storage, processing, and selling of food. Food markets become more specialized ranging from small convenience stores to larger grocery retail outlets and highly specialized food markets. Urbanization also initiates large developments with improved infrastructure, reliable roads, large scale transportation and shipping improvements, modern and reliable electricity, and refrigeration. All of these improvements contribute significantly to a well-developed food supply chain system with strong linkages to international markets.

International Projection Highlights

Figure 33. Global trade: Wheat, coarse grain, soybeans, and soybean products, 2002–32



1/ Total of soybeans, soybean meal, and soybean oil.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Soybeans and soybeans products exhibit the strongest growth in trade, followed by coarse grains over the projection period. The strong growth is mostly driven by changing global food consumption behavior toward a more meat-based diet, which is especially true in

middle-income countries. Projections of global poultry consumption growth outpaces growth in pork and beef consumption by 1.6 and 1.8 times, respectively. Some countries that exhibit the strongest growth in poultry consumption include China, Brazil, and India. Southeast Asia also has strong growth in poultry consumption. Many low-income countries are moving away from traditional staples such as rice, millet, sorghum, and maize, and are consuming more animal protein, but at much lower levels than middle and high-middle-income countries. Many countries with wheat and rice as staple foods are decreasing consumption, but in other low- and middle-income countries where wheat and rice are not traditional staple grains, consumption is expanding. This is especially true for increasing rice consumption in West Africa as millet and sorghum per capita consumption decline. In Indonesia wheat consumption increases as rice per capita consumption declines. These types of shifting food consumption patterns are expected to continue in the projections through 2032/33.

Wheat

Global wheat consumption increases 8.4 percent above 2023/24 levels by 2032/33. The regions with the greatest increase in wheat food use over the projection period are West Africa (36.0 percent), sub-Saharan Africa (29.8 percent), and Southeast Asia (20.5 percent). Wheat for all uses expands in the three largest wheat-consuming regions: India, China, and the European Union. Together these regions account for about 45 percent of the global wheat consumption by 2032/33 increasing by 6.8 percent over the projection period. Wheat livestock feed demand maintains a stable share of total wheat consumption at 19–19.5 percent. Three regions, the European Union, China, and Russia, account for 63 percent of wheat feed demand by 2032/33.

Global wheat production is projected to increase by 7.9 percent over the decade, with yields accounting for most of the increase. Global wheat yield and area increase by 5.1 percent and 2.7 percent, respectively, over the projection period. The European Union and 6 countries — China, India, Russia, the United States, Canada, and Australia— account for a little over 73 percent of world wheat production by 2032/33.

Africa, the Middle East, and Southeast Asia combined account for almost 88 percent of the projected increase in world wheat imports. Increasing wheat production from the European Union, Russia, Canada, and Argentina supplies almost 85 percent of the projected increase in the world’s wheat import demand.

Rice

World rice consumption increases by 5.5 percent over the projection period, with population growth accounting for most of the expansion. The largest rice consuming region is Asia and Oceania, which has mostly decreasing to flat per capita consumption growth over the projection period. Total consumption is projected to increase almost 5.0 percent due to population growth. The region with strongest growth in consumption is Africa, caused by increasing per capita consumption of rice and strong population growth rates. Africa (including Egypt) is expected to contribute about 38.5 percent to the increase in world rice consumption over the projection period. West Africa alone accounts for 24.0 percent of the increased global consumption over the projection period. India is expected to account for

23.4 percent of the global increase in rice consumption, largely due to population growth, adding almost 100 million people over the projection period. Bangladesh and the Philippines are the second and third largest countries contributing to rising global rice consumption, accounting for almost 9.7 percent and 6.5 percent increasing consumption, respectively, by 2032/33.

Global rice production is projected to increase by almost 6.5 percent over the projection period driven mostly by the 5.0 percent yield growth, with area only expanding by 1.3 percent over the projection period. Rice trade is projected to increase by 14.3 percent, reaching 61.8 million tons by 2032/33. West Africa, the rest of sub-Saharan Africa, and the Middle East combined account for over 66 percent of the projected growth in rice imports. India is projected to remain the largest rice exporter through 2032/33, followed by Thailand, Vietnam, and Pakistan. India accounts for almost 61.0 percent of the increase in global exports over the projection period.

Beef, Pork, and Poultry

Global consumption of beef, pork, and poultry is projected to grow 9.3 percent, 10.8 percent, and 17.5 percent, respectively, between 2024 and 2032. Projected demand growth for all meats is fastest among low- and middle-income developing regions, including Southeast Asia, Latin America, Africa, and the Middle East.

Beef consumption in developing countries increases by 12.5 percent as compared to 4.0 percent for developed economies over the projection period. The United States, China, Brazil, and the European Union together are projected to account for 48.1 percent of the world's beef consumption, which is close to their past 5-year average global share of consumption at 49.5 percent.

China is projected to remain the world's largest pork consuming country at almost 47 percent of the global share, with the European Union and the United States much lower at 13.8 and 8.6 percent of world share by 2032. The strongest growth in pork consumption is in Southeast Asia at 21.4 percent over the projection period. Sub-Saharan Africa, starting from a low consumption level, also shows strong growth at 17.8 percent. China's pork production begins to recover from African swine fever, reaching previous levels of production prior to the disease by 2032. Recovery is faster in the first half of the projections. Pork imports to China aide in rebounding consumption estimates which are projected to exceed 60 million tons by 2032.

Greater growth in production and consumption is expected for poultry, as compared to beef and pork. Unlike beef and pork, poultry production exhibits widespread growth in many countries and regions of the world. In middle- and low-income countries, poultry sectors have significant gains compared to other meats. The United States, China, Brazil, and the European Union are expected to account for about 42.5 percent of global poultry consumption by 2032.

China accounts for the largest single share of increased consumption of all three major meats throughout the projection period. The growth of poultry consumption is strongest in developing economies, growing at 22.7 percent, where developed economies grow at 9.0

percent over the projection period. In addition to increasing per capita consumption of poultry, higher population growth rates in developing and emerging economies also contribute to strong growth in consumption, especially in African countries.

Global beef production increases by almost 9.4 percent over the projection period, adding over 7 million tons. Six countries produce almost 59.0 percent the world's beef by 2032, with the United States and Brazil projected to account for little over half of the share at almost 31.5 percent of the world's beef production. The next 4 largest beef producers — China, the European Union, India, and Argentina — are projected to account for almost 27.0 percent of the world's beef production by 2032. Several smaller producing countries in the Middle East, North Africa, sub-Saharan Africa, and the former Soviet Union also contribute to growing beef production, but from much lower levels of current production.

China dominates the world's share of pork production accounting for almost 45 percent of projected increase by 2032. The next largest pork producers— the European Union, the United States, Brazil, and Russia— account for almost 35 percent of the projected production by 2032.

Global poultry production increases by 17.5 percent over the projection period. Almost 53.5 percent of poultry production is by the 5 major meat producing areas by 2032—the United States, Brazil, China, the European Union, and India.

China, South Korea, and the Middle East region account for the largest shares of projected gains in beef import demand among major traders. China accounts for about one-third of the major importers. The top exporters—Brazil, India, the United States, and Argentina—supply most of the increased demand. Brazil's growing supplies provide about 50 percent of the projected growth in beef exports.

Growth in pork import demand is led by China, Mexico, other South America (excluding Brazil and Argentina), and Southeast Asia regions. China accounts for almost 49 percent of the projected global increase in pork import demand. The European Union and Brazil account for the largest share of projected growth in pork exports, followed by the United States and Canada.

Many countries are projected to increase their poultry import demand, with China, Mexico, and the Philippines showing the largest gains, as well as relatively rapid growth throughout the Middle East, sub-Saharan Africa, and Central and South American countries. Imports increase by almost 18 percent by 2032 among the major importers. Brazil, the United States, the European Union, and Thailand are the world's largest exporters and are expected to capture the largest shares of projected growth in poultry imports among other countries at close to 84 percent.

Coarse Grains

As global meat production expands, numerous countries are expected to increase feed use and feed imports. Corn feed and residual use is projected to rise by 20.2 percent during 2023/24–2032/33. China, the United States, Brazil, the European Union, Mexico, and India are projected to account for a little over 70 percent of the world's feed demand by 2032/33.

Additional countries and regions with strong growth include Vietnam, Argentina, Egypt, Morocco, Saudi Arabia, Turkey, Pakistan, and Indonesia. Many countries are expected to increase feed use as meat production grows and modern feed rations are adopted to minimize cost of meat production and increase rates of gain (animal weight).

Total corn production is projected to increase 13.8 percent over the projection period, with Brazil posting the largest gains and fastest growth among major producers. Global yield growth provides most the increases in corn production with yield increasing by almost 10 percent and global area expanding by 3.5 percent by 2032/33. Yield growth is concentrated in the developed economies with greater access to advanced technology and faster adoption. Just over a little over 43 percent of new corn area is in Brazil and about 30 percent in sub-Saharan Africa over the projection period. Many countries had very little new corn area and some are decreasing area by 2032/33.

Corn accounts for just over 80 percent of the total coarse grain trade. Total corn import increases about 18.6 percent over the projection period, with an array of middle-income countries in the Middle East, Southeast Asia, Latin America, and North Africa accounting for about 92.6 percent of the growth. About 89.3 percent of the increased corn exports is supplied primarily by Brazil and the United States. Ukraine exports are held steady at 14.5 million tons due to Russia's war against Ukraine.

Soybeans and Soy Products

Total global soybean meal demand is set to increase by 21 percent from 2023/24 to 2032/33. Major animal product producers in China, Brazil, the United States, and the European Union account for the largest share of soybean meal demand at almost 62 percent by 2032/33. Over the past 5 years, combined demand from these 3 countries and the European Union has been stable at approximately 62 percent of global soybean meal consumption.

During the Baseline period, China exhibits the strongest growth at close to 33 percent as it recovers from African swine fever, accounting for almost 45 percent of the increasing soybean meal demand over the projection period. The expected increase in soybean meal demand by low-income and emerging economies is 27 percent, which far exceeds the projected increase of 7 percent for high-income developed countries. Developed countries have slower growth in meat production than low- and middle-income countries. Regions and countries—including the Middle East, North Africa, Southeast Asia, and Latin America—with robust growth in poultry consumption and production, exhibit the strongest growth in soymeal feed demand.

Projected global use of soybean oil grows 21 percent over the decade, with China, the United States, Brazil, and India accounting for almost 72 percent of expected global gains. Southeast Asia, Africa, and the Middle East exhibit growth rates of 23.0 percent, 21.0 percent, and 16.1 percent respectively, in soybean oil consumption over the projection period.

Global soybean production is projected to increase by almost 18 percent over the Baseline period, with Brazil, Argentina, and the United States supplying about 84 percent of expected

growth; Brazil contributes about 65 percent. Increased planted area drives the greatest percent of projected production gains, mostly in Brazil. China is projected to account for 46 percent of the increased soybean crush by 2032/33.

World soybean imports increase by 25 percent between 2023/24 and 2032/33, with China accounting for about 75 percent of the projected increase and Brazil meeting about 86 percent of the increased demand, followed by the United States, other South America, and Canada. Soybean meal import demand expands 12 percent and is broad based, including gains by Southeast Asia, Latin America, the European Union (the largest global importer) and other importers. Argentina, Brazil, and the United States remain the major soybean meal exporters. Soybean oil imports rise 14 percent over the projection period based on demand by India, the world's largest importer, and markets in other developing countries. Argentina and United States exports provide about 61 percent and 33 percent of this increased import demand, respectively.

Cotton

Global demand for cotton fiber to produce cotton yarn is projected to increase 20 percent between 2023/24 and 2032/33, with China and India consuming close to 53 percent of the global share by 2032/33. Smaller but fast-growing markets include Bangladesh, Vietnam, Pakistan, and Turkey, which together account for almost 30 percent of global demand by 2032/32.

Growth in cotton production, projected at almost 19 percent, is concentrated in the 4 largest producing countries— India, China, the United States, and Brazil—which account for almost 74 percent of global production by 2032/33. Bangladesh, Vietnam, China, Pakistan, and Turkey account for almost 87 percent of the projected 23 percent increase in world cotton imports during the projection period. Brazil and the United States supply the bulk of the increase in exports.

Russia's War Against Ukraine

Russia shocked the global community when it illegally annexed Crimea in 2014 and then again, 8 years later, when Russian invaded Ukraine on February 24, 2022. Russia's war against Ukraine increased global market uncertainty for grains and oilseeds. The Ukraine Baseline projections discussed here are current as of the October 2022 *World Agricultural Supply and Demand Estimates (WASDE).* Given the Black Sea Grain Initiative (BSGI) agreement, the Baseline assumes that the three ports of Odesa, Yuzhny, and Chornomorsk can export grains and oilseeds for the duration of the projection period. No assumptions are made about other diplomatic efforts to open trade. Likewise, no change is assumed for Ukraine's borders and general production and logistical conditions as they pertain to the war. The war is assumed to continue through the projection period, and exports to remain restricted relative to the prewar period.

Russia's War against Ukraine Impacts Ukrainian Agricultural Production and Exports

Ukrainian producers have continued to try to harvest and sow crops amidst the war, while facing power outages, theft, and damage to farm output and production, storage, and transportation infrastructure by Russian forces, in addition to labor and input shortages. Debris from shelling and mined fields also pose hazards to farming. The Russian invasion is also changing what farmers are planting. The government of Ukraine (GOU) is making efforts to improve the infrastructure to help increase the export of plant (mainly sunflower) oils. On September 6, 2022, the GOU signed an agreement with the Polish government to build a pipeline transporting up to 2 million tons of Ukrainian vegetable oil to Poland.

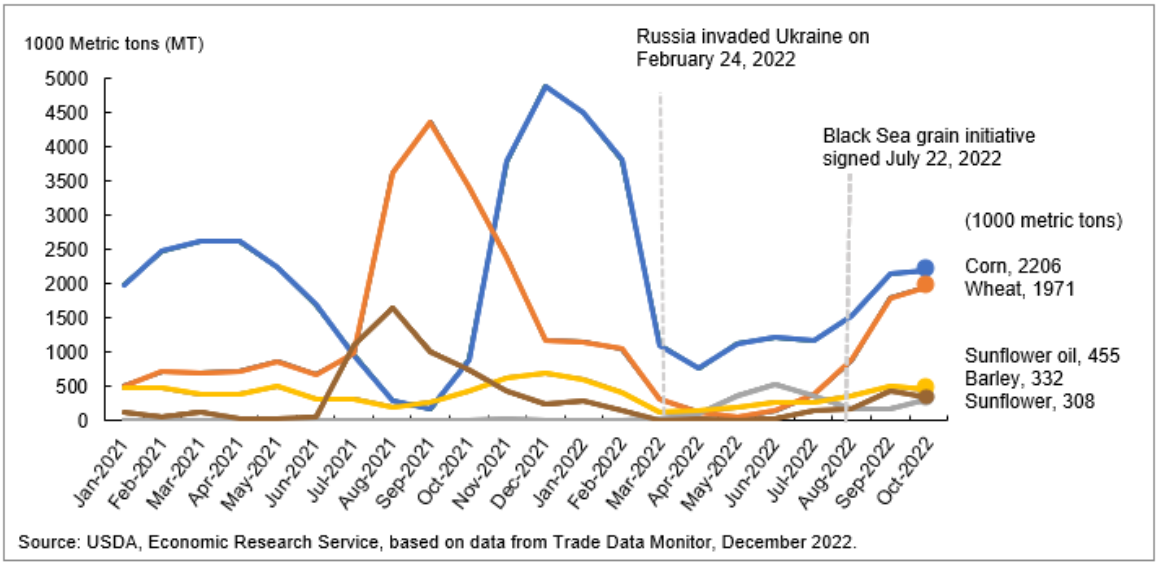
Before the Russia's war against Ukraine, over 90 percent of Ukraine's agricultural products were exported through its ports. As a result, infrastructure modernization efforts focused heavily on Ukrainian port facilities. Russia's blockade of Ukrainian ports forced Ukraine to use less efficient modes of exporting goods by rail, ferry, and truck. The Ministry of Agrarian Policy and Food of Ukraine (MINAGRO) estimated that before the BSGI (from March to July 2022), on average only 1 million tons a month of agricultural products were moved without port access since the start of the conflict. This compares with average shipments of 5 to–6 million tons a month before the conflict.

The port blockage trapped grain and oilseed products inside the Ukraine on which many developing countries in the Middle East and northern Africa depend. In response to global food security concerns, the United Nations launched the BGSI on July 22, 2022. The renewed port access for agricultural products under this agreement helped to move over 70 percent of Ukrainian agricultural exports to the global markets in 2022. By the end of 2022, the BSGI moved close to 12.6 million tons of grain and 3.5 million tons of oilseed and oilseed products from Ukrainian ports.

Ukraine Production and Export Projections

The Ukraine Baseline projections are based on conditions as of the October 2022 *WASDE.* Ukrainian corn, wheat, sunflowerseed, and barley production are expected to continue to generate surpluses that are available for export as production outpaces domestic consumption growth for the duration of the projection period.

Figure 34. Ukraine monthly exports 2021-22



Corn: Corn production is primarily concentrated in Ukraine's central to northern regions. Poltavska, Chernihivska, and Sunska oblasts produce 34 percent of Ukrainian corn. USDA projects that corn production will be close to 26.3 million tons by 2032, which is 24 percent below the pre-conflict 3-year average production level of 34.7 million tons. China and the European Union imported over 60 percent of Ukrainian corn exported in 2021. Corn exports are projected to be 14.5 million tons by 2032, which is 48 percent below the pre-conflict 3-year average export level of 28.1 million tons.

Wheat: Wheat production is concentrated in Ukraine's southeastern regions. Kharkiv, Dnipropetrovska, Zaporizhzhya, and Kherson oblasts produce 28 percent of Ukrainian wheat. USDA projects that wheat production will grow 1.4 percent close to 20.8 million tons by 2032, which is 28.6 percent below the pre-conflict 3-year average production level of 29.1 million tons. In 2021, over 30 percent of Ukrainian wheat was imported by Egypt and Indonesia. Wheat exports are projected to increase to 11 million tons by 2032, which is 46 percent below the pre-conflict 3-year average export level of 20.5 million tons.

