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USDA Agricultural Projections to 2031

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USDA Long-Term Projections, February 2022



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Abstract

This report provides projections for the agricultural sector to 2031. 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 consensus 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 2021 *World Agricultural Supply and Demand Estimates (WASDE)* report, except where noted otherwise. Macroeconomic assumptions were concluded in August 2021.

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.

The projections, colloquially referred to as the baseline projections, were prepared using data available through the October 2021 *World Agricultural Supply and Demand Estimates* (WASDE) report, except where noted. The macroeconomic assumptions were completed in August 2021. 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 about what would be expected under the continuation of current farm legislation and other specific assumptions.

Critical long-term assumptions are made for U.S. and international macroeconomic conditions, U.S. and foreign agricultural and trade policies, and growth rates of agricultural productivity in the United States and abroad. The report assumes that there are no domestic or external shocks 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 that emerge 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.

Table of Contents

Abstract	ii
Acknowledgments and Contacts.....	ii
USDA Long-Term Projections: Background	iii
List of Figures.....	iv
List of tables	v
Introduction and Projections Overview	1
General Policy Assumptions.....	2
Biofuel Assumptions.....	4
Macroeconomic Assumptions.....	6
U.S. Crops, Livestock, and Farm Income Projections.....	19
U.S. Crops.....	19
U.S. Livestock	40
Breakout Box: U.S. Agricultural Trade Projections.....	51
U.S. Farm Income	55
Agricultural Trade.....	59
International Projection Highlights	61
Breakout Box: China is the Leading Importer for Numerous Commodities.....	65

List of Figures

Figure 1. Real gross domestic product growth by global region, 2001–31	7
Figure 2. U.S. and world real gross domestic product growth, 2001–31	8
Figure 3. Japan, Eurozone, and Canada real gross domestic product growth, 2001–31	9
Figure 4. Real gross domestic product growth by region, 2012–31	10
Figure 5. Agricultural trade-weighted U.S. dollar exchange rate, 2001–31	12
Figure 6. Crude oil price: refiner's acquisition cost of imports, 2001–31	13
Figure 7. World population growth rates, 2001–31	14
Figure 8. U.S. corn, soybean, and wheat prices, 2001–31	19
Figure 9. Planted area for the eight major U.S. row crops, 2001–31	20
Figure 10. Acreage enrolled in the USDA Conservation Reserve Program, 2001–31.....	21
Figure 11. U.S. corn feed and residual use, ethanol, and exports, 2001–31.....	22
Figure 12. U.S. wheat domestic use and exports, 2001–31.....	23
Figure 13. U.S. soybean domestic use and exports, 2001–31.....	24
Figure 14. U.S. rice domestic and residual use and exports, 2001–31	25
Figure 15. U.S. upland cotton domestic mill use and exports, 2001–31.....	26
Figure 16. U.S. sugar domestic deliveries, production, and imports, 2001–31.....	27
Figure 17. Farm value of U.S. fruit, nut, and vegetable production, 2001–31	28
Figure 18. U.S. animal product production, 2001–31.....	40
Figure 19. U.S. per capita meat disappearance, 2001–31.....	42
Figure 20. U.S. nominal livestock prices, 2001–31.....	43
Figure 21. U.S. meat exports, 2001–31.....	44
Figure 22. U.S. milk production, 2001–31	45
Figure 23. U.S. agricultural trade long-term projections, 2001–31	51
Figure 24. Projected U.S. agricultural exports by commodity group, 2020–31	52
Figure 25. Projected U.S. agricultural imports by commodity group, 2020–31	53
Figure 26. U.S. farm income indicators, 2001–31.....	56
Figure 27. U.S. farm gross cash income, 2001–31.....	56