Sunflowerseed: Sunflower production occurs in Ukraine's eastern and southeastern regions. Kharkiv, Dnipropetrovska, Kirovohradska, and Mykolaivska oblasts are responsible for 35 percent of Ukrainian sunflower production. Ukraine is a top global producer and exporter of sunflowerseed and sunflowerseed products. USDA projects sunflower production will grow 11 percent to 11.1 million tons by 2032. Sunflowerseed exports are projected to be almost 1.9 million tons by 2032.

Sunflowerseed oil: Ukraine's oilseed crushing operations crush a large percentage of sunflower seed production into sunflower oil and meal for export markets. USDA projects that sunflowerseed oil production will reach 3.9 million tons by 2032. India, the European Union, and China imported over 70 percent of Ukrainian sunflower oil in 2021. Sunflowerseed oil exports are projected to increase to 3.5 million tons by 2032.

Barley: Barley production is primarily concentrated in Ukraine's southern and southeastern regions. Odeska, Mykolaivska, and Dnipropetrovska oblasts are responsible for 31 percent of Ukrainian barley production. USDA projects that barley production will be 5.8 million tons by 2032. China imported almost 54 percent of Ukraine's barley in 2021. Barley exports are projected to increase to 2.2 million tons by 2032.

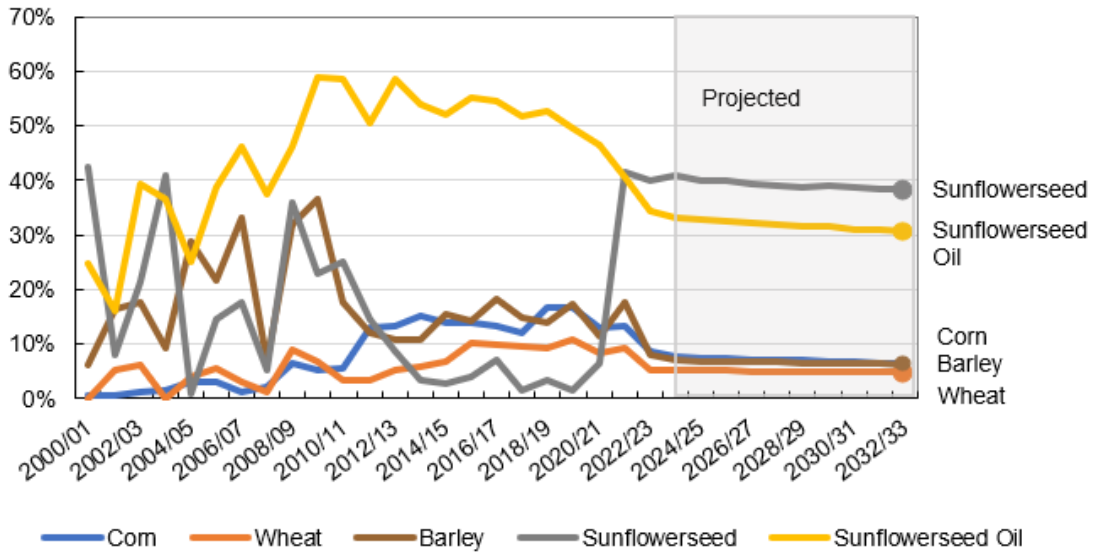
Ukraine production and projections of major crops through 2032

Commodity (million tons)	Peak Production	Production 2022/23	Production First Year Projection 2023/24	Production End Year Projection 2032/33
Corn	38	27	26.6	26.3
Wheat	33	20.5	20.5	20.8
Barley	12.6	6.4	5.9	5.8
Sunflowerseed	17.5	10	10.5	11.1
Sunflowerseed oil	7.4	3.9	3.9	3.9

Note: Peak production year varies across commodities. Peak production is the highest production recorded between 1990-2022

Source: U.S. Department of Agriculture, PS&D, December 20, 2022

Figure 35. Ukraine shares of world exports 2000-32



Source: USDA, Economic Research Service, based on data from USDA, Interagency Agricultural Projection Committee, October 2022

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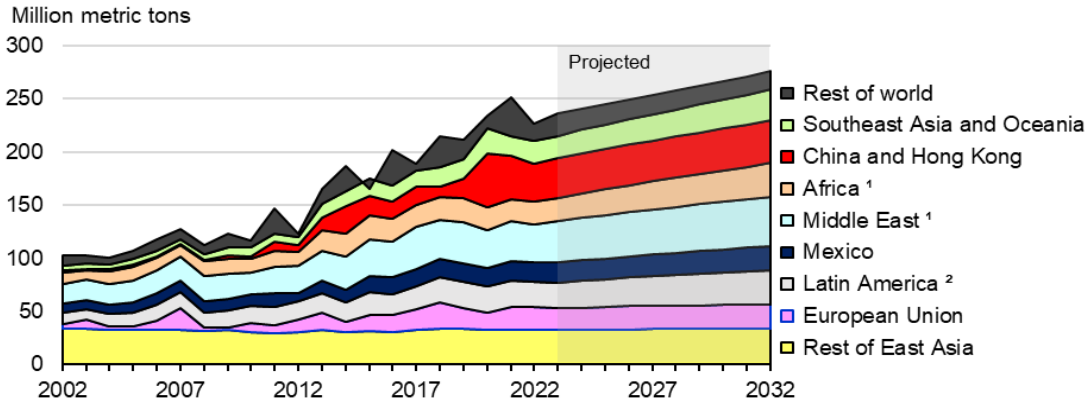
U.S. Department of Agriculture, Foreign Agricultural Service, International Production Assessment Division (IPAD), December 2022. "Crop Explorer."

Figure 36. Global coarse grain imports, 2002–32

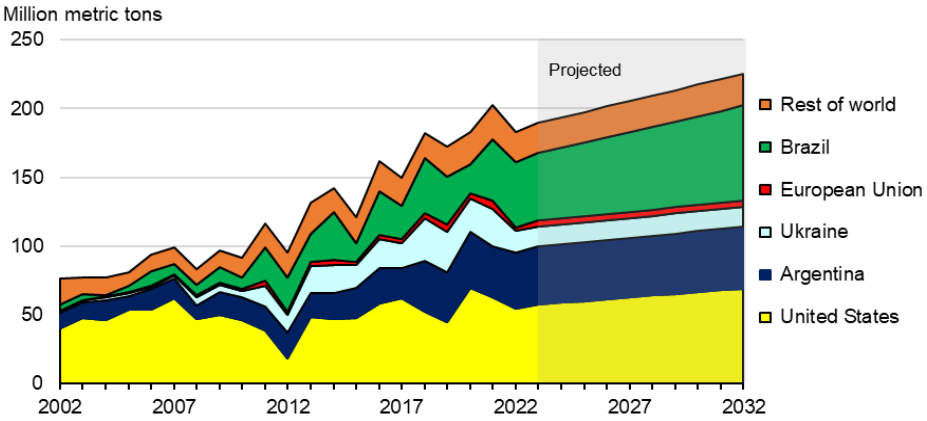


1/ Egypt is included in Africa and not the Middle East.
2/ Excludes Mexico.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Growth in livestock production will continue to drive increases in coarse grain trade. Continued growing global demand for imported coarse grains from both developed and emerging economies supports production growth for all feed grains over the next 10 years. Corn trade is expected to account for about 81.8 percent of the world's coarse grain trade through 2032/33, with barley's share expected to decrease slightly to 12.8 percent. By 2032/33, the world's largest coarse grain importers are projected to be China, Mexico, the European Union, Vietnam, Japan, Egypt, Iran, Saudi Arabia, and South Korea—accounting for 63 percent of the world's coarse grain imports.

- China's coarse grain imports are projected to reach 39.9 million tons by 2032/33, an increase of 3.0 million tons by 2032/33 but well below the historic high of 50.5 million tons reached during 2020/21. China is projected to import 20.9 million tons of corn by 2032/33. Projected feed demand outpaces expansion of domestic corn production, with policy direction to allow increased corn imports. Barley and sorghum import growth is strong, reaching 9.5 million and 9.0 million tons by 2032/33 respectively, to meet feed demand.
- Together, Africa, and the Middle East account for about 43.4 percent (17.1 million tons) of the additional growth in world coarse grain imports through 2032/33. Population growth and rising incomes foster strong demand growth for livestock products. By 2032/33, these regions will account for nearly 28.3 percent of world coarse grains imports, with three countries—Egypt, Iran, and Saudi Arabia—accounting for about 15.4 percent of world coarse grain imports. Egypt is the leading and fastest growing corn importer in this region.
- Mexico's imports account for 8.4 percent of the total increase in global coarse grain trade by 2032/33, as rising demand for meats supports higher commercial feeding. Corn imports are projected to grow from 17.8 million tons in 2023/24 to 21.7 million tons in 2032/33, making Mexico the world's largest corn importer. Mexico's sorghum imports are projected to increase by 90,000 tons to 390,000 tons over the projection period.
- South Asia, Southeast Asia, and Oceania coarse grain imports rise about 33.4 percent to 31.9 million tons by 2032/33 as relatively high rates of income growth drive continuing increases in meat demand, livestock production, and feed demand. These three regions account for about 21.0 percent of expected growth in world corn imports. Vietnam corn imports are among the fastest growing in this region. Thailand and Bangladesh are also emerging corn importers to supply their respective feeding industries. In contrast, Indonesia implemented policies in 2020 to limit imports of both corn and feed wheat to support domestic corn production.

Figure 37. Global corn exports, 2002–32

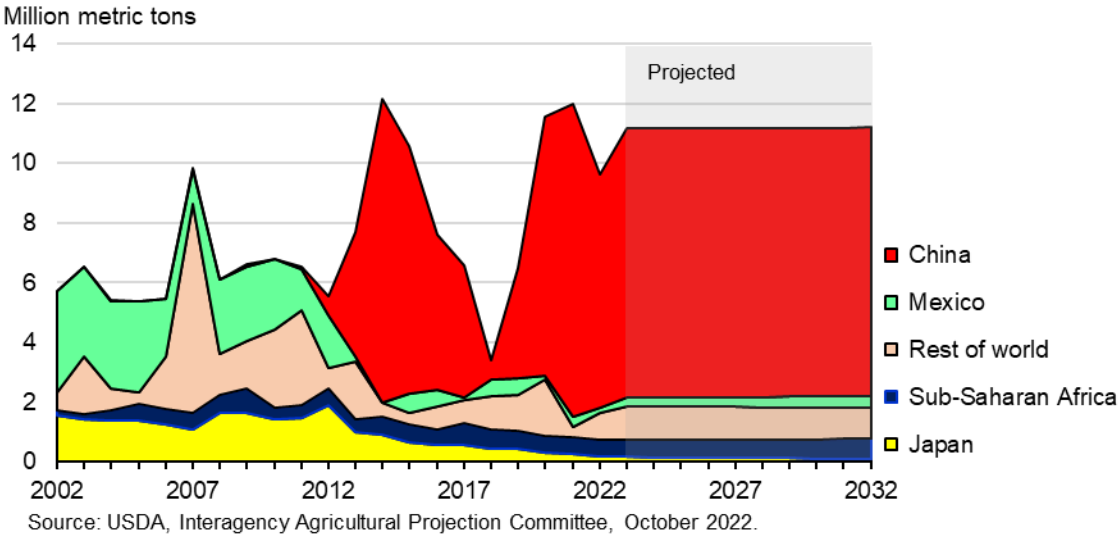


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

U.S. corn exports are expected to increase by 11.4 million tons to 69.2 million tons by 2032/33, The U.S. share of world corn exports increase from 30.4 percent to 30.7 percent over the projection period. Only Brazil is projected to increase market share by 2032/33, from 25.8 percent to 30.7 percent. The 4 largest corn exporting countries—the United States, Brazil, Argentina, and Ukraine— account for more than 85 percent of the global market share over the projection period.

- Brazil's annual corn exports more than doubled over the past decade, with a 9.4 percent annual increase and averaging 37.5 million tons in the past 5 years. Brazilian corn exports are expected to rise 41.0 percent by 2032/33 reaching 69.1 million tons. Export growth continues to be associated with expanding new cropland in the Center-West region. The most important corn crop, the second crop, is less input-intensive and lower cost since it follows soybean production. The second-crop corn production has steadily improved in yields. The second-crop corn harvest timing boosts exports giving Brazil competitive advantage over Northern Hemisphere countries. Infrastructure and transportation constraints make it more efficient to move corn from the Center-West to ports rather than to the southern livestock sector.
- Annual corn exports by the former Soviet Union region (including Ukraine) are expected to rise 4.5 percent and reach 19.5 million tons in 2032/33. Because of the ongoing Russia's war against Ukraine, Ukraine exports are projected to be stable at 14.5 million tons over the projection period, with no growth. Ukraine exports decreased from 27.0 million tons in 2021/22 to 15.5 million tons in 2022/23. Until recently Ukraine's corn sector was projected with strong growth and had become increasingly focused on exports with relatively minor growth in domestic use projected. Other former Soviet Union countries exhibit an increase of corn exports over the projection period by 860,000 tons.
- Argentina is projected to be the world's third-largest exporter of corn during the projection period. Projected modest area growth and increasing yields continue to boost corn production, and exports are projected to increase 7 percent to 44.9 million tons by 2032/33.
- European Union exports are expected to be stable at 4.5 million tons over the projection period, while corn exports from the non-EU regions —primarily Serbian exports to the EU–increase by over 5 percent to reach 3.0 million tons by 2032/33.
- South Africa has projected growth of 10 percent in corn exports, which reach 3.4 million tons by 2032/33, while the rest of sub-Saharan Africa corn exports decrease from 1.1 million tons to 930,000 tons by 2032/33.

Figure 38. Global sorghum imports, 2002–32

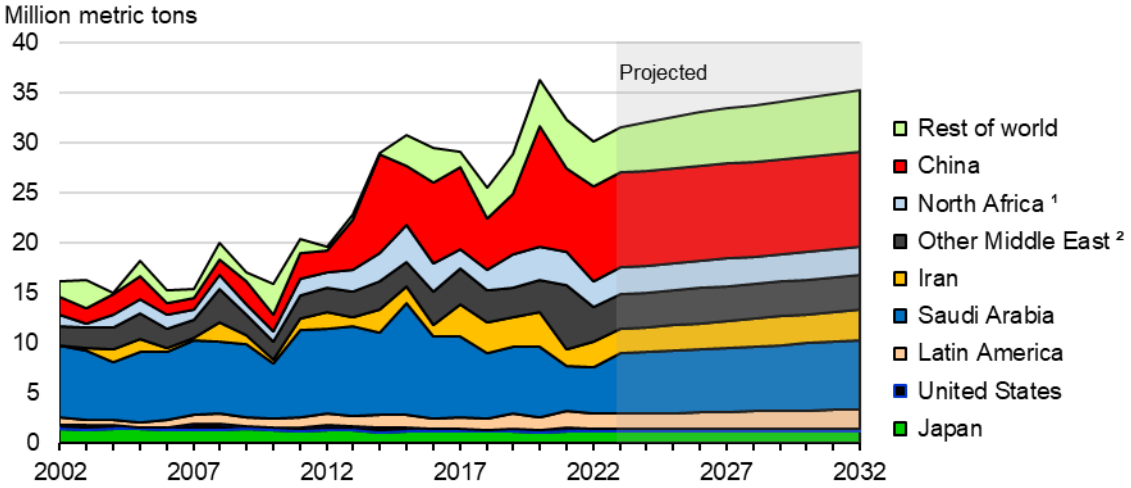


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

World sorghum trade is projected to remain unchanged at 11.2 million tons over the projection period, 2023/24 through 2032/33. China accounts for most projected sorghum imports. China's demand for sorghum is expected to drive up prices, curtailing demand by other countries (mainly Japan and Mexico). Sorghum exports originate largely from the United States, though Argentina is projected to remain a significant exporter.

- China is projected to remain the leading sorghum importer, accounting for about 80 percent of global sorghum trade, with imports steady at 9.0 million tons through 2032/33. While corn imports in China can be subject to a quota, no quotas exist on imports of sorghum and barley. China's imports for sorghum and barley supplement corn imports to meet growing animal feed demand.
- U.S. sorghum exports are steady at 7.2 million tons, accounting for about 64.7 percent of global sorghum exports throughout the projection period.
- Argentina is the second-largest sorghum exporter in 2022/23 at 2.5 million tons, displacing Australia. Argentina's exports increase by 2.6 percent from 2023/24 reaching 2.6 million tons by 2032/33. China became the main destination of Argentine sorghum exports, with virtually all sorghum exports bound for China. Australia's sorghum exports are expected to remain steady at 1.0 million tons, also primarily destined for China.
- Mexico's sorghum imports are expected to increase 30 percent to 390,000 tons over the projection period. Mexico's sorghum imports declined sharply in 2013/14 as China became a substantial importer as relative prices made alternative feed grains, primarily corn, more affordable feed for the livestock sector in Mexico.
- Japan is expected to remain the world's third-largest sorghum importer, even though imports are projected to decrease from 176,000 tons to 103,000 tons over the next decade.
- Imports in sub-Saharan Africa increase from 583,000 tons to 695,000 tons over the projection period. Most sorghum in this region is for human consumption as a major staple along with millet and maize.

Figure 39. Global barley imports, 2002–32

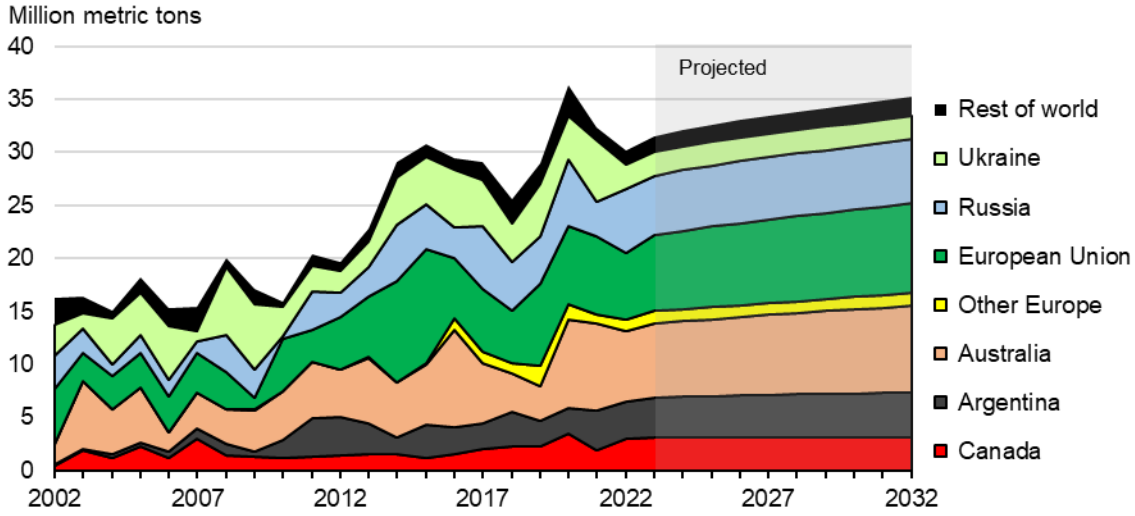


1/ Includes Egypt.
2/ Excludes Iran and Saudi Arabia.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Strong demand for feed barley—led by China, Saudi Arabia, Iran, Latin America and countries in other Asia and Oceania regions—is projected to drive growth in world barley trade to 35.3 million tons by 2032/33, an increase of 11.8 percent over the projection period.