Figure 28. U.S. total gross farm income, 2001–31	57
Figure 29. U.S. farm cash receipts, 2001–31	57
Figure 30. Total direct government payments, 2001–31.....	58
Figure 31. Global trade: Wheat, coarse grain, soybeans and soybean products, 2001–31.....	60
Figure 32. Global coarse grain imports, 2001–31	67
Figure 33. Global corn exports, 2001–31	68
Figure 34. Global sorghum imports, 2001–31.....	69
Figure 35. Global barley imports, 2001–31.....	70
Figure 36. Global barley exports, 2001–31.....	71
Figure 37. Global wheat imports, 2001–31	72
Figure 38. Global wheat exports, 2001–31	73
Figure 39. Global rice imports, 2001–31.....	74
Figure 40. Global rice exports, 2001–31.....	75
Figure 41. Global soybean imports, 2001–31	76
Figure 42. Global soybean exports, 2001–31	77
Figure 43. Global soybean meal imports, 2001–31	78
Figure 44. Global soybean meal exports, 2001–31	79
Figure 45. Global soybean oil imports, 2001–31	80
Figure 46. Global soybean oil exports, 2001–31	81
Figure 47. Global cotton imports, 2001–31.....	82
Figure 48. Global cotton exports, 2001–31.....	83
Figure 49. Meat exports, major traders, 2001–31	84
Figure 50. Beef imports, major traders, 2001–31	85
Figure 51. Pork imports, major traders, 2001–31	86
Figure 52. Poultry imports, major traders, 2001–31.....	87

List of tables

Table 1. Global real GDP growth assumptions	15
Table 2. U.S. macroeconomic assumptions.....	16
Table 3. Real exchange rate growth rates assumptions	17
Table 4. Population growth assumptions	18
Table 5. Acreage for major field crops and Conservation Reserve Program assumptions	31
Table 6. U.S. corn long-term projections.....	32
Table 7. U.S. sorghum long-term projections.....	32
Table 8. U.S. barley long-term projections.....	33
Table 9. U.S. oats long-term projections.....	33
Table 10. U.S. wheat long-term projections	34
Table 11. U.S. soybeans and products, long-term projections	35
Table 12. U.S. rice long-term projections, total rice, rough basis	36
Table 13. U.S. rice long-term projections, long-grain rice, rough basis	36
Table 14. U.S. rice long-term projections, medium- and short-grain rice, rough basis.....	37
Table 15. U.S. upland cotton long-term projections	38
Table 16. U.S. sugar long-term projections.....	39
Table 17. U.S. fruit, nuts, and vegetables long-term projections	39
Table 18. U.S. per capita meat disappearance, retail weight	46
Table 19. U.S. beef long-term projections.....	47
Table 20. U.S. pork long-term projections.....	48
Table 21. U.S. young chicken long-term projections.....	49

Table 22.	U.S. turkey long-term projections	49
Table 23.	U.S. egg long-term projections.....	49
Table 24.	U.S. dairy long-term projections.....	50
Table 25.	U.S. agricultural trade long-term projections, fiscal years.....	54
Table 26.	U.S. farm receipts, expenses, and income, long-term projections.....	58
Table 27.	Coarse grains trade long-term projections	88
Table 28.	Corn trade long-term projections.....	89
Table 29.	Sorghum trade long-term projections	90
Table 30.	Barley trade long-term projections	91
Table 31.	Wheat trade long-term projections	92
Table 32.	Rice trade long-term projections	93
Table 33.	Soybean trade long-term projections	94
Table 34.	Soybean meal trade long-term projections.....	95
Table 35.	Soybean oil trade long-term projections.....	96
Table 36.	All cotton trade long-term projections.....	97
Table 37.	Beef trade long-term projections	98
Table 38.	Pork trade long-term projections	99
Table 39.	Poultry trade long-term projections	100

USDA Agricultural Projections to 2031

Interagency Agricultural Projections Committee

Introduction and Projections Overview

The macroeconomic assumptions underlying USDA's long-term projections reflect the economic consequences of the global spread of the COVID-19 pandemic that began in early 2020. As a result of the pandemic, the United States and most other global economies contracted sharply in 2020 but have generally, but unevenly, rebounded during 2021. With the projections for a macroeconomic recovery, aggregate demand for agricultural commodities is expected to return to the general pre-pandemic path.

The COVID-19 pandemic introduced greater than normal uncertainty into the macroeconomic assumptions underlying the USDA agricultural projections. The economic impact of the pandemic is unprecedented in recent history, and the path to controlling the pandemic and ensuing economic recovery is still unclear. The macroeconomic assumptions underlying the projections, created in August 2021, show ongoing growth after the rebound in global gross domestic product (GDP) in 2021, but at a declining pace, during the projection period starting in 2022.