- China is projected to remain the world's largest barley importer at a steady 9.5 million tons per year from 2023/24 through 2032/33, less than the peak,12.0 million tons, reached in 2020/21. Feed demand is a major driver of barley imports during the projection period, but China is also a large importer of malting barley, mainly for beer production. China's imposition of a prohibitive import tariff on barley from Australia in 2020 shifted China's barley purchases to Canada, Argentina, and the European Union. China's 30.1 percent share of global barley imports in 2023/24 declines to 26.9 percent by 2032/2033.
- Saudi Arabia is the world's second largest importer of barley. Saudi Arabia imports are projected to increase nearly 15 percent to 6.9 million tons by 2032/33, accounting for about 20.0 percent of global barley import demand. Barley imports by Saudi Arabia are used primarily as feed for sheep, goats, and camels.
- Iran's barley imports are projected to expand by more than 23 percent reaching 3 million tons by 2032/33. The country imports barley mainly from Kazakhstan, though also from the European Union and Ukraine. In the other Middle East region, which excludes Iran and Saudi Arabia, barley imports are expected to be steady at 3 million tons through 2032/33.
- Japan barley imports are projected to remain stable at 1.3 million tons over the coming decade and Europe's are projected to have slightly increasing demand with imports at 1.5 million tons, an increase of 240,000 tons. In addition to imports of feed barley, Japan imports large quantities of malting barley for beer brewing. Feed accounts for about 70 percent of Japan's barley use. Barley for human consumption is used in a variety of foods and beverages. In the European Union three-quarters of barley is used for feed purposes, with imports consisting mostly of feed barley coming from the United Kingdom. Barley imports for the other Asia and Oceania region are projected to increase 22.4 percent by 2032/33, reaching 1.8 million tons, and are used mainly for feed purpose.

Figure 40. Global barley exports, 2002–32

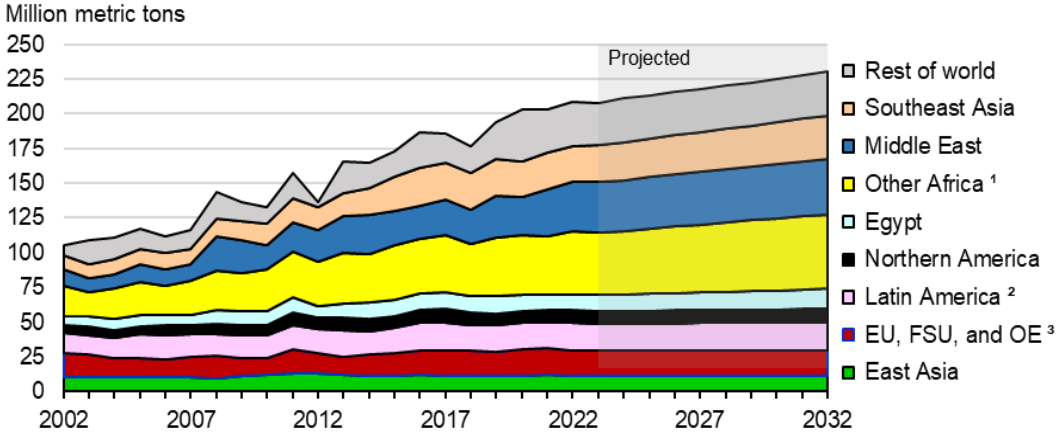


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

The European Union, Australia, and Russia are the three largest barley exporters, followed by Argentina, Canada, and Ukraine. Global barley exports are projected to expand nearly 11.8 percent to 35.3 million tons between 2023/24 and 2032/33. Barley exports by all major exporters except for Canada and Ukraine, are projected to increase. Australia (the world's largest barley exporting country), the European Union, and Argentina are expected to increase their market share, primarily at the expense of Ukraine and Canada.

- Australia's barley exports are projected to increase during the coming decade from 7.0 million tons in 2023/24 to 8.2 million tons by 2032/33, with its global export market share increasing by 1.0 percent to 23.3 percent over the period. Australia has shifted barley exports away from China (with its prohibitive import tariff) to Saudi Arabia (feed barley) and to Vietnam and South America (malting barley) to boost its barley trade.
- Barley exports by countries in the former Soviet Union region are projected to increase from 8.8 million tons in 2023/24 to 9.6 million tons in 2032/33. Ukraine's exports are projected to be flat at 2.2 million tons. Russia exports increase by 450,000 tons to 6.0 million tons by 2032/33. Exports from other former Soviet Union countries increase by 390,000 tons to 1.4 million tons by 2032/33, mainly on account of Kazakhstan, which is expected to raise its barley production and exports (primarily to Iran).
- The European Union's barley exports are projected to increase from 7.2 million tons in 2023/24 to 8.5 million tons by 2032/33, and its share of global barley exports is projected to increase from 22.8 percent to 24.1 percent.
- Argentina's barley exports are projected to increase nearly 11.6 percent to 4.2 million tons by 2032/33, with China by far its major market, receiving about 90 percent of Argentine exports of feed barley.
- Canada is projected to have unchanged barley exports, remaining at 3.2 million tons for the duration of the projection, with exports of both feed and malting barley going primarily to China.

Figure 41. Global wheat imports, 2002–32

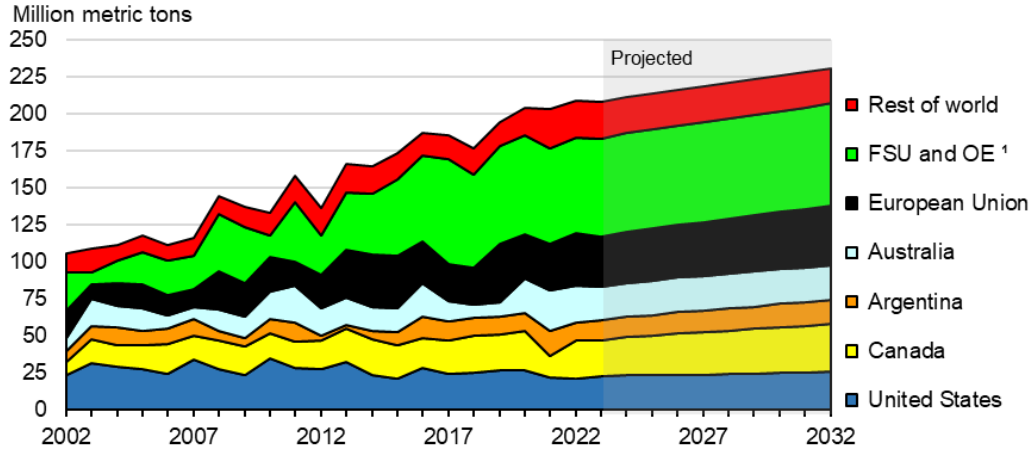


1/ Africa excluding Egypt.
2/ Excludes Mexico which is included in Northern America.
3/ European Union, Former Soviet Union, and Other Europe.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

World wheat trade (including flour) is projected to expand by almost 22.5 million tons (10.8 percent), reaching 230.4 million tons by 2032/33. Growth in wheat imports is concentrated in developing countries where income growth, urbanization, Westernization of diets, and population gains support the expansion of demand. While demand grows, many countries are unable to economically produce wheat and turn to imports to supplement domestic production. Sub-Saharan Africa, Southeast Asia, the Middle East, and Egypt combined account for 89.4 percent of the global projected increase in global wheat imports.

- Egypt, Indonesia, and Turkey are projected to remain the world's leading wheat importers, with their annual imports rising to 14.2 million tons,12.5 million tons, and 12.3 million tons, respectively, by 2032/33. Egyptian imports are projected to grow steadily through the next decade mainly due to population growth. China, Nigeria, and Bangladesh are the fourth-, fifth-, and sixth-largest wheat-importing countries in the projections, increasing to 9.7 million, 9.0 million, and 8.0 million tons by 2032/33, respectively.
- Countries in Africa and the Middle East are projected to increase wheat imports by 11.0 million tons and 3.7 million tons, respectively, accounting for 65 percent of the total increase in world wheat trade. North Africa and sub-Saharan Africa imports are projected to increase by 2.1 million tons and 9.0 million tons to 31.6 million tons and 36.3 million tons by 2032/33, respectively. The Middle East increases imports by 3.7 million tons reaching 39.7 million tons by 2032/33.
- Southeast Asia wheat imports increase by 18.7 percent reaching 31.6 million tons, accounting for almost 5 million tons of additional global imports by 2032/33. Further, rising incomes in Indonesia, Vietnam, and other Asian countries, raise demand for many different wheat-based products, including noodles, bakery products, and fast food.
- Imports for the 4 East Asian countries are collectively expected be nearly unchanged at 21.0 million tons by 2032/33, which accounts for 9.1 percent of world imports. Even with half of the global wheat stocks, China's wheat imports are projected to slightly increase to 9.7 million tons by 2032/33 due to a deficit of higher quality milling wheat. Imports by Japan are expected to decrease slightly to 5.3 million tons by 2032/33 due to a declining and aging population, while imports by South Korea are steady at 4.1 million tons. Taiwan wheat imports are projected to grow modestly over the 10-year projection period to 1.5 million tons.

Figure 42. Global wheat exports, 2002–32

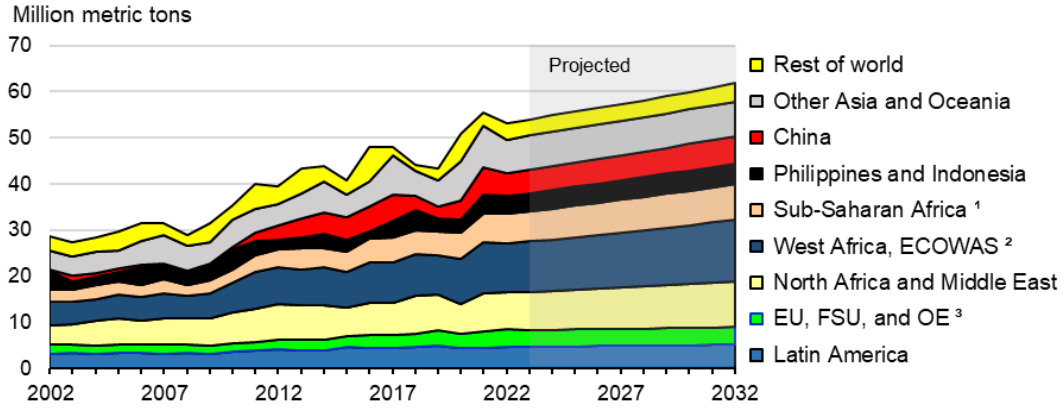


1/ Former Soviet Union and Other Europe.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

The 8 largest wheat exporters—Russia, the European Union, Canada, the United States, Australia, Argentina, Ukraine, and Kazakhstan—are projected to account for 91.0 percent of the world trade in 2032/33. The EU and Canada exhibit the largest increases in export share by 2032/33, with EU rising from 16.3 percent to 17.5 percent, while Canada grows from 11.9 percent to 14.1 percent.

- U.S. wheat exports are projected to increase 15.2 percent to 25.9 million tons by 2032/33, with world export share increases from 10.8 percent in 2023/24 to 11.2 percent by 2032/33.
- Russia exports are expected to increase, rising 2.2 million tons to 46.1 million tons in 2032/33. Russia accounts for about 10 percent of the projected increase in global wheat exports. Ample domestic production will generate growth in domestic surpluses available for export. Due to the uncertainty of Russia's war against Ukraine, Ukraine's exports continue a stable pattern at lower levels, only increasing slightly from 10.7 million tons in 2023/24 to 11.0 million tons in 2032/33.
- The EU is projected as the second largest exporter. By 2032/33 the EU is expected to export 40.2 million tons of wheat, with projected exports growing 2 percent annually. Rising EU exports are supported by increased production with greater area and yields. The EU accounts for about 28 percent of the projected increase in global wheat exports.
- Canada's wheat exports are projected to increase from 24.8 million tons in 2023/24 to 32.5 million tons in 2032/33. Higher domestic production contributes to greater exportable supplies. Production gains are attributable to yield growth and a slight increase in wheat area. Wheat area expansion is constrained in light of more profitable cropping alternatives.
- Australia has harvested record wheat crops in recent years. Yields are expected to be slightly lower over the projection period, resulting in slightly smaller crops compared to 2022/23. Australia's wheat exports are projected to increase by 2.1 percent to 23.6 million tons from 2023/24 to 2032/33. Australia is a major exporter to Southeast Asia and the Middle East, both of which exhibit strong growth in wheat demand and imports.
- Argentina's wheat exports are expected to rise from 13.0 million tons in 2023/24 to 15.8 million tons in 2032/33. Brazil usually absorbs about half of the wheat exported by Argentina; its imports are projected to be steady given an expansion in wheat production. Most of the increase in Argentina's exports is expected to go to Southeast Asia and Africa.

Figure 43. Global rice imports, 2002–32

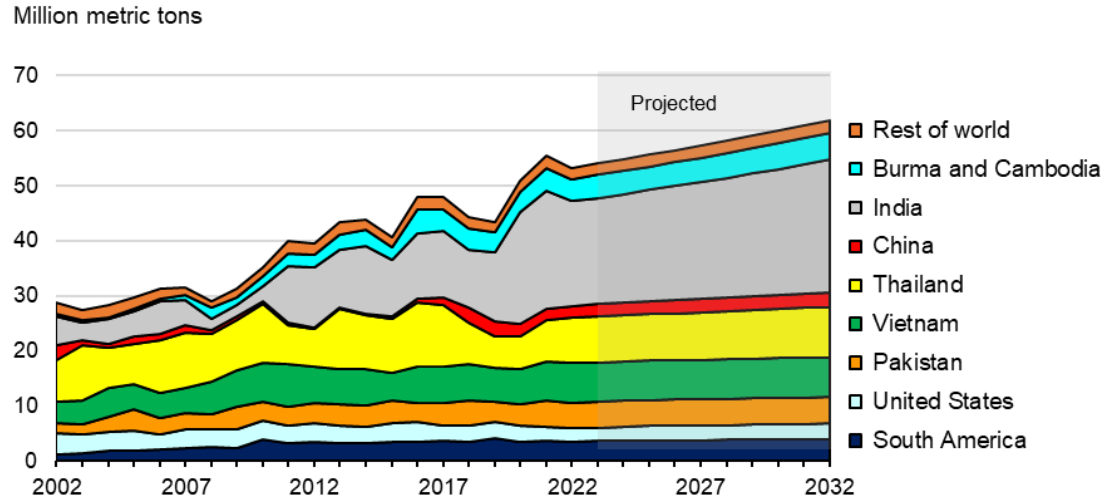


1/ Excludes ECOWAS.
2/ ECOWAS is 15 member countries in Economic Community of West African States.
3/ European Union, Former Soviet Union, and Other Europe.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Global rice trade is projected to increase 1.5 percent per year throughout the Baseline, reaching a record 61.8 million tons in 2032/33. Projected trade growth is driven by steady expansion in demand, largely due to population and income growth in sub-Saharan Africa. Import growth in other regions, due mostly to population growth, is more modest. Over the long term, world rice trade as a share of consumption has increased, reaching 10.3 percent in 2022/23 and is projected to exceed 11.0 percent by 2032/33.

- China, the Philippines, Nigeria, and the European Union are projected to be the largest rice importing markets. China, also an exporter, is projected to be the largest rice-importing country, with imports rising 14 percent to 5.9 million tons by 2032/33. Small, but steady, consumption growth, diversion of large volumes to government reserves, relatively lower-priced imports from Asian suppliers, and insufficient growth in production keeps China's imports strong. The Philippines is projected to remain the second-largest importer, with imports increasing almost 19 percent over the next decade and reaching a record 4.0 million tons by 2032/33. Despite expected domestic production growth, consumption is projected to increase at a faster pace, necessitating rising imports.
- Sub-Saharan Africa is projected to remain the largest and fastest growing rice-importing region, with imports rising 21 percent to 21.1 million tons by 2032/33, accounting for almost 48 percent of global import expansion. The strong growth is due to population growth and rising per capita consumption. Nigeria's imports are expected to rise almost 33 percent to nearly 3.1 million tons by 2032/33. Nigeria is projected to remain the third-largest rice-importing country after 2023/24.
- The EU is projected to be the fourth-largest rice importer after 2023/24, with imports rising 5 percent to a near-record 2.5 million tons by 2032/33. Asian aromatic rice varieties account for the bulk of the imports, partly fueled by immigration from Asia, Africa, and the Middle East, and preferential access provided through agreements with Southeast Asian countries.
- The Middle East region rice imports are projected to expand 18 percent over the next decade to 8.5 million tons, due primarily to population growth. Major individual importing countries are Saudi Arabia, Iraq, and Iran, with imports ranging from 1.4–1.7 million tons by 2032/33.
- Indonesia—once a top importer—is projected to import just 550,000 tons of rice annually over the next decade, due to weak consumption growth and near-steady production.
- U.S. imports are projected to expand 17 percent over the baseline, to a record 1.6 million tons.