Total planted acreage to the eight major field crops in the U.S. is expected to increase modestly over the first several years of the projection period compared with the 2021/22 season, and to decline slightly thereafter. Planted acreage for the 8 crops peaks at 255.6 million acres in 2023/24 and ends at a near low of 251.7 million acres in 2031/32. A three-million-acre increase from 24 to 27 million acres in the legislated cap to the Conservation Reserve Program (CRP) is anticipated to allow for a quick expansion in CRP acreage. CRP acreage is expected to rise from 20.5 million acres in 2021/22 and exceed 26 million acres every year after 2023/24, reaching the cap for the last 3 years of the projections. In the livestock sector, meat, dairy, and egg production all rise continuously throughout the projection period, except for beef, which continues a recent downward trend through 2023 before resuming growth. Production of milk, eggs, and all meat products but turkey end the projection period at record levels. Note that for animals and animal products, the projections begin with calendar year 2023, while figures for calendar year 2022 and earlier are based on published data as of October 12, 2021. Overall growth of milk, chicken, and egg production range between 9.1 percent and 14 percent, in that order. Pork production grows 7.9 percent, beef rises 6.2 percent, and turkey increases 4.6 percent.

Prices for most crops rose dramatically in 2021/22 based on a combination of supply issues, a resurgence of exports for some crops, logistical issues, and economic recovery. After the spike in 2021/22, prices for all crops decline starting in 2022/23 and continue to decline through the projection period, except for rice that maintains steady prices, and cotton that resumes price growth after initially declining in 2022/23 and 2023/24. For most crops with declining prices,

most of the adjustment takes place in the first four years of the projection. The decline in prices reflects the role of the United States as a net exporter of field crops (except barley and oats), and the ongoing competition it will face from other exporters. Nevertheless, the end of projection prices, most notably corn and cotton (and to a lesser extent wheat), are higher than the previous year's projections.

In contrast to crops, prices for all animals (cattle, chicken, turkey) and animal products (eggs, milk)—except hogs—rise steadily throughout the projection period. With rising and comparatively high cattle prices compared to most of the past two decades, growth in cattle inventories and rising slaughter weights support growing beef production during the projection period. Broiler (young chicken) prices are also projected to grow during the projection period after recovering from the recent low in 2019. Chicken production is projected to grow steadily as the broiler-to-feed price ratio remains relatively steady and domestic demand and exports continue to rise. After the spike in hog prices in 2021, hog prices decline toward levels like the second half of the last decade by the middle of the projection period, before experiencing a slight uptick after 2029. Milk and egg prices grow 8.6 percent and 16.7 percent over the projection period, respectively.

After two consecutive years of increase beginning 2020, net farm income and net cash income are projected to decrease in 2022. Net farm income is projected to decrease \$15.8 billion, or 13.5 percent, from \$116.8 billion in 2021 to \$101 billion in 2022. Net cash farm income is projected to decrease \$24 billion (18.1 percent) from \$133 billion in 2021 to \$109 billion in 2022. Lower government payments, including those related to the COVID-19 pandemic, relative to 2021 is the primary contributor to the projected decline in net farm income for 2022. Farm cash receipts are projected to decrease from 2022 through 2024 compared with the previous year after increasing in 2021 to a record high \$427.3 billion. However, beginning in 2025, cash receipts are expected to increase through 2031. The increase in cash receipts is projected because of steady domestic and international demand for U.S. agricultural products.

Projected U.S. total agricultural export value increases by 1.9 percent in fiscal year (FY) 2022 surpassing the record of \$172.2 billion in FY 2021, mainly due to increases in livestock and meat products, cotton, and oilseed exports. Increases in unit values are expected to accompany steady or increasing export volumes for most commodities with a notable exception of grains and feeds following record export volumes for those products in 2021. Agricultural export values are expected to grow at an annual rate averaging 0.8 percent per year from 2021 through 2031. The value of U.S. agricultural imports is projected to increase by an average annual rate of 6 percent over that same period as domestic consumer spending is expected to remain strong over the next decade. Note that with the release of the January 2021 monthly trade data on March 8, 2021, USDA—in coordination with the U.S. Department of Commerce, Bureau of the Census—adopted the World Trade Organization's internationally recognized definition of "Agricultural Products" as its standard definition for the purposes of reporting U.S. agricultural trade; this is the definition used to define agricultural trade products in this report.