Figure 44. Global rice exports, 2002–32

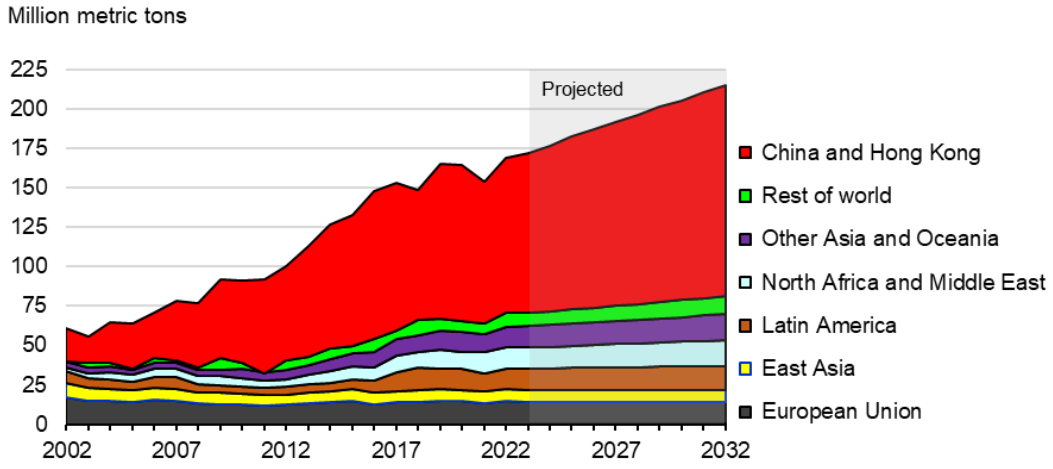


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Asia continues to supply most of the world's rice exports throughout the projection period. India remains the world's largest rice-exporting country, accounting for 37.0 percent of world rice exports, followed by Thailand at 15.0 percent and Vietnam at 12.5 percent.

- India is expected to remain the largest rice exporter with exports increasing by almost 25 percent and reaching a record 24.0 million tons by 2032/33. India exports mostly non-aromatic milled rice as well as smaller quantities of its premium basmati rice.
- Thailand's rising yields and steady consumption contributes to a 9-percent increase in rice exports to 9.1 million tons by 2032/33, but still below the 2016/17 record of 11.6 million tons.
- Vietnam's exports are projected to expand just 2.5 percent to nearly 7.3 million tons by 2032/33, still below the 2011/12 record of 7.7 million. Exports are limited by a gradual shift in area to less water-intensive crops, as well as increasing salinization and reduced river flows for irrigation.
- Number 4 exporter Pakistan increases rice shipments just 2 percent to 4.8 million tons by 2032/33. Rising demand and small production growth limit projected export growth.
- The United States is projected to be the world's fifth-largest rice exporter throughout the Baseline, with exports expanding 11.5 percent to almost 2.8 million tons by 2032/33, but still well below the 2016/17—2020/21 average of 3.1 million. Rising domestic use and continued export competition from South America in the Western Hemisphere constrain exports as U.S. prices do not support expansion of rice area. The U.S. world rice export market share decreases slightly from 4.7 percent in 2024/25 to 4.5 percent in 2032/33.
- China's exports are expected to increase 19 percent over the next decade, reaching 2.7 million tons by 2032/33, driven by competitive export prices and large reserves.
- Burma is projected is expand exports almost 12 percent by 2032/3, exceeding 2.7 million tons. Burma is expected to continue to supply imports to China and the European Union. Cambodia's rice exports increase 21 percent to a record 2.1 million tons by 2032/33.
- Exports from South America—primarily Argentina, Brazil, Guyana, Paraguay, and Uruguay—are projected to expand 12 percent over the next decade, accounting for almost 7 percent of global rice trade.

Figure 45. Global soybean imports, 2002–32

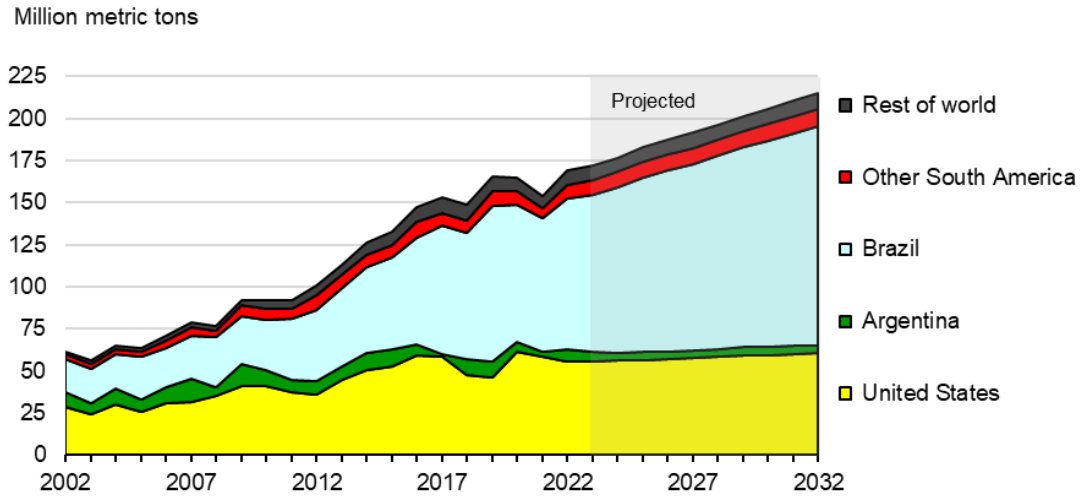


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Demand from China will drive continued growth in soybean trade during the next 10 years, as world soybean imports climb 43.2 million tons (25 percent) to 215.2 million tons.

- China's soybean imports are expected to grow at an annual rate of 3.1 percent, which is lower than the 3.8 percent annual growth in the past decade. Vegetable oil consumption is expected to recover from COVID-19 related lockups in 2021/22 and will continue to grow steadily. Soybean meal demand is projected to grow as well, as the hog inventory recovers from a 2019/20 African swine fever epidemic and use in poultry and egg production remains strong. China's soybean imports will grow from 101.5 million tons to 134.1 million tons during 2023/24–2032/33.
- Soybean imports for other countries in East Asia (Japan, South Korea, and Taiwan) are relatively flat with little projected increase, reaching 7.8 million tons by 2032/33. The region is projected to see a modest expansion in livestock production that is expected to support expanded soymeal use.
- European Union soybean imports are projected to decline from 14.4 million tons to 13.7 million tons during 2023/24 due to more grain use, rising consumption of alternative protein sources, and steady livestock numbers.
- Mexico's soybean imports are projected to increase by 19.4 percent to 7.7 million tons by 2032/33, driven by growth in poultry and pork production, and rising demand for soybean oil.
- Soybean imports for Indonesia are projected to increase by a little over 18 percent to 3.3 million tons by 2032/33, with imports almost exclusively used for food consumption. Indonesia imports all its soybean meal feed. Thailand crushers are expected to expand soybean imports by about 16 percent to 4.9 million tons by 2032/33 to meet rising feed demand. To meet growing feed demand, Vietnam is expanding is crushing capacity which is expected to boost the country's soybean imports by 28.5 percent to 2.8 million tons by 2032/33. Vietnam is also projected to increase imports of soybean meal. Pakistan is projected to increase imports by 37 percent to 3.8 million tons by 2032/33 to support rising demand for poultry feed.
- Many countries in North Africa and the Middle East region have minimal soybean production and are expected to meet growing feed demand by bolstering imports. For this region soybean imports are expected to increase more than 25 percent to more than 16.4 million tons by 2032/33. Egypt is projected to grow soybean imports by 1.2 million tons to 5.7 million tons by 2032/33 to crush for feed due to expanding poultry production.

Figure 46. Global soybean exports, 2002–32

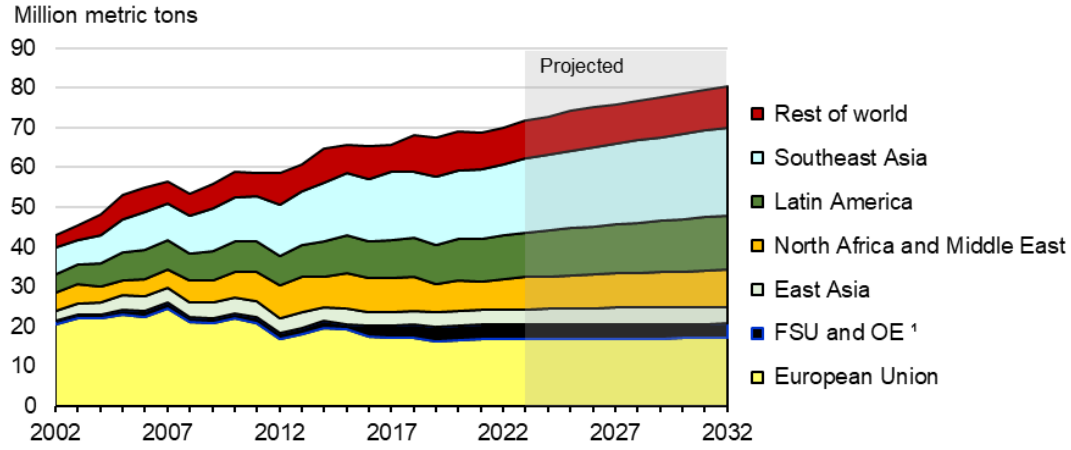


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

The three leading soybean exporters—Brazil, the United States, and Argentina—are projected to account for 91 percent of world soybean trade by 2032/33.

- Brazil's soybean exports are projected to rise 37.0 million tons (40 percent) to 130.4 million tons by 2032/33, strengthening its position as the world's leading 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 expected to be greater than 2 percent per year during the coming decade.
- Argentina's current policy of a higher export tax rate for soybeans than for soybean products incentivizes domestic crushing of soybeans and exports of the products; this policy has been in place on and off since the 1990s. Argentina's soybean exports are projected to decrease about 7.6 percent to 5.0 million tons by 2032/33, mostly exported to China. Most soybean production continues to be processed domestically. As a result, Argentina remains a distant third to Brazil and the United States as a soybean exporter.
- Other South American countries—principally Uruguay, Paraguay, and Bolivia—are projected to expand their area planted to soybeans. Exports by these countries increase about 12.2 percent to 10.0 million tons by 2032/33, adding 1.1 million tons to world soybean exports.
- The U.S. share of global soybean exports is about 32.4 percent in 2023/24 and is projected to decrease to 28.0 percent by 2032/33. U.S. soybean exports are projected to increase from 55.8 million tons in 2023/24 to 60.3 million tons by 2032/33.
- Canada increases soybean exports from 4.6 million tons in 2023/24 to 5.5 million tons in 2032/33. Canada's soybean area has expanded beyond the traditional producing region of Southern Ontario to the prairies of northeastern Manitoba. Improved varieties of soybeans with better yields have contributed to area expansion.
- Ukraine's soybean exports are projected to be stable at 1.5 million tons through 2032/33. Production, consumption, and trade are held steady at the 2022/23 levels.

Figure 47. Global soybean meal imports, 2002–32

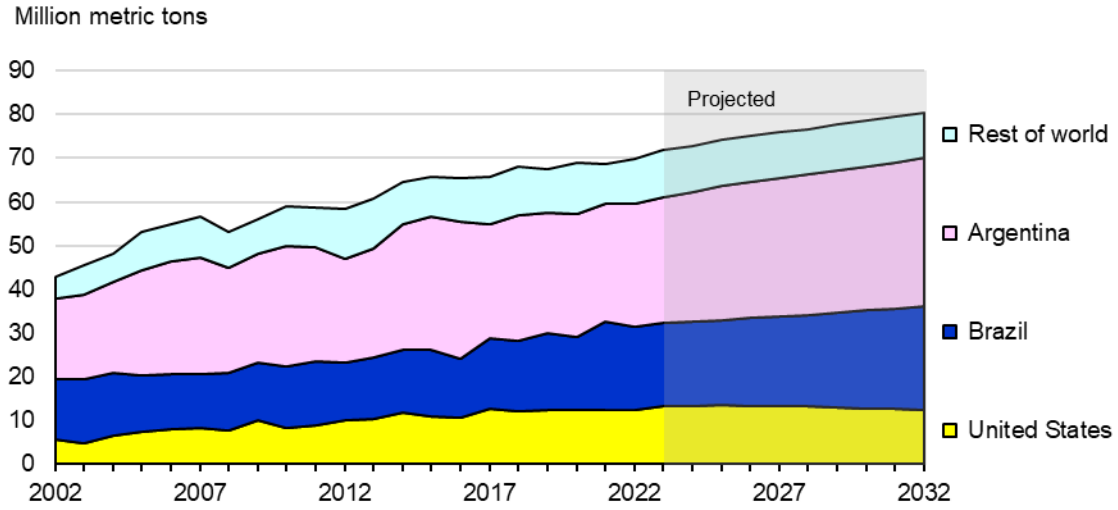


1/ Former Soviet Union and Other Europe.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

World soybean meal trade is projected to climb almost 12 percent to 80.3 million tons by 2032/33, supported by broad-based growth in demand from expanding commercial livestock, and poultry production and adoption of modern feed rations in many regions of the world.

- The European Union (EU) remains the world's largest soybean meal importer throughout the projection period, with imports stable at 17.0 million tons by 2032/33. An abundant supply of low-cost rapeseed meal is expected to be available, a result of expanding biodiesel production in the EU. Nutritional properties limit expanding the use of rapeseed meal in livestock rations, supporting the continued use of soybean meal.
- Southeast Asia, Latin America, North Africa, and the Middle East are projected to become larger importers of soybean meal due to the increasing demand for livestock feed, together with limited capacity to expand domestic oilseed production. Increasing poultry consumption and production is a major driving force, along with limited soybean crushing capacity.
- Indonesia, Vietnam, and the Philippines together contribute the largest projected gain in world soybean meal imports, expanding 20 percent from 14.4 million tons in 2023/24 to 17.3 million tons by 2032/33, accounting for 34 percent of increasing global imports. Thailand and Malaysia increase imports by 710,000 tons to 5 million tons by 2032/33. Southeast Asia accounts for 42.3 percent of the projected increase in world soybean meal trade.
- Imports by countries in North Africa and the Middle East rise by 1.3 million tons, accounting for 15 percent of the increase in world trade by 2032/33. Iran, Egypt, Turkey, and Saudi Arabia are the largest importers in these two regions, accounting for about 52 percent of soybean meal imports by 2032/33 in these regions.
- South American soybean meal imports increase by 20 percent over the projection period from 6.7 million tons to 8.0 million tons by 2032/33. Colombia, Ecuador, Peru, and Chile are among the largest importers as feed demand rises due to increasing domestic meat consumption. Venezuelan imports decreased from 1.1 million tons to 2014/15 to lower sustained levels averaging 425,000 tons in the recent 5 years. Mexico's growing demand for protein feed boosts its annual soybean meal imports from 1.9 million tons to 2.4 million tons by 2032/33. Central America and the Caribbean region increase imports from 2.7 million tons to 3.2 million tons by 2032/33 as projected protein feed demand increases.

Figure 48. Global soybean meal exports, 2002–32

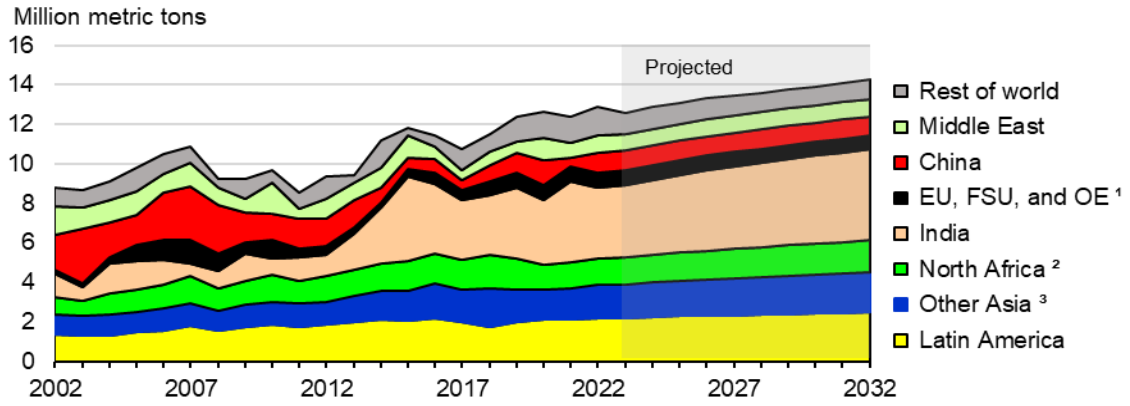


Source: USDA, Interagency Agricultural Projection Committee, October 2022

Argentina, Brazil, and the United States remain the world's 3 largest exporters of soybean meal, with a combined share of world exports of about 87 percent in 2032/33. By 2032/33, Argentina and Brazil account for about 42 percent and 29 percent of the world market, respectively, while the U.S. market share slips marginally to about 17 percent.

- In 2019, Argentina briefly eliminated export tax measures that incentivized exports of soybean products rather than soybeans, which had encouraged the development of a large oilseed-crushing industry. The differential export tax was reintroduced in mid-2020 with a 33-percent export tax on soybeans and 31 percent on soybean meal and soybean oil. Argentina's low soybean production costs and its competitive processing and shipping infrastructure are expected to sustain growth in soybean meal exports. Soybean meal exports are projected to grow by 5.1 million tons over the next decade, reaching 33.8 million tons by 2032/33.
- In Brazil, the expansion of poultry and pork production is expected to boost domestic soybean meal demand and limit growth in soybean meal exports due to interim competition from Argentina and robust soybean demand from China. Brazil's projected soybean meal exports increase about 23.8 percent to 23.7 million tons by 2032/33, and Brazil's share of the world soybean meal market increases marginally from about 26.6 percent in 2023/24 to about 29.5 percent by 2032/33.
- U.S. soybean meal exports are projected to decline from 13.2 million tons in 2023/24 to 12.5 million tons by 2032/33. The U.S. share of world exports decline from about 18 percent in 2023/24 to about 15.6 percent by 2032/33.
- India's soybean meal projected exports decline from 1.5 million tons in 2023/24 to 1.1 million ton by 2032/33 as expanding domestic feed use for poultry, egg, and milk production continues to constrain exportable supplies of soybean meal.
- The European Union 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 European Union soybean meal exports hold steady at 750,000 tons through 2032/33.