General Policy Assumptions

U.S. Agricultural Policy

The projections include policies in place or expected to be implemented as of October 2021. The Agriculture Improvement Act of 2018, also known as the 2018 Farm Act, is assumed to be in effect through the projection period. Land enrolled in the Conservation Reserve Program

(CRP) is assumed to rise to 27 million acres by 2029—and through 2031—which is the maximum level legislated in the 2018 Farm Act.

Similarly, trade tariffs policies in place as of October 2021 are assumed to remain in effect throughout the next 10 years. Trade agreements implemented before October 2021 such as the United States-Mexico-Canada Agreement (USMCA), and the Japan-U.S. Free Trade Agreement, have also been considered in these projections. No specific assumptions are made for the Phase One deal with China since purchase commitments for individual commodities are not public.

International Policy

Agricultural trade projections assume that trade agreements, sanitary and phytosanitary restrictions, and domestic policies in place as of October 2021 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 2021. 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 tariff policies in effect in 2021. China imposed retaliatory tariffs on U.S. agricultural products in 2018, but exclusions were granted for many of them in 2020. Tariffs after the expiration of the Phase One agreement in 2022 are unknown. Tariffs on U.S. products do not necessarily affect China's overall projected demand for imports since China has multiple suppliers for most commodities.

Argentina's export duty of 33 percent on soybeans, 31 percent on soybean meal and soybean oil, and 12 percent tariffs on corn and wheat are reflected in the projections.

Brazil suspended import tariffs on corn and soybeans (8 percent), soybean meal (6 percent), and soybean oil (10 percent) from countries outside the Mercosur trade bloc in October 2020 but the suspension was scheduled for termination in December 2021. Consequently, the projections assumed the reimposition of these tariffs for 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 gradual elimination of the use of glyphosate and human consumption of bioengineered corn in Mexico. When the projections in this report were made, the Mexican government had not offered details regarding 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, Japan placed a tariff of 38.5 percent on U.S. beef imports surpassing 242,000 million tons. In September 2021, the U.S. lifted all restrictions on imports of Japanese food products while other countries, such as 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 not account for these policy initiatives.

The projections do not account for the Taiwanese government'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. Only policies in place as of October 2021 are included in the projections.

Traditionally, India's agricultural sector policies have been focused on food security issues, with provision of production incentives, such as procurement prices, for consumption staples—wheat and rice—paramount. But, as incomes rise and diets are being diversified, demand for these staples is declining. 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.

Biofuel Assumptions

U.S. Biofuels

Final renewable fuel standards for cellulosic biofuel, advanced biofuel, and total renewable fuel for 2020 were announced by the U.S. Environmental Protection Agency (EPA) on December 19, 2019. The biomass-based diesel standard for 2020 and 2021 was also set in December 2019. These projections were completed in October 2021, before any subsequent volume requirements were established by EPA.

Corn is the primary feedstock for U.S. ethanol, accounting for more than 98 percent of ethanol production. Over the projection period, corn use for ethanol production is projected to remain relatively flat, decreasing by less than 0.2 percent over the decade after initially increasing substantially the first several years after 2019/20. Ethanol exports are assumed to remain a small share of ethanol consumption, with limited expansion potential. Total ethanol consumption is assumed relatively stagnant due to gradually declining gasoline consumption. Ethanol imports remain small and constant throughout the projection 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 projection are declines in overall gasoline consumption in the United States. The United States is not projected to return to annual gasoline consumption levels seen in 2018/19 prior to COVID-19. There is expected to be an increase from 2019/20 levels however, but the long-run trend is expected to be 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 alone sufficient to prevent declining U.S. domestic fuel ethanol use. The E85 market remains small.