Figure 49. Global soybean oil imports, 2002–32

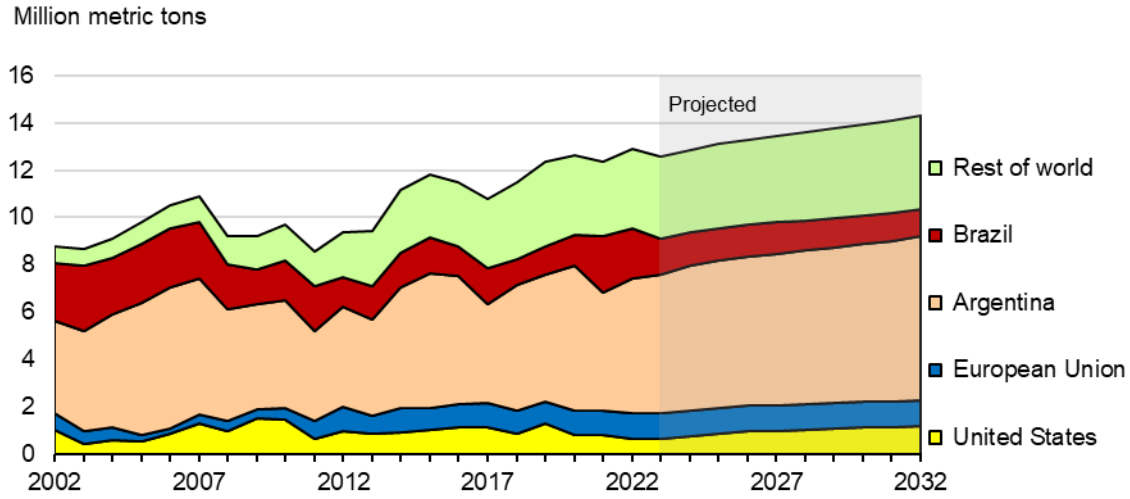


1/ European Union, Former Soviet Union, and Other Europe.
2/ Includes Egypt.
3/ Other Asia excluding China and India.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

World soybean oil imports are projected to climb about 13.7 percent over the projection period, reaching 14.3 million tons by 2032/33, bolstered by rising food and industrial use. Growth in world soybean oil trade, however, is expected to continue to be constrained by competition with palm oil, the leading vegetable oil traded internationally.

- Palm oil accounts for the largest share of India's vegetable oil imports; India is also the world's largest importer of soybean oil. India's soybean oil imports are projected to grow about 27.8 percent to 4.6 million tons in 2032/33. Anticipated growth in per capita incomes is expected to continue to drive up demand for edible oils, while low yields and limited area expansion potential limit growth in oilseed production. Continuous substitution of oil seeds crops for higher values crops like cotton are expected to support increasing imports of soybean oil and other vegetable oils.
- Both Bangladesh and Pakistan are also projected to expand imports of soybean oil imports over the projection period to a combined total of 975,000 tons by 2032/33, despite gains in domestic production.
- China's soybean oil imports are projected to remain at 1.0 million tons through the projection period to 2032/33. South Korea increases soybean oil imports by 90,000 tons reaching 530,000 tons by 2032/33. The Southeast Asia region is projected to increase imports by 46,000 tons reaching 325,000 tons by 2032/33. Bangladesh increases imports by 147,000 tons reaching 890,000 tons by 2032/33.
- 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 steady near 700,000 tons, while imports by the other North Africa region are projected to increase about 19.7 percent to 1.6 million tons by 2032/33.
- South American soybean oil imports are projected to increase 8 percent to 1.6 million tons, with Peru, Colombia, and Venezuela being the largest importers. Central America and Caribbean region imports are projected to be steady near 565,000 tons. Mexico's imports increase slightly to 283,000 tons by 2032/33, as consumption gains are mostly by domestic crushers of primarily imported soybeans.

Figure 50. Global soybean oil exports, 2002–32

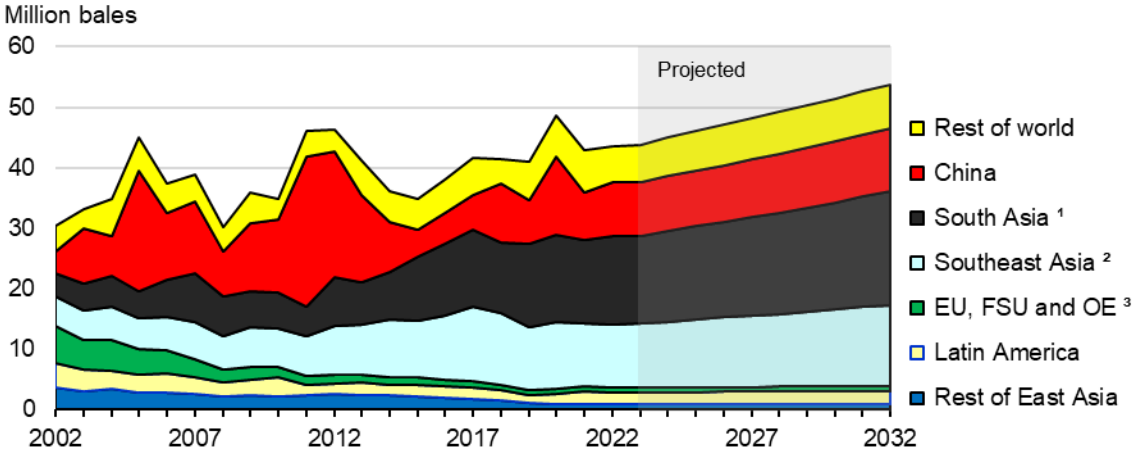


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Argentina, Brazil, the European Union, and the United States are the world's four leading soybean oil exporters. Their combined shipments are projected to account for about 73 percent of world soybean oil exports during the coming decade. Argentina is projected to account for 48 percent world soybean oil exports, while Brazil, European Union, and the United States are each near 8 percent by 2032/33.

- Soybean oil exports from Argentina are projected to climb to 6.9 million tons by 2032/33, an 18-percent increase from 2023/24. Argentina's strength as a soybean oil exporter reflects its 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 northwestern part of the country facilitate increased soybean crushing. Although Argentina's soybean oil exports rise, growth is tempered as soybean oil is increasingly used domestically to produce biodiesel.
- Due to the expansion of soybean oil in biofuels, U.S. soybean oil exports are lower in the near term and then rise over the projection period to reach 1.2 million tons in 2032/33. By 2032/33 the United States has 8.4 percent of global trade share. Brazil's soybean oil exports in 2023/24 are 1.6 million tons and decrease to 1.2 million tons by 2032/33. Over the coming decade, the United States and Brazil are expected to use more soybean oil for domestic biofuel production.
- The European Union soybean oil exports are steady at 1.1 million tons over the projection period, but decreasing as a share of global trade, from 8.6 percent to 7.6 percent by 2032/33. The former Soviet Union region is projected to increase soybean oil exports to 1.1 million tons over the projection period.
- Soybean oil exports by South American countries other than Argentina and Brazil are projected to be increase by 10 percent to 1.2 million tons over the projection period. Paraguay and Bolivia are the largest soybean oil exporters in South America after Argentina and Brazil.

Figure 51. Global cotton imports, 2002–32

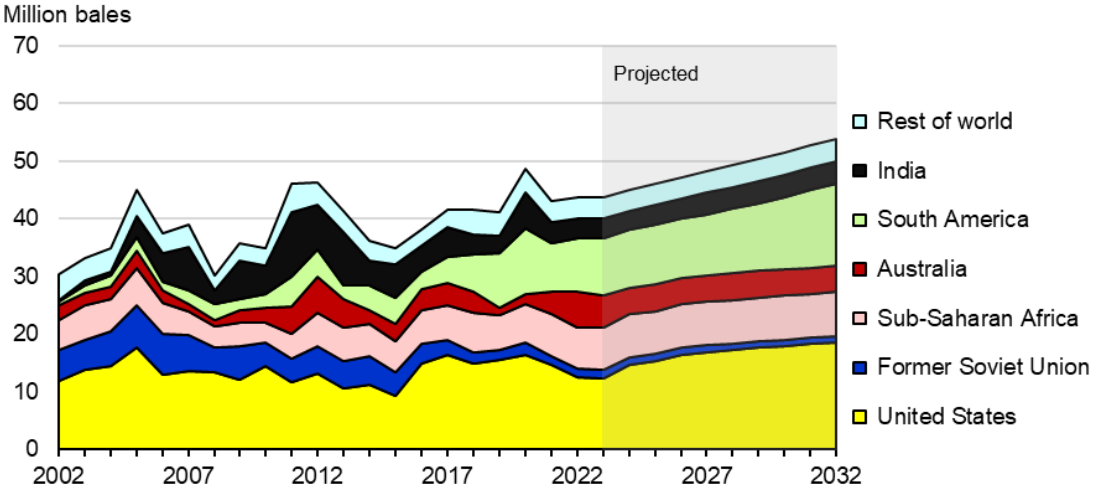


1/ Bangladesh, India, and Pakistan.
2/ Malaysia, Indonesia, Philippines, Thailand, and Vietnam.
3/ European Union, Former Soviet Union, and Other Europe.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Projected world cotton trade surpasses the 49-million bale record set in 2020/21 by 2028/29 and reaches 53.8 million bales in 2032/33. Imports by countries in South Asia, Southeast Asia, and China contribute most of the growth. By 2032/33 5 countries are projected to account for almost 80 percent of the global cotton imports—Bangladesh, China, Vietnam, Pakistan, and Turkey.

- China's cotton imports will grow as its textile industry's demand continues to outpace production. Imports are projected to expand 1.6 percent per year, leading to a 1.4 million-bale increase in imports to 10.4 million bales in 2032/33.
- Bangladesh is projected to surpass China becoming the largest global importer in 2029/30, with imports rising by 34.6 percent to 11.3 million bales by 2032/33. Bangladesh, a low-cost producer of cotton yarn, fabric, and garments, will account for 21 percent of global imports by 2032/33 and 29 percent of the projected increase in global cotton imports over the projection period.
- Southeast Asia cotton imports are projected to increase nearly 26.4 percent to 13.4 million bales by 2032/33. Vietnam is expected to remain the world's third-largest global importer as its textile industry grows rapidly; its imports are expected to reach 9.2 million bales by 2032/33. Vietnam's cotton imports have more than doubled over the past 10 years and are projected to account for 23 percent of the projected increase in world imports during the projection period. Indonesia is projected to be the sixth-largest cotton importer in 2032/33, with imports rising 16 percent to 2.9 million bales in 2032/33.
- Turkey and Pakistan are expected to be the fourth- and fifth-largest cotton importers by 2032/33. Turkey is projected to increase its imports by 21.9 percent reaching 5.8 million bales by 2032/33. Pakistan imports projected increase by 23.5 percent reaching 5.7 million bales by 2032/33.
- India and Mexico's cotton imports are projected to modestly increase to 1.8 million bales and 1.2 million bales by 2032/33, respectively. India's rising cotton imports are driven by increasing mill consumption, which is greater than India's growth in production. Thailand, the former Soviet Union, and South Korea imports are steady with projected combined imports of 1.5 million bales annually through 2032/33.

Figure 52. Global cotton exports, 2002–32

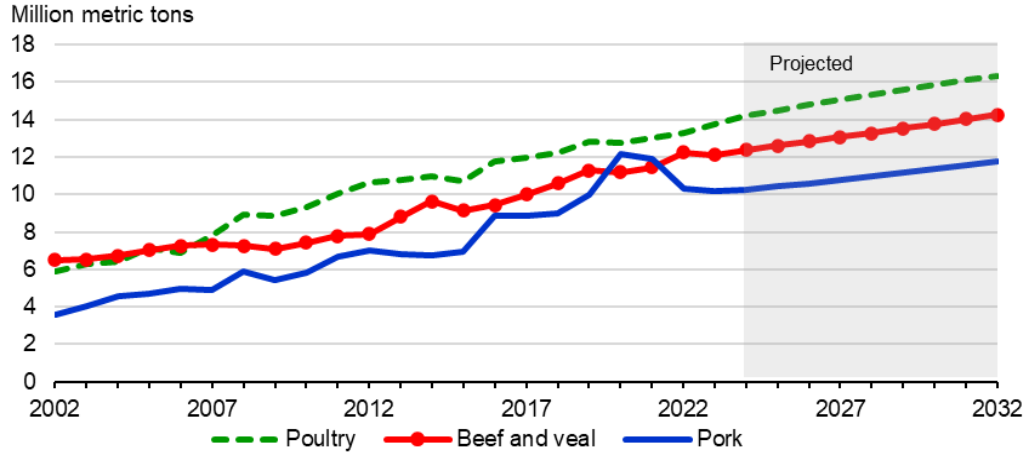


Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Cotton production is projected to expand in countries with favorable resources and production technologies. Growth is expected from traditional producers with large amounts of land suitable for cotton production, including Brazil, sub-Saharan Africa, and India. The United States, Brazil, West Africa, and India remain the largest exporters.

- The U.S. share of world cotton production averaged 14.5 percent during the previous decade and is projected to average 15.0 percent during the projection period. The United States remains the world's leading cotton exporter, with exports rising from a relatively low 12.3 million bales to 18.5 million bales (upland and extra-long staple (ELS) cotton) during the 2023/24–2032/33 projection period. The U.S. share of world trade is expected to rebound from 28.0 percent in 2023/24 to 34.4 percent by 2032/33.
- Area planted to cotton in Brazil is expected to increase, with continuing yield growth as well. Brazil's annual cotton exports are projected to increase by 4 million bales by 2032/33, corresponding to a 4.2 percent annual growth rate, the second largest projected increase among the world's major exporters, after the United States. Brazil became the world's second-ranking cotton exporter in 2018/19, surpassing India, and remains second through 2032/33, when Brazil's exports are projected to reach a record 13.3 million bales.
- India's cotton area and yields are expected to trend higher over the projection period increasing exportable supplies, even with yield and area being hampered by bollworm resistance and weather issues in recent years. India's cotton exports increase by 1.3 percent annually, reaching 3.9 million bales in 2032/33, making India the world's fourth-largest cotton exporter throughout the projection period.
- Exports from the 15 countries of the Economic Community of West African States (ECOWAS) are projected to increase a modest 0.5 percent annually during the next decade. Improvements in infrastructure will boost production and exports. Exports for sub-Saharan Africa overall are expected to be relatively stable, accounting for 17 percent of world trade in 2023/24 and 14 percent by 2032/33.
- Major cotton-producing countries in Central Asia continue to promote investment in textile industries, exporting textile products rather than raw cotton. Former Soviet Union exports, entirely from Central Asia, are projected to decrease 1.3 percent annually, with only 1.4 million bales exported by 2032/33, far below the export peak of 7.3 million bales in 2005/06.

Figure 53. Meat exports, major traders, 2002–32

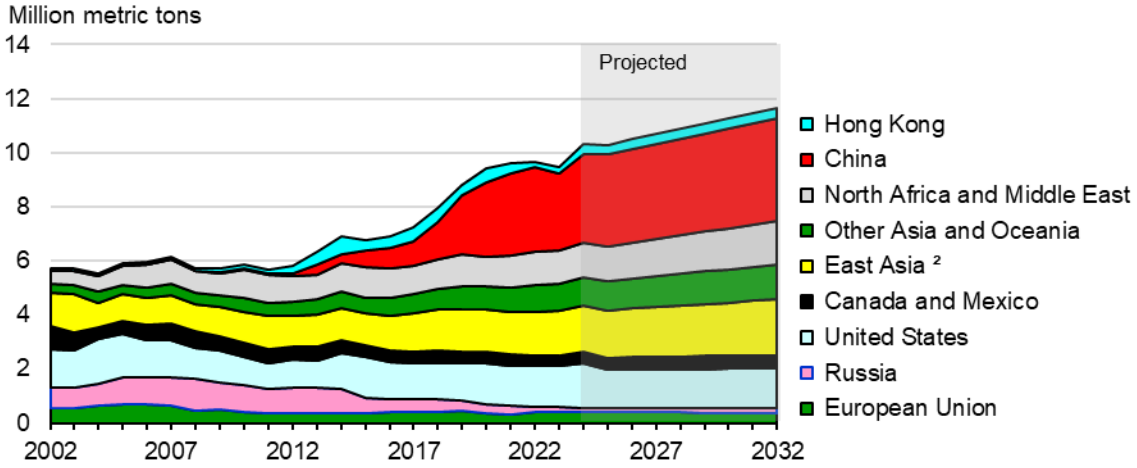


1/ Major exporters, not world total (see beef, pork and poultry trade tables).
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Consistent with recent historical patterns the projected meat trade, 2024–32, is led by poultry, followed by beef and pork. Major poultry exporters expand by over 15 percent, supported by strong consumer demand in developing and emerging countries. Both pork and beef exports are projected to increase less than 15 percent, mostly led by strong demand in Asian countries.

- Brazil is the largest exporter of poultry meat, followed by the United States, the EU, and Thailand. Brazil is projected to account for little over 37 percent of global export growth, with exports rising 16 percent to 5.8 million tons by 2032. U.S. exports are expected to increase nearly 13 percent to 4.1 million tons over projection period, while EU exports rise 10 percent to almost 2.0 million tons. Thailand's projected poultry exports are expected to climb 34 percent to almost 1.4 million tons by 2032.
- Enhanced biosecurity measures are likely to reduce outbreaks of African swine fever (ASF) in China and several other Asian countries. In the absence of an effective vaccine, however, ASF remains a source of production risk and market disruption.
- The European Union—the world's largest pork exporter—is projected to account for one third of the growth in global exports, with shipments rising almost 13 percent to nearly 4.3 million tons by 2032. U.S. pork exports expand over 8 percent to 3.1 million tons by 2032, while Brazilian exports are expected to grow about 30 percent to 1.7 million tons, and Canada's shipments grow 8 percent to 1.5 million tons. The U.S. share among major pork exporters is projected decline from about 28 percent in 2024 to 26.5 percent in 2032.
- Brazil, the world's largest beef exporter, is projected to account for half of the projected growth in sales by major exporters, with shipments rising 30 percent to almost 4.1 million tons between 2024 and 2032. Growth in Brazil's beef exports is supported by expanding global demand, particularly strong demand from China. Indian beef exports through 2032 are expected to increase 17 percent to almost 1.8 million tons, aided by rising demand from developing countries for India's lower-priced carabeef, from water buffalos.
- After a number of years of drought-related contraction, Australia is gradually rebuilding the cattle herds and growing exportable supplies. As herd numbers increase, beef exports are expected to grow a little over 4 percent to 1.6 million tons by 2032. Australia is projected to decline from the second largest exporter at the beginning of the projection period to third place. U.S. beef exports are projected to rise 15 percent to almost 1.5 million tons by 2032.

Figure 54. Beef imports, major traders, 2002–32

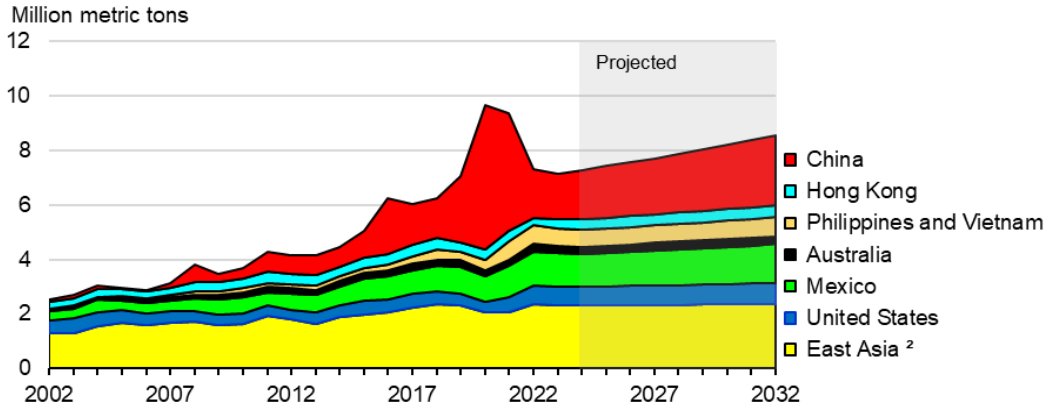


1/ Selected importers, not world total.
2/ Japan, South Korea, and Taiwan.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Between 2024 and 2032, major beef-importing countries are projected to increase annual imports by 1.5 million tons, reaching 13.2 million tons in 2032. Demand by markets in Asia will fuel much of the increase.

- Beef imports by China and Hong Kong account for the largest share of world trade in 2032 at 28.5 percent. China and Hong Kong imports are projected to increase 14.7 percent to 4.2 million tons between 2024 and 2032, as demand outpaces domestic production growth.
- After jumping sharply in 2024 on domestic production, United States beef imports of primarily grass-fed, lean beef for use in ground beef and processed products gradually decline throughout the projection period. The United States remains the world's second-largest beef importer even as imports are expected to decrease 10.9 percent over the projection period to less than 1.5 million tons in 2032.
- Japan and South Korea are the world's third- and fourth-largest beef importers. Japan's beef imports are expected to increase by 120,000 tons by 2032 to 961,000 tons, while South Korea is projected to be among the world's fastest growing markets, with imports rising 30.7 percent to 828,000 tons by 2032.
- The Middle East and North Africa region (including Egypt), are projected to increase beef imports from 1.3 million tons in 2024 to almost 1.6 million tons by 2032, driven by population and income growth.
- Mexico's projected beef imports exhibit strong growth, with imports expanding 35.9 percent to 291,000 tons over the projection period. Mexico primarily imports consist largely of higher valued, grain-fed beef from the United States.
- The Philippines, Indonesia, and Malaysia combined are projected to increase beef imports by about 24.3 percent to 965,000 tons by 2032, as strong growth in per capita incomes continues to strengthen demand. Other Asia and Oceania (excluding Southeast and East Asia) increase imports by 21.4 percent to 327,000 tons by 2032.
- Beef imports by Russia are projected to decline 4.8 percent to 164,000 tons by 2032 due to weak demand and policies supporting domestic beef production.

Figure 55. Pork imports, major traders, 2002–32

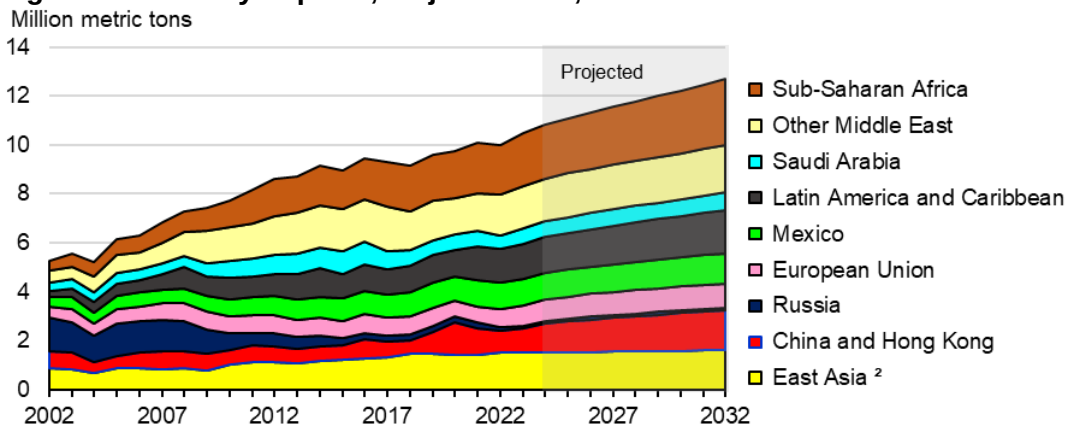


1/ Selected importers, not world total.
2/ Japan, South Korea, and Taiwan.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Imports by major pork-importing countries are projected to rise 2 percent annually from 2024, increasing by almost 1.6 million tons to about 10.5 million tons in 2032. China and Hong Kong, Mexico, Vietnam, and the Philippines exhibit the largest increases in import demand over the projection period, accounting for a little over 71 percent of the total projected increase in world pork imports by 2032.

- China/Hong Kong pork imports increase to about 3.0 million tons by 2032, almost 37 percent higher than 2024, and account for 51 percent of world's growth in pork imports. By 2032, China accounts for 24 percent of the world's import share. China remains the largest pork importer over the projection period. China/Hong Kong became the top pork importer in 2016, and imports doubled in 2020 when an African swine fever epidemic decimated swine numbers, reduced domestic pork production, and more than doubled Chinese pork prices. Consumption is likely to outpace production as incomes increase and farms contend with high feed costs and expenses for biosecurity and waste treatment.
- Japan is projected to remain the second-largest pork importer, with imports expected to increase almost 3 percent over the projection period and reach about 1.5 million tons by 2032. Projected rising imports are due to flat pork production and slight consumption growth.
- Mexico is the world's third-largest pork importer. Projected imports increase by almost 18 percent to about 1.4 million tons by 2032, driven primarily by lower prices relative to beef, growth in income, urbanization, and population. Over the projection period Mexico accounts for 13 percent of the increase in world pork imports among the major importers.
- Vietnam and the Philippines pork imports in the past year have grown as their herds were affected by African swine fever. Imports will decline at the start of the projection but then increase. Vietnam imports increase by almost 34 percent reaching 242,000 tons over the projection period. For the Philippines, projected growth slightly over 13 percent pushes imports to 506,000 tons by 2032. South Korean imports are supported by demand for selected cuts, with imports rising over 2 percent to 738,000 tons over the projection period.
- Russia's pork imports declined sharply in 2020 in part to policies focused on raising domestic production and reducing import dependence. Russia's pork imports are projected to increase from 19,000 tons in 2024 to 26,000 tons in 2032. Increasing incomes drive demand for imported pork in Central America and the Caribbean. Projected imports rise little over 14 percent from 2024 to 2032, reaching 414,000 tons in 2032.

Figure 56. Poultry imports, major traders, 2002–32



1/ Selected importers, not world total.
2/ Japan, South Korea, and Taiwan.
Source: USDA, Interagency Agricultural Projection Committee, October 2022.

Annual poultry meat imports by the major importing countries are projected to increase by 2.3 million tons (18 percent), reaching 15.3 million tons by 2032. Broad-based growth is expected across emerging markets in Asia, Latin America, North Africa and sub-Saharan Africa, and the Middle East. Declining imports are projected for Russia and South Africa. Countries with no growth in imports include Egypt and Iraq.

- Poultry meat imports in Africa and the Middle East regions are projected to grow by almost 23 percent and 11 percent, respectively, from 2024 through 2032. By 2032, these regions combined increase their poultry meat imports by 788,000 tons. Projected gains are the result of urbanization and income-driven diet diversification, lower prices for poultry relative to other meats, and production limitations in a number of importing countries.
- Expectations for rising incomes and expanding urbanization supports increased poultry import demand in Mexico, Central America, and the Caribbean region, where imported poultry products remain less expensive than beef or pork. Mexico's poultry production is projected to grow during the projection period, but at a slower rate than consumption. As a result, Mexico's poultry meat imports are set to rise by about 13 percent between 2024 and 2032 to 1.2 million tons. Poultry imports by the Central American and Caribbean regions increase by almost 21 percent to almost 1.2 million tons by 2032.
- Russia's imports decrease by 14 percent to 103,000 tons over the projection period, as policies continue to support domestic production and limit imports.
- China/Hong Kong is projected to be a larger net poultry importer as consumption outpaces growth in domestic production. China's/Hong Kong's poultry imports are projected to increase 38 percent, reaching almost 1.6 million tons by 2032. China's poultry exports are projected to increase over 4 percent to 601,000 tons by 2032.
- Higher valued, fully cooked poultry products tend to be imported by higher income countries in Asia and Europe. Fully cooked products are projected to account for the greatest share of poultry exports from Thailand. Thailand's poultry meat exports to the European Union, Japan, and South Korea are also expected to rise as these markets reopened to competitively priced uncooked chicken from Thailand. Thai poultry exports are projected to increase by 34 percent from 2024 to 2032, reaching almost 1.4 million tons.

Table 27. Coarse grains trade long-term projections to 2032.

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
Former Soviet Union[1]	0.7	0.6	0.7	0.7	0.8	0.8	0.8	0.8	0.9	0.9	0.9	1.0
Other Europe	3.2	2.6	3.0	3.1	3.1	3.2	3.2	3.2	3.3	3.3	3.3	3.4
European Union[2]	21.6	21.3	19.7	20.5	21.1	21.6	21.9	22.1	22.3	22.6	22.8	23.0
Egypt	9.5	9.2	9.5	10.3	11.0	11.6	12.3	12.9	13.6	14.2	14.9	15.5
Iran	10.2	11.5	12.2	12.4	12.7	12.9	13.2	13.5	13.7	13.9	14.2	14.4
Saudi Arabia	8.5	8.7	10.2	10.5	10.7	10.9	11.2	11.4	11.6	11.9	12.1	12.3
Turkey	6.4	3.5	4.1	4.2	4.2	4.3	4.4	4.4	4.5	4.6	4.6	4.7
Other Middle East	9.3	8.8	9.2	9.4	9.6	9.7	9.9	10.1	10.3	10.5	10.7	10.9
Morocco	2.8	3.0	3.2	3.3	3.4	3.6	3.7	3.8	3.9	4.0	4.1	4.2
Other North Africa	7.0	7.9	8.2	8.4	8.7	8.9	9.2	9.4	9.6	9.9	10.2	10.4
West Africa (ECOWAS)[3]	0.9	0.9	1.0	1.1	1.1	1.2	1.3	1.3	1.4	1.4	1.5	1.6
Sub-Saharan Africa[4]	2.8	3.2	3.2	3.3	3.4	3.5	3.6	3.6	3.7	3.8	3.9	4.0
South Africa	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Japan	16.7	16.5	16.7	16.7	16.6	16.6	16.6	16.6	16.5	16.5	16.5	16.5
South Korea	11.6	11.6	11.7	11.7	11.8	11.9	11.8	11.8	11.8	11.8	11.8	11.9
Taiwan	4.7	4.6	4.6	4.7	4.7	4.8	4.9	4.9	5.0	5.0	5.1	5.1
China	41.1	35.7	36.9	37.3	37.6	37.9	38.3	38.6	38.9	39.2	39.6	39.9
Indonesia	1.2	1.2	1.2	1.3	1.2	1.3	1.3	1.2	1.2	1.3	1.3	1.3
Malaysia	3.8	3.8	3.9	4.0	4.0	4.1	4.2	4.2	4.3	4.4	4.4	4.5
Philippines	1.1	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2	1.2	1.2
Thailand	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.2	2.3	2.4	2.4
Vietnam	9.2	10.5	11.0	11.7	12.3	13.0	13.6	14.3	14.9	15.6	16.3	17.0
Bangladesh	1.9	2.2	2.3	2.4	2.4	2.4	2.5	2.5	2.6	2.6	2.6	2.7
India	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Asia and Oceania	1.6	2.1	2.3	2.3	2.4	2.4	2.5	2.5	2.6	2.6	2.7	2.7
Canada	6.3	1.5	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
Mexico	18.5	18.6	18.8	19.3	19.7	20.2	20.7	21.1	21.6	22.1	22.6	23.0
Central America and Caribbean	7.6	7.9	8.0	8.2	8.4	8.7	8.9	9.1	9.2	9.4	9.7	9.9
Brazil	3.0	1.8	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6
Other South America	14.2	14.4	14.8	15.4	16.0	16.7	17.3	17.9	18.6	19.2	19.8	20.4
Other foreign[5]	20.9	5.6	10.5	9.4	8.6	7.7	7.2	6.9	6.7	6.4	5.9	5.5
United States	2.6	3.3	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Total imports	250.7	226.0	236.1	240.5	244.9	249.2	253.5	257.8	262.3	266.6	270.9	275.4
						Exports, million metric tons						
Exporters												
European Union[2]	13.7	9.3	12.0	12.2	12.4	12.5	12.6	12.8	12.9	13.0	13.2	13.3
Other Europe	2.7	2.4	4.1	4.2	4.2	4.2	4.2	4.2	4.3	4.3	4.3	4.3
Russia	7.6	10.2	9.4	9.5	9.7	9.8	9.9	9.9	10.0	10.1	10.2	10.2
Ukraine	33.0	17.9	16.7	16.7	16.7	16.8	16.7	16.7	16.7	16.7	16.7	16.7
Other Former Soviet Union[6]	1.7	1.0	1.5	1.6	1.8	1.8	1.9	2.0	2.1	2.2	2.3	2.4
Canada	5.6	6.6	6.7	6.7	6.7	6.8	6.8	6.8	6.9	6.9	6.9	7.0
Argentina	43.3	47.0	48.3	48.7	49.1	49.5	49.8	50.2	50.6	51.0	51.3	51.8
Brazil	44.5	47.0	49.0	51.3	53.5	55.7	58.0	60.2	62.5	64.7	66.9	69.1
Other South America	3.1	2.9	2.9	2.9	2.9	2.9	2.9	2.8	2.8	2.8	2.8	2.8
Australia	11.0	9.4	8.7	8.8	9.0	9.1	9.2	9.4	9.5	9.7	9.8	10.0
Other Asia and Oceania	8.0	6.5	6.0	5.9	5.8	5.7	5.6	5.6	5.5	5.4	5.3	5.3
South Africa	3.2	3.7	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.3	3.3	3.4
Other Africa[7]	1.7	1.5	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Other foreign	1.1	1.2	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3	1.4
United States	70.5	59.5	65.2	66.5	67.8	69.0	70.3	71.6	72.9	74.1	75.4	76.7
Total exports	250.7	226.0	236.1	240.5	244.9	249.2	253.5	257.8	262.3	266.6	270.9	275.4
							Percent					
U.S. trade share	28.1	26.3	27.6	27.7	27.7	27.7	27.7	27.8	27.8	27.8	27.8	27.8

1/ Former Soviet Union-12, includes intra-Former Soviet Union trade.
2/ Excludes intra-European Union 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/ Former Soviet Union-12 except for Russia and Ukraine. Includes intra-Former Soviet Union trade.
7/ Includes all African countries, including Egypt, except South Africa.
Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 28. Corn trade long-term projections to 2032

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
European Union[1]	20.0	20.0	18.4	19.2	19.8	20.3	20.6	20.8	20.9	21.1	21.3	21.5
Former Soviet Union[2]	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Egypt	9.5	9.2	9.5	10.3	10.9	11.6	12.2	12.9	13.5	14.2	14.8	15.5
Morocco	1.9	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.1	3.2	3.3	3.4
Other North Africa	4.6	5.9	6.2	6.4	6.6	6.9	7.1	7.4	7.6	7.9	8.1	8.4
Iran	8.6	9.0	9.7	9.9	10.1	10.3	10.5	10.7	10.9	11.0	11.2	11.4
Saudi Arabia	4.0	4.0	4.2	4.4	4.5	4.6	4.8	4.9	5.0	5.1	5.3	5.4
Turkey	3.5	3.0	3.6	3.7	3.7	3.8	3.9	3.9	4.0	4.1	4.1	4.2
Other Middle East	5.6	5.8	6.2	6.3	6.5	6.7	6.9	7.1	7.2	7.4	7.6	7.8
Japan	15.1	15.0	15.2	15.2	15.2	15.2	15.1	15.1	15.1	15.1	15.0	15.0
South Korea	11.5	11.5	11.6	11.6	11.7	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Taiwan	4.6	4.5	4.5	4.6	4.7	4.7	4.8	4.8	4.9	4.9	5.0	5.0
China	22.0	18.0	18.1	18.4	18.7	19.0	19.3	19.6	19.9	20.3	20.6	20.9
Indonesia	1.2	1.2	1.2	1.3	1.2	1.3	1.3	1.2	1.2	1.3	1.3	1.3
Malaysia	3.8	3.8	3.9	4.0	4.0	4.1	4.2	4.2	4.3	4.4	4.4	4.5
Philippines	0.6	0.9	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Thailand	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.2	2.3	2.4	2.4
Vietnam	9.2	10.5	11.0	11.7	12.3	13.0	13.6	14.3	14.9	15.6	16.3	17.0
Other Asia and Oceania	0.9	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Canada	6.1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Mexico	17.5	17.7	17.8	18.2	18.7	19.1	19.5	19.9	20.4	20.8	21.3	21.7
Central America and Caribbean	7.6	7.9	8.0	8.2	8.4	8.7	8.9	9.1	9.2	9.4	9.7	9.9
Brazil	2.3	1.3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Other South America	13.5	13.7	14.1	14.7	15.3	15.9	16.5	17.1	17.7	18.3	18.9	19.6
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]	0.9	0.9	1.0	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.6
Sub-Saharan Africa[4]	2.2	2.6	2.6	2.7	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.3
Other foreign[5]	23.8	8.6	13.7	12.3	11.4	10.5	10.1	9.8	9.7	9.3	8.9	8.6
United States	0.6	1.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Total imports	202.9	183.0	190.1	193.8	197.7	201.5	205.4	209.4	213.4	217.4	221.3	225.3
						Exports, million metric tons						
Exporters												
European Union[1]	6.0	2.7	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Argentina	37.5	41.0	42.0	42.4	42.7	43.0	43.3	43.6	43.9	44.3	44.6	44.9
Brazil	44.5	47.0	49.0	51.2	53.5	55.7	58.0	60.2	62.4	64.6	66.9	69.1
Other South America	2.8	2.6	0.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
South Africa	3.2	3.7	3.1	3.1	3.1	3.1	3.2	3.2	3.3	3.3	3.3	3.4
Other Africa	1.5	1.3	1.1	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9
Other Europe	1.7	1.4	2.9	2.9	2.9	2.9	3.0	3.0	3.0	3.0	3.0	3.0
Ukraine	27.0	15.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5
Former Soviet Union[2]	5.0	4.3	4.1	4.2	4.3	4.4	4.4	4.5	4.7	4.7	4.8	5.0
Asia and Oceania	7.9	6.4	5.9	5.8	5.7	5.6	5.6	5.5	5.4	5.4	5.3	5.2
Other foreign	3.1	2.6	5.1	2.5	2.5	2.6	2.6	2.7	2.8	2.8	2.9	2.9
United States	62.8	54.6	57.8	59.1	60.3	61.6	62.9	64.1	65.4	66.7	67.9	69.2
Total exports	202.9	183.0	190.1	193.8	197.7	201.5	205.4	209.4	213.4	217.4	221.3	225.3
							Percent					
U.S. trade share	30.9	29.8	30.4	30.5	30.5	30.6	30.6	30.64	30.65	30.68	30.71	30.72

1/ Excludes intra-European Union trade.
2/ Covers Former Soviet Union-12, except for Ukraine. Includes intra-Former Soviet Union 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.
Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 29. Sorghum trade long-term projections to 2032.