The volume requirement for U.S. biomass-based diesel use, as administered by the EPA under the Renewable Fuels Standard, was raised to 2.43 billion gallons for 2020 and 2021 and is assumed to continue at that level. Some production of biodiesel and renewable diesel above the biomass-based diesel volume requirement is assumed to continue meeting a portion of the nonspecific advanced biofuel requirement. In addition, the Biobased Diesel \$1-per-gallon federal tax credit is in effect through 2022.

Starting May 2021, biofuel replaced the biodiesel heading in the USDA's soybean oil balance sheet to reflect recent changes made by the U.S. Energy Information Administration (EIA) in data reporting for the biofuel market. EIA developed the *Monthly Biofuels Capacity and Feedstocks Report* to reflect significant recent growth in U.S. production of non-ester renewable diesel. California's Low Carbon Fuel Standard (LCFS) program is a significant driver for renewable diesel expansion in the United States. Currently, California consumes nearly all of U.S. renewable diesel production. In 2020, Oregon adopted a similar program, although its market is far smaller. California consumes about 2.7 billion gallons of diesel, a portion of which could be replaced with renewable diesel over the next few years. In the LCFS market, producing renewable diesel with low-carbon secondary feedstocks has more benefits than using soybean oil. USDA expects that the planned expansion of renewable diesel production plants could rely on non-soybean oil feedstocks to fulfill much of the growing demand in California.

Demand increases for renewable diesel over the next few years are expected to support strong soybean oil prices. At such prices, USDA expects market erosion for the conventional, non-integrated fatty acid methyl ester (FAME) producers. Biofuel blenders could increasingly substitute FAME with renewable diesel because it is considered a higher quality, drop-in replacement fuel. The projection assumes expansion in soybean-oil based renewable diesel for the California market as well as substitution for FAME in markets outside of California. The projection is based on current policies and don't include proposed LCFS-type programs in other States or tax credits for sustainable aviation fuel (SAF).

International Biofuels

Partial gasoline pool recoveries to pre-pandemic levels continue in 2022 but remain uneven across countries with varying infection rates. Pandemic-related fuel ethanol recovery is expected to mirror gasoline pool recovery with blend rates generally remaining unchanged. Diesel markets are also expected to recover to pre-pandemic levels.

New policy commitments plus consumer and market trends continue to speed energy market transitions over the decade towards renewables with biofuels one option among others to lower carbon emissions in transport. Strategic investments by governments and companies (including oil companies) will intensify to advance timelines for renewable electricity expansion and commercialized renewable hydrogen, raise engine efficiency, and increase vehicle model offerings for hybrids and electric vehicles (EVs).

The International Energy Agency projects a growing number of countries will peak gasoline use over the coming decade, but the same is far less likely for diesel and jet fuel. Use trajectories for ethanol follow the path of global gasoline use with the expectation of only marginal prospects for increased blending in most countries and few new entrants due to domestic feedstock constraints and unwillingness to permit imports a larger role in goal attainment. In contrast, higher blending of renewables in diesel is foreseen despite feedstock constraints partly which will be addressed by new global marketing chains. Emergence of Sustainable Aviation Fuel (SAF) accelerates initially supported by fats and oils and later a more diverse set of feedstocks.

Brazil is expected to achieve a large increase in fuel ethanol production (mostly from sugarcane) and use, with a growing share made from corn. India's fuel ethanol market remains closed to trade – although imports of ethanol for non-fuel use continue – with higher domestic production mostly supported by molasses. Higher blending goals remain beyond reach on any

sustained basis. Brazil, Indonesia, the European Union, and the United States drive much of global expansion of biodiesel and renewable diesel. The United States remains the world's leading exporter of ethanol, with Canada and Brazil likely to remain among the leading importers. Indonesia and Argentina remain the world's leading exporters of biodiesel, with the European Union, the United States, Canada, and China likely to remain the leading importers. China's fuel ethanol program primarily remains a surplus feedstock disposal program and thus experiences a falling blend rate as the gasoline pool grows.

Macroeconomic Assumptions

The macroeconomic assumptions underlying the USDA agricultural projections reflect the economic impact of the COVID-19 pandemic and the rebound in U.S. and global economic growth beginning in 2021. Measures adopted to counter risks from the pandemic had severe consequences on incomes, remittances, and international trade. In our assumptions, the global economic recovery is characterized by substantial near-term growth as business activity resumes, followed by sustained output growth through the end of this decade.