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
Japan	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Mexico	0.4	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
South America	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sub-Saharan Africa[1]	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
China	10.5	7.8	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0	9.0
Other[2]	0.3	0.8	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Total imports	12.0	9.6	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
						Exports, million metric tons						
Exporters												
Argentina	2.0	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Australia	2.2	2.1	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Africa	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other foreign	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
United States	7.5	4.7	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
Total exports	12.0	9.6	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2	11.2
							Percent					
U.S. trade share	62.3	48.8	64.9	64.7	64.8	64.8	64.8	64.8	64.7	64.7	64.7	64.6

1/ Includes South Africa.

2/ Includes unaccounted.

Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 30. Barley trade long-term projections to 2032.

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
Former Soviet Union[1]	0.3	0.3	0.3	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6
Europe	1.2	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5
Japan	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3
China	8.3	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
Other Asia and Oceania	0.9	1.4	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.8
Brazil	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6
Latin America[2]	1.1	1.0	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.3
Saudi Arabia	4.5	4.7	6.0	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9
Iran	1.6	2.5	2.5	2.5	2.6	2.6	2.7	2.8	2.8	2.9	3.0	3.0
Turkey	2.9	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Other Middle East	3.6	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Morocco	0.9	0.5	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other North Africa[3]	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Other foreign[4]	2.5	1.6	1.4	1.7	1.9	2.0	2.1	2.1	2.2	2.2	2.3	2.3
United States	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Total imports	32.4	30.2	31.5	32.1	32.7	33.1	33.5	33.8	34.2	34.6	34.9	35.3
						Exports, million metric tons						
Exporters												
European Union[5]	7.3	6.3	7.2	7.4	7.6	7.7	7.8	8.0	8.1	8.2	8.4	8.5
Argentina	3.8	3.5	3.8	3.8	3.9	3.9	4.0	4.0	4.1	4.1	4.2	4.2
Australia	8.2	6.7	7.0	7.1	7.3	7.4	7.5	7.7	7.8	7.9	8.1	8.2
Canada	1.9	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Russia	3.3	6.0	5.6	5.7	5.8	5.9	5.9	5.9	5.9	6.0	6.0	6.0
Ukraine	5.7	2.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Other Former Soviet Union[6]	0.7	0.7	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.4	1.4
Other Europe	0.9	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
Other foreign	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
United States	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total exports	32.4	30.2	31.5	32.1	32.7	33.1	33.5	33.8	34.2	34.6	34.9	35.3
							Percent					
U.S. trade share	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5

1/ Covers Former Soviet Union-12. Includes intra-Former Soviet Union trade.
2/ Includes Mexico.
3/ Excludes Morocco.
4/ Includes unaccounted.
5/ Excludes intra-European Union trade.
6/ Former Soviet Union-12 except for Russia and Ukraine. Includes intra-Former Soviet Union trade.
Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 31. Wheat trade long-term projections to 2032

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
Iran	7.3	6.0	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.2
Iraq	2.6	3.5	3.5	3.6	3.6	3.7	3.7	3.8	3.9	3.9	4.0	4.1
Turkey	9.4	10.3	10.6	10.7	11.0	11.2	11.4	11.6	11.7	11.9	12.1	12.3
Saudi Arabia	3.1	3.0	3.0	3.0	3.1	3.2	3.2	3.3	3.4	3.4	3.5	3.6
Other Middle East	11.7	13.0	13.6	13.9	14.0	14.0	14.1	14.2	14.2	14.3	14.4	14.5
Morocco	4.1	7.5	6.4	6.0	5.9	5.8	5.7	5.6	5.5	5.4	5.3	5.2
Egypt	11.5	11.0	11.7	12.0	12.3	12.6	12.9	13.2	13.4	13.7	13.9	14.2
Other North Africa	11.3	11.7	11.4	11.5	11.6	11.7	11.8	11.9	12.0	12.0	12.1	12.2
Nigeria	6.2	6.5	6.8	7.0	7.2	7.5	7.7	8.0	8.2	8.5	8.8	9.0
Other West Africa (ECOWAS)[1]	4.6	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7
South Africa	1.7	1.7	1.7	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	2.0
Other Sub-Saharan Africa[2]	13.9	13.5	13.9	14.5	15.1	15.6	16.2	16.7	17.2	17.7	18.1	18.5
Mexico	5.3	5.0	5.3	5.3	5.3	5.5	5.6	5.7	5.8	5.8	5.9	6.0
Central America and Caribbean	3.9	4.5	4.5	4.5	4.6	4.6	4.6	4.7	4.7	4.7	4.8	4.8
Brazil	6.4	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2
Other South America	8.2	9.1	8.5	8.7	8.8	8.8	8.8	8.9	8.9	9.0	9.1	9.1
European Union[3]	4.6	5.5	5.5	5.4	5.5	5.5	5.6	5.6	5.6	5.7	5.7	5.8
Other Europe	4.4	3.8	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.5	3.5	3.5
Former Soviet Union[4]	10.2	9.3	9.4	9.5	9.6	9.6	9.6	9.6	9.5	9.6	9.6	9.6
China	9.6	9.5	9.4	9.5	9.5	9.5	9.6	9.6	9.6	9.6	9.6	9.7
Hong Kong	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Japan	5.6	5.7	5.5	5.4	5.4	5.3	5.3	5.3	5.3	5.3	5.3	5.3
South Korea	5.1	4.2	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
Taiwan	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5
India	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pakistan	2.1	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Bangladesh	6.3	7.0	7.0	7.1	7.2	7.3	7.4	7.5	7.7	7.8	7.9	8.0
Philippines	6.9	6.2	6.1	6.2	6.4	6.5	6.7	6.9	7.1	7.2	7.4	7.6
Indonesia	10.7	11.2	11.2	11.4	11.6	11.7	11.9	12.0	12.1	12.2	12.3	12.5
Malaysia	2.1	1.9	1.9	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3
Thailand	2.4	2.7	3.0	3.0	3.0	3.0	3.1	3.1	3.2	3.2	3.2	3.3
Vietnam	4.5	4.1	4.3	4.5	4.7	4.9	5.1	5.2	5.4	5.6	5.7	5.9
Other Asia and Oceania	7.3	7.5	7.7	7.7	7.9	8.0	8.1	8.3	8.4	8.5	8.6	8.8
Other foreign[5]	5.5	5.1	4.3	5.3	4.4	4.3	3.5	3.6	3.1	3.3	2.8	2.7
United States	2.6	3.3	3.3	3.3	3.3	3.3	3.0	3.0	3.0	3.0	3.0	3.0
Total imports	202.8	208.3	207.9	211.4	213.4	216.1	217.9	220.7	222.7	225.4	227.6	230.4
						Exports, million metric tons						
Exporters												
European Union[3]	31.9	35.0	33.8	34.6	35.2	36.0	36.5	37.2	37.9	38.6	39.4	40.2
Canada	15.0	26.0	24.8	25.8	26.6	27.6	28.3	29.2	30.1	30.9	31.7	32.5
Australia	27.5	25.0	23.1	23.2	23.3	23.3	23.3	23.4	23.5	23.5	23.6	23.6
Argentina	16.3	12.0	13.0	13.7	14.2	14.5	14.7	14.9	15.1	15.4	15.6	15.8
Russia	33.0	42.0	43.9	44.1	44.2	44.3	44.6	44.9	45.2	45.5	45.8	46.1
Ukraine	18.8	11.0	10.7	10.9	10.9	10.9	10.9	11.0	10.9	11.0	11.0	11.0
Other Former Soviet Union[6]	10.2	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Other Europe	2.2	1.6	1.7	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	2.0
India	8.0	6.5	6.3	6.1	5.9	5.7	5.5	5.3	5.1	4.9	4.7	4.5
China	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Turkey	6.7	6.8	6.8	6.9	7.0	7.0	7.1	7.2	7.3	7.4	7.4	7.5
Other foreign	10.5	10.7	10.7	10.7	10.7	10.6	10.6	10.6	10.6	10.6	10.6	10.6
United States	21.8	21.1	22.5	23.1	23.1	23.8	23.8	24.5	24.5	25.2	25.2	25.9
Total exports	202.8	208.3	207.9	211.4	213.4	216.1	217.9	220.7	222.7	225.4	227.6	230.4
							Percent					
U.S. trade share	10.7	10.1	10.8	10.9	10.8	11.0	10.9	11.1	11.0	11.2	11.1	11.2

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-European Union trade.
4/ Former Soviet Union-12. Includes intra-Former Soviet Union trade.
5/ Includes unaccounted, which can be negative.
6/ Former Soviet Union-12 except for Russia and Ukraine. Includes intra-Former Soviet Union trade.
Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 32. Rice trade long-term projections to 2032

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
Canada	0.47	0.48	0.46	0.47	0.47	0.48	0.48	0.48	0.49	0.49	0.49	0.50
Mexico	0.75	0.80	0.80	0.82	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89
Central America and Caribbean	1.72	1.77	1.79	1.81	1.83	1.85	1.87	1.89	1.91	1.93	1.95	1.97
Brazil	0.80	0.85	0.85	0.86	0.86	0.86	0.87	0.87	0.88	0.89	0.89	0.89
Other South America	1.10	1.23	1.24	1.25	1.27	1.28	1.29	1.31	1.32	1.33	1.35	1.36
European Union[1]	2.30	2.50	2.35	2.28	2.28	2.30	2.32	2.34	2.37	2.39	2.42	2.46
Former Soviet Union[2]	0.55	0.60	0.59	0.58	0.58	0.59	0.59	0.59	0.58	0.58	0.58	0.59
Other Europe	0.78	0.79	0.78	0.79	0.79	0.80	0.80	0.81	0.81	0.82	0.82	0.82
Bangladesh	1.30	0.75	0.80	0.79	0.78	0.77	0.76	0.75	0.74	0.73	0.72	0.71
China	5.95	5.00	5.13	5.21	5.29	5.37	5.45	5.53	5.61	5.69	5.77	5.86
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	0.44	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43
Indonesia	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
Malaysia	1.20	1.20	1.20	1.21	1.21	1.21	1.22	1.22	1.23	1.23	1.24	1.25
Philippines	3.60	3.30	3.37	3.44	3.51	3.58	3.65	3.71	3.78	3.85	3.92	4.00
Other Asia and Oceania	5.19	4.22	4.29	4.29	4.32	4.35	4.38	4.40	4.43	4.45	4.48	4.50
Iraq	1.65	1.50	1.45	1.45	1.47	1.49	1.52	1.55	1.59	1.62	1.65	1.69
Iran	1.20	1.20	1.22	1.24	1.26	1.29	1.31	1.32	1.34	1.36	1.39	1.41
Saudi Arabia	1.30	1.30	1.36	1.37	1.39	1.41	1.43	1.45	1.48	1.50	1.52	1.54
Other Middle East	3.04	3.19	3.25	3.29	3.36	3.43	3.50	3.58	3.66	3.75	3.83	3.92
Egypt	0.65	0.55	0.61	0.64	0.65	0.67	0.68	0.69	0.71	0.73	0.74	0.75
North Africa	0.31	0.32	0.33	0.35	0.37	0.38	0.40	0.42	0.44	0.46	0.48	0.50
Nigeria	2.20	2.20	2.30	2.40	2.47	2.53	2.63	2.72	2.79	2.87	2.96	3.05
Other West Africa (ECOWAS)[3]	9.02	8.28	8.61	8.87	9.09	9.29	9.43	9.60	9.81	9.97	10.22	10.39
Other Sub-Saharan Africa[4]	5.18	5.37	5.50	5.65	5.76	5.87	5.98	6.09	6.21	6.37	6.46	6.57
South Africa	1.05	1.03	1.04	1.05	1.06	1.07	1.08	1.08	1.10	1.10	1.11	1.12
Other foreign[5]	1.30	1.77	1.70	1.71	1.72	1.71	1.72	1.76	1.76	1.77	1.78	1.79
United States	1.20	1.40	1.35	1.36	1.35	1.37	1.41	1.44	1.47	1.50	1.53	1.58
Total imports	55.46	53.22	54.02	54.81	55.62	56.44	57.27	58.14	59.03	59.91	60.84	61.76
						Exports, million metric tons						
Exporters												
Australia	0.25	0.28	0.30	0.31	0.32	0.32	0.33	0.34	0.35	0.36	0.37	0.38
Argentina	0.35	0.32	0.35	0.36	0.36	0.36	0.37	0.37	0.38	0.39	0.39	0.40
Other South America	3.22	3.18	3.23	3.27	3.31	3.35	3.40	3.44	3.48	3.52	3.56	3.61
European Union[1]	0.44	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
China	2.08	2.20	2.27	2.33	2.38	2.42	2.48	2.53	2.57	2.62	2.66	2.71
India	21.50	19.00	19.28	19.66	20.13	20.68	21.19	21.73	22.28	22.82	23.41	23.99
Pakistan	4.90	4.70	4.70	4.71	4.72	4.73	4.74	4.75	4.76	4.77	4.78	4.79
Thailand	7.60	8.20	8.39	8.46	8.52	8.56	8.62	8.71	8.81	8.91	9.03	9.13
Vietnam	6.90	7.20	7.10	7.12	7.14	7.17	7.19	7.21	7.23	7.25	7.26	7.28
Burma	2.30	2.40	2.46	2.50	2.52	2.55	2.58	2.62	2.65	2.68	2.71	2.74
Cambodia	1.70	1.60	1.70	1.74	1.78	1.82	1.86	1.90	1.94	1.98	2.02	2.06
Egypt	0.01	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01	0.01
Other foreign	1.62	1.34	1.34	1.36	1.37	1.39	1.40	1.42	1.44	1.45	1.47	1.48
United States	2.61	2.38	2.48	2.57	2.64	2.65	2.68	2.70	2.71	2.73	2.75	2.76
Total exports	55.46	53.22	54.02	54.81	55.62	56.44	57.27	58.14	59.03	59.91	60.84	61.76
							Percent					
U.S. trade share	4.7	4.5	4.6	4.7	4.7	4.7	4.7	4.6	4.6	4.6	4.5	4.5

1/ Excludes intra-European Union trade.

2/ Former Soviet Union-12. Includes intra-Former Soviet Union 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.

Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 33. Soybean trade long-term projections to 2032

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
European Union[1]	13.6	14.8	14.4	14.2	14.1	14.1	14.0	13.9	13.9	13.8	13.7	13.7
Former Soviet Union [2]	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3
Mexico	5.8	6.4	6.5	6.6	6.8	7.0	7.1	7.2	7.3	7.4	7.6	7.7
Argentina	3.9	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8	4.8
Other South America[3]	1.5	1.8	1.9	2.0	2.0	2.1	2.1	2.2	2.2	2.2	2.2	2.3
Central America, Caribbean	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Egypt	4.9	4.3	4.5	4.6	4.8	4.9	5.0	5.2	5.4	5.5	5.6	5.7
Iran	2.7	2.3	2.2	2.2	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.8
Saudi Arabia	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
Turkey	2.9	3.0	3.1	3.2	3.2	3.3	3.4	3.5	3.6	3.7	3.7	3.8
Other Middle East	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7
Africa	1.9	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.5	2.6	2.6
Pakistan	2.0	2.5	2.8	2.9	3.0	3.1	3.2	3.3	3.5	3.6	3.7	3.8
China	90.0	98.0	101.5	105.2	109.6	113.5	116.4	120.0	123.9	127.1	130.6	134.1
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	2.8	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.9	2.9	3.0	3.0
Malaysia	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9
Indonesia	2.6	2.8	2.8	2.9	2.9	3.0	3.1	3.1	3.2	3.2	3.3	3.3
Vietnam	1.9	2.1	2.2	2.3	2.3	2.4	2.5	2.5	2.6	2.7	2.7	2.8
Thailand	3.4	4.1	4.2	4.3	4.4	4.4	4.5	4.6	4.6	4.7	4.8	4.9
Other	5.4	8.1	6.9	7.3	7.9	7.8	8.0	8.4	8.8	9.1	9.5	9.7
Total imports	154.2	168.8	172.0	176.8	182.9	187.5	191.5	196.4	201.6	205.8	210.6	215.2
						Exports, million metric tons						
Exporters												
Argentina	2.8	7.0	5.4	4.9	4.8	4.9	4.9	5.0	5.0	5.0	5.0	5.0
Brazil	79.6	89.5	93.4	98.2	103.7	107.8	110.8	114.7	118.7	122.7	126.6	130.4
Other South America[4]	5.8	8.3	8.9	9.1	9.2	9.3	9.4	9.6	9.7	9.8	9.9	10.0
Ukraine	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Canada	4.3	4.4	4.6	4.8	4.9	4.9	5.0	5.1	5.2	5.3	5.4	5.5
Other foreign	1.6	2.5	2.4	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.5	2.5
United States	58.7	55.7	55.8	56.1	56.5	56.7	57.4	58.1	59.1	59.1	59.7	60.3
Total exports	154.2	168.8	172.0	176.8	182.9	187.5	191.5	196.4	201.6	205.8	210.6	215.2
							Percent					
U.S. trade share	38.1	33.0	32.4	31.7	30.9	30.3	30.0	29.6	29.3	28.7	28.4	28.0

1/ Excludes intra-European Union trade.

2/ Former Soviet Union-12. Includes intra-Former Soviet Union trade.

3/ South America, excludes Argentina.

4/ South America, excludes Argentina and Brazil.

Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 34. Soybean meal trade long-term projections to 2032

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million metric tons						
Importers												
European Union[1]	16.8	16.8	16.9	16.9	16.9	16.9	16.9	16.9	17.0	17.0	17.0	17.0
Russia	0.5	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Former Soviet Union[2]	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7
Other Europe	2.5	2.7	2.7	2.7	2.7	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Canada	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2
Japan	1.8	1.8	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.1
South Korea	1.8	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.0	2.0	2.1	2.1
Indonesia	5.3	5.6	5.9	6.1	6.2	6.4	6.5	6.6	6.7	6.8	6.9	7.0
Malaysia	1.3	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.5	1.6	1.6
Philippines	2.7	2.8	3.0	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9
Thailand	3.1	2.8	2.9	2.9	3.0	3.0	3.1	3.1	3.2	3.3	3.3	3.4
Vietnam	5.0	5.3	5.5	5.6	5.7	5.8	5.9	6.0	6.1	6.2	6.3	6.5
Australia	0.7	0.8	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
Other Asia and Oceania	1.4	0.9	1.0	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.5
Mexico	1.8	1.9	1.9	2.0	2.0	2.1	2.2	2.2	2.3	2.3	2.4	2.4
Central America, Caribbean	2.5	2.6	2.7	2.7	2.8	2.8	2.9	3.0	3.0	3.1	3.1	3.2
South America	6.5	6.6	6.7	6.8	6.9	7.1	7.2	7.4	7.6	7.7	7.9	8.0
Egypt	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Iran	1.4	1.7	1.8	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.2
Saudi Arabia	0.7	0.8	0.9	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2
Turkey	1.4	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Other Middle East[3]	2.2	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.7	2.7
South Africa	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other North Africa[4]	1.3	1.4	1.4	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.8	1.8
Other	5.7	5.9	6.1	6.1	6.4	6.3	6.2	6.1	6.2	6.2	6.1	6.2
Total imports	68.8	69.9	71.7	72.8	74.2	75.1	75.9	76.7	77.7	78.5	79.4	80.3
						Exports, million metric tons						
Exporters												
Argentina	27.0	28.2	28.8	29.6	30.5	31.1	31.5	32.1	32.5	33.0	33.4	33.8
Brazil	20.3	18.9	19.1	19.1	19.5	20.1	20.5	21.0	21.8	22.4	23.0	23.7
Other South America	3.1	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
China	0.5	1.0	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
India	0.8	1.2	1.5	1.5	1.5	1.4	1.3	1.3	1.2	1.2	1.2	1.1
Other Asia and Oceania	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Former Soviet Union[5]	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
European Union[1]	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Canada	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other foreign	1.9	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
United States	12.3	12.4	13.2	13.4	13.5	13.4	13.4	13.2	13.0	12.8	12.7	12.5
Total exports	68.8	69.9	71.7	72.8	74.2	75.1	75.9	76.7	77.7	78.5	79.4	80.3
							Percent					
U.S. trade share	17.9	17.8	18.3	18.4	18.2	17.9	17.6	17.2	16.7	16.3	16.0	15.6

1/ Excludes intra-European Union trade.
2/ Covers Former Soviet Union-12 minus Russia. Includes intra-Former Soviet Union trade.
3/ Middle East excluding Saudi Arabia, Iran, and Turkey.
4/ North Africa excluding Egypt.
5/ Covers Former Soviet Union-12. Includes intra-Former Soviet Union trade.
Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 35. Soybean oil trade long-term projections to 2032

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
Importers						Imports, million metric tons						
China	0.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
India	4.1	3.6	3.6	3.8	3.9	4.1	4.2	4.3	4.4	4.5	4.5	4.6
Bangladesh	0.6	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9
Pakistan	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
South East Asia	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Other Asia and Oceania	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Mexico	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
Central America, Caribbean	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6
South America	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.6
Iran	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Egypt	0.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other North Africa[1]	1.2	1.2	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.5	1.5
European Union[2]	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other	1.9	2.0	1.6	1.7	1.7	1.6	1.6	1.6	1.6	1.6	1.5	1.6
Total imports	12.4	12.9	12.6	12.9	13.1	13.3	13.4	13.6	13.8	13.9	14.1	14.3
						Exports, million metric tons						
Exporters												
Argentina	5.0	5.7	5.8	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9
Brazil	2.4	2.1	1.6	1.4	1.4	1.3	1.3	1.3	1.3	1.2	1.2	1.2
Other South America	0.9	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.2
European Union[2]	1.0	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Former Soviet Union -12	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1
Other foreign	1.5	1.4	1.4	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6
United States	0.8	0.6	0.6	0.7	0.9	1.0	1.0	1.0	1.1	1.1	1.1	1.2
Total exports	12.4	12.9	12.6	12.9	13.1	13.3	13.4	13.6	13.8	13.9	14.1	14.3
							Percent					
U.S. trade share	6.5	4.9	5.1	5.8	6.6	7.2	7.3	7.5	7.7	8.0	8.1	8.4

1/ Excludes Egypt.

2/ Excludes intra-European Union trade.

Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 36. All cotton trade baseline projections to 2032—bales

	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33
						Imports, million bales						
Importers												
European Union[1]	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Former Soviet Union[2]	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Mexico	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2
Japan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1
South Korea	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
China	7.8	8.7	9.0	9.2	9.3	9.5	9.6	9.8	9.9	10.1	10.2	10.4
Indonesia	2.6	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8	2.8	2.9	2.9
Vietnam	6.6	6.8	6.9	7.1	7.4	7.6	7.8	8.1	8.4	8.6	8.9	9.2
Thailand	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Pakistan	4.5	4.8	4.6	4.8	4.9	5.0	5.1	5.2	5.4	5.5	5.6	5.7
India	1.0	1.5	1.4	1.4	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8
Bangladesh	8.2	8.4	8.4	8.6	8.9	9.2	9.5	9.8	10.1	10.5	11.0	11.3
Taiwan	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Other Asia and Oceania	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7
Turkey	5.5	4.7	4.7	4.9	5.1	5.2	5.3	5.5	5.6	5.7	5.7	5.8
Other	2.5	2.2	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4
Total imports	42.9	43.6	43.8	45.0	46.1	47.1	48.2	49.3	50.4	51.5	52.6	53.8
						Exports, million bales						
Exporters												
Former Soviet Union[2]	1.5	1.5	1.4	1.4	1.3	1.3	1.2	1.2	1.1	1.2	1.2	1.1
Australia	3.8	6.2	5.4	4.7	4.8	4.6	4.6	4.7	4.7	4.5	4.5	4.5
Argentina	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.9	0.9	0.9
Brazil	7.7	8.4	9.2	9.3	9.5	9.6	9.9	10.4	10.9	11.7	12.6	13.3
Other Latin America	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6
Pakistan	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
India	3.7	3.5	3.5	3.3	3.4	3.5	3.7	3.8	3.9	3.9	3.9	3.9
Egypt	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
West Africa (ECOWAS)[3]	5.2	5.0	5.1	5.2	5.2	5.2	5.2	5.3	5.3	5.3	5.3	5.4
Other Sub-Saharan Africa[4]	2.2	2.2	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3
Other foreign	2.8	2.7	2.8	2.8	2.8	2.8	2.8	2.9	2.9	2.9	3.0	3.0
United States	14.6	12.5	12.3	14.6	15.2	16.4	16.8	17.2	17.6	17.9	18.2	18.5
Total exports	42.9	43.6	43.8	45.0	46.1	47.1	48.2	49.3	50.4	51.5	52.6	53.8
							Percent					
U.S. trade share	34.1	28.7	28.1	32.4	32.9	34.9	34.9	34.8	34.9	34.8	34.6	34.4

1/ Excludes intra-European Union trade.

2/ Covers Former Soviet Union-12. Includes intra-Former Soviet Union trade.

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

4/ Includes South Africa.

Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 37. Beef trade long-term projections to 2032

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
						Imports, thousand metric tons, carcass weight						
Importers												
Japan	807	800	805	840	863	879	895	907	921	933	948	961
South Korea	588	610	620	633	657	686	714	736	760	782	805	828
Taiwan	183	210	212	218	225	233	239	245	252	259	265	272
Indonesia	251	272	293	304	315	326	339	352	364	377	390	403
Malaysia	214	235	235	240	246	252	258	264	270	276	282	288
Philippines	221	225	225	232	235	241	246	251	257	262	268	274
China	3,024	3,140	2,850	3,300	3,375	3,437	3,499	3,560	3,624	3,685	3,744	3,791
Hong Kong	371	175	225	350	355	360	366	372	378	384	390	396
Other Asia and Oceania	232	254	263	270	276	283	290	297	304	312	320	327
European Union[1]	321	385	400	396	393	389	386	382	379	375	372	369
Other Europe	506	531	514	517	521	523	525	528	532	534	538	540
Russia	298	190	175	172	159	159	161	163	163	162	161	164
Saudi Arabia	170	175	175	180	183	190	195	201	208	214	219	225
Other Middle East[2]	694	731	757	778	801	827	847	869	891	913	936	960
Egypt	300	315	295	305	313	321	330	339	349	357	366	375
Other Africa[3]	46	44	47	51	56	60	63	69	73	76	79	82
Other Latin America[4]	841	800	800	808	835	850	863	876	889	902	916	929
Mexico	172	160	200	214	224	234	244	254	264	273	282	291
Canada	212	210	205	215	215	215	215	215	215	215	215	215
United States	1,518	1,537	1,520	1,645	1,420	1,431	1,435	1,443	1,452	1,458	1,464	1,466
Major importers	10,969	10,999	10,816	11,670	11,667	11,896	12,110	12,324	12,544	12,752	12,960	13,156
						Exports, thousand metric tons, carcass weight						
Exporters												
Australia	1,291	1,300	1,510	1,572	1,596	1,599	1,604	1,608	1,615	1,622	1,631	1,638
New Zealand	683	640	630	641	642	646	650	650	652	654	655	656
Former Soviet Union[5]	289	241	237	238	241	242	243	245	246	248	249	251
India	1,397	1,475	1,475	1,520	1,558	1,587	1,615	1,644	1,680	1,716	1,746	1,774
Other Asia	227	239	248	253	257	262	267	272	277	281	285	290
European Union[1]	674	700	650	647	647	646	644	644	643	643	643	642
Argentina	735	770	750	775	784	793	802	811	819	829	838	847
Brazil	2,320	2,950	2,975	3,127	3,216	3,324	3,435	3,540	3,673	3,804	3,934	4,058
Other Latin America[6]	1,320	1,307	1,228	1,301	1,318	1,345	1,372	1,397	1,427	1,458	1,489	1,520
Mexico	363	430	440	449	460	470	480	491	502	512	523	533
Canada	596	585	575	571	556	556	556	556	556	556	556	556
United States	1,561	1,620	1,393	1,299	1,348	1,371	1,389	1,411	1,434	1,454	1,474	1,491
Major exporters	11,456	12,257	12,111	12,393	12,623	12,841	13,057	13,270	13,522	13,778	14,022	14,257

1/ Excludes intra-European Union trade.
2/ Excludes Saudi Arabia trade.
3/ Excludes Egypt trade.
4/ Excludes Mexico trade.
5/ Former Soviet Union-12. Includes intra-Former Soviet Union trade.
6/ Excludes Argentina and Brazil trade.
Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 38. Pork trade long-term projections to 2032

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
					Imports, thousand metric tons, carcass weight							
Importers												
Japan	1,420	1,525	1,500	1,505	1,506	1,512	1,518	1,523	1,529	1,535	1,541	1,547
China	4,330	1,800	1,700	1,810	1,898	1,985	2,056	2,159	2,271	2,384	2,477	2,563
Hong Kong	364	275	330	376	384	390	398	407	412	422	430	438
South Korea	570	735	725	721	724	725	728	730	732	734	736	738
Philippines	461	550	450	447	454	461	468	476	483	490	497	506
Vietnam	237	150	175	181	188	195	202	210	218	226	234	242
Australia	210	260	260	261	263	265	268	271	275	281	287	293
Other Asia and Oceania	382	416	410	392	400	407	413	419	425	431	438	445
Russia	16	20	15	19	19	20	21	22	23	24	25	26
Other Former Soviet Union[1]	233	268	266	266	269	272	275	278	281	285	289	293
Other South America[2]	445	364	390	412	425	443	460	478	496	515	533	551
Mexico	1,155	1,250	1,240	1,214	1,238	1,264	1,288	1,314	1,336	1,366	1,392	1,428
Central America, Caribbean	329	345	361	362	367	374	381	388	395	402	408	414
Canada	263	245	250	251	253	255	257	261	264	266	269	271
United States	535	670	683	691	700	709	717	726	735	745	754	763
Major importers	10,950	8,873	8,755	8,907	9,089	9,277	9,452	9,661	9,875	10,103	10,308	10,517
					Exports, thousand metric tons, carcass weight							
Exporters												
Brazil	1,321	1,300	1,335	1,341	1,354	1,381	1,412	1,473	1,534	1,603	1,674	1,738
Other South America[2]	295	212	238	241	244	250	257	264	272	281	289	298
Canada	1,482	1,425	1,400	1,419	1,434	1,449	1,466	1,479	1,503	1,510	1,522	1,538
Mexico	319	300	310	302	307	313	318	324	330	335	340	345
European Union[3]	4,987	3,900	3,760	3,813	3,879	3,955	4,004	4,066	4,116	4,188	4,242	4,300
Former Soviet Union[4]	173	179	135	154	174	193	213	232	253	272	290	310
China	104	110	125	124	124	124	124	123	124	124	124	124
United States	3,187	2,898	2,849	2,877	2,906	2,935	2,964	2,994	3,024	3,054	3,085	3,115
Major exporters	11,868	10,324	10,152	10,271	10,421	10,600	10,758	10,955	11,156	11,367	11,566	11,768

1/ Former Soviet Union excluding Russia. Includes intra-Former Soviet Union trade.
2/ Excludes Argentina and Brazil.
3/ Excludes intra-European Union trade.
4/ Former Soviet Union-12. Includes intra-Former Soviet Union trade.
Source: USDA, Interagency Agricultural Projections Committee, October 2022.

Table 39. Poultry trade long-term projections to 2032

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
					Imports, thousand metric tons, ready to cook							
Importers												
Russia	248	133	104	120	112	117	107	101	108	104	106	103
Ukraine	125	78.00	87	89	91	92	92	94	95	96	98	99
Other Former Soviet Union[2]	449	449	462	473	486	495	504	511	518	524	529	534
European Union[3]	645	775	815	866	898	922	943	961	971	982	992	1,005
Canada	186	172	182	186	187	189	190	190	191	192	192	193
Mexico	1,066	1,063	1,077	1,086	1,104	1,122	1,140	1,159	1,177	1,195	1,213	1,232
Central America, Caribbean	915	917	946	951	976	1,001	1,027	1,050	1,076	1,102	1,128	1,156
South America	495	472	505	509	519	532	545	556	564	577	587	600
Japan	1,079	1,117	1,122	1,123	1,126	1,129	1,131	1,134	1,139	1,142	1,146	1,150
South Korea	176	230	215	216	223	229	233	238	245	250	256	262
Taiwan	176	190	180	183	186	189	192	194	196	199	203	207
Hong Kong	262	214	244	272	278	288	296	304	313	321	330	340
China	802	661	759	913	988	1,039	1,093	1,137	1,176	1,214	1,249	1,282
Vietnam	161	204	234	243	254	263	270	278	289	298	307	316
Philippines	439	437	452	450	469	487	502	520	538	555	575	597
Other Asia and Oceania	466	586	612	619	637	656	673	688	706	725	744	763
Saudi Arabia	633	517	617	632	643	658	669	677	686	696	708	721
Iraq	389	476	501	509	509	508	508	508	508	508	509	509
Other Middle East	1,092	1,153	1,172	1,192	1,208	1,227	1,249	1,271	1,292	1,315	1,337	1,358
Egypt	38	50	60	60	60	60	60	60	60	60	60	60
Other North Africa	109	115	123	121	124	127	129	132	134	137	140	143
West Africa (ECOWAS)[4]	689	655	705	757	801	836	866	901	932	964	995	1,025
South Africa	399	398	408	380	373	367	359	352	345	340	335	330
Other Sub-Saharan Africa	979	958	1,029	1,039	1,072	1,104	1,137	1,169	1,206	1,247	1,289	1,332
Major importers	12,018	12,020	12,611	12,989	13,324	13,637	13,916	14,184	14,467	14,742	15,029	15,316
					Exports, thousand metric tons, ready to cook							
Exporters												
European Union[3]	1,838	1,750	1,720	1,781	1,837	1,883	1,918	1,934	1,942	1,954	1,960	1,967
Russia	221	228	254	255	257	263	267	273	278	283	289	294
Ukraine	458	420	450	450	450	450	450	450	450	450	450	450
Other Former Soviet Union[2]	214	174	197	203	201	201	201	201	201	201	201	201
Brazil	4,280	4,677	4,849	5,005	5,112	5,207	5,300	5,403	5,503	5,605	5,705	5,805
Argentina	183	190	200	220	232	246	258	271	282	291	299	307
Other South America	177	205	221	235	243	250	258	266	275	284	292	300
Canada	157	144	149	149	149	148	147	145	144	143	142	141
China	457	550	575	575	578	582	585	588	591	594	598	601
Thailand	910	968	1,003	1,030	1,066	1,114	1,157	1,204	1,238	1,281	1,331	1,383
Turkey	521	562	613	651	678	691	709	722	740	758	776	794
United States	3,605	3,450	3,544	3,641	3,699	3,758	3,817	3,875	3,934	3,993	4,052	4,101
Major exporters	13,021	13,318	13,775	14,194	14,502	14,793	15,067	15,332	15,578	15,836	16,094	16,342

1/ Chickens and turkeys.
2/ Other Former Soviet Union -12 excluding Russia and Ukraine. Includes intra-Former Soviet Union trade.
3/ Excludes intra-European Union trade.
4/ Economic Community of West African States, 15 member countries (ECOWAS).
Source: USDA, Interagency Agricultural Projections Committee, October 2022.