This projected recovery reflects the exceptional levels of fiscal and monetary support provided in 2020 and 2021 and the rising vaccination rates allowing restrictions to be somewhat relaxed, ultimately resulting in more rapid growth than in the previous baseline. However, the speed and timing of the recovery vary across countries and depend on various factors, including the success of the pandemic control measures, the attitudes toward vaccination, and the spread of new variants. In various countries the near-term shortfall will be compounded by higher costs associated with supply-chain shortages, shipping bottlenecks, and higher energy prices driving up inflation.

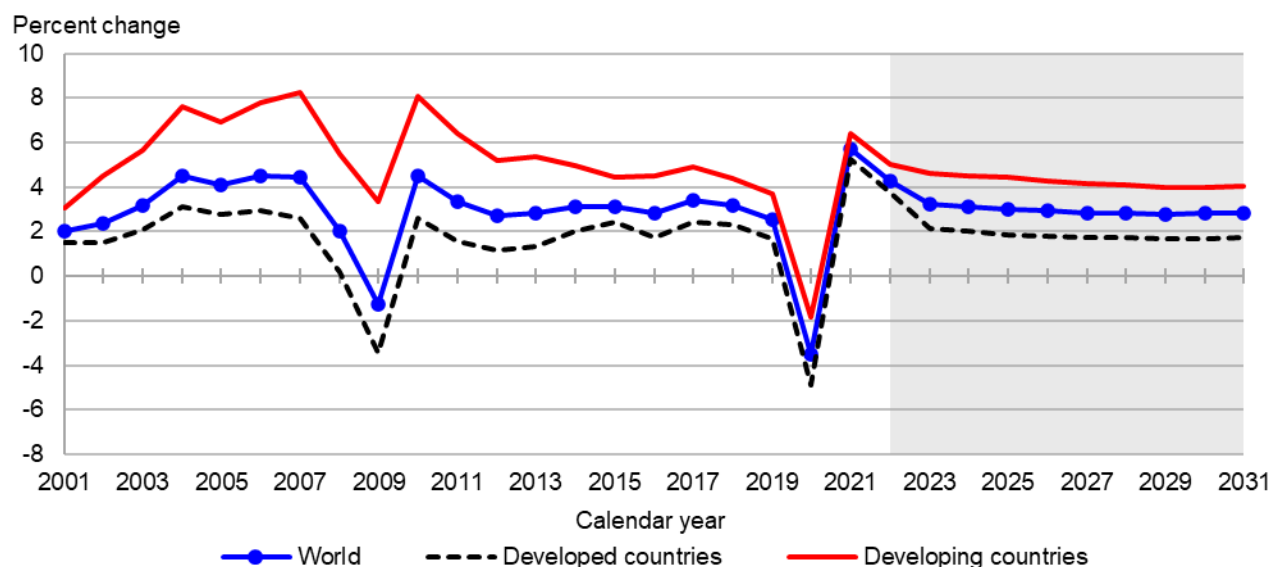
The macroeconomic assumptions and analysis underlying the baseline are compiled from multiple private forecast services, U.S. government and international agency projections, and USDA, Economic Research Service regional and country experts. The projections assume no policy changes, and no additional shocks (e.g., political crises, major conflicts, disease outbreaks). The macroeconomic projections were completed in late August 2021 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 global pandemic is projected to continue to disrupt markets around the world. After contracting 3.5 percent in 2020, global real Gross Domestic Product (GDP) growth is projected to increase 5.7 percent in 2021 and 4.3 percent in 2022, led by recoveries in consumer spending in agricultural and other goods and business investment. The current macroeconomic assumptions expect that global growth will settle to 3.2 percent in 2023 as fiscal and monetary policies tighten. Global real GDP growth is projected to average 3.1 percent annually during 2022–31 (table 1).

Despite expectations for higher price inflation, global real GDP growth is projected to exceed pre-pandemic levels early in the projection period and continue to grow through the projection period. At the individual country level, the level of recovery will vary.

Figure 1. Real gross domestic product growth by global region, 2001–31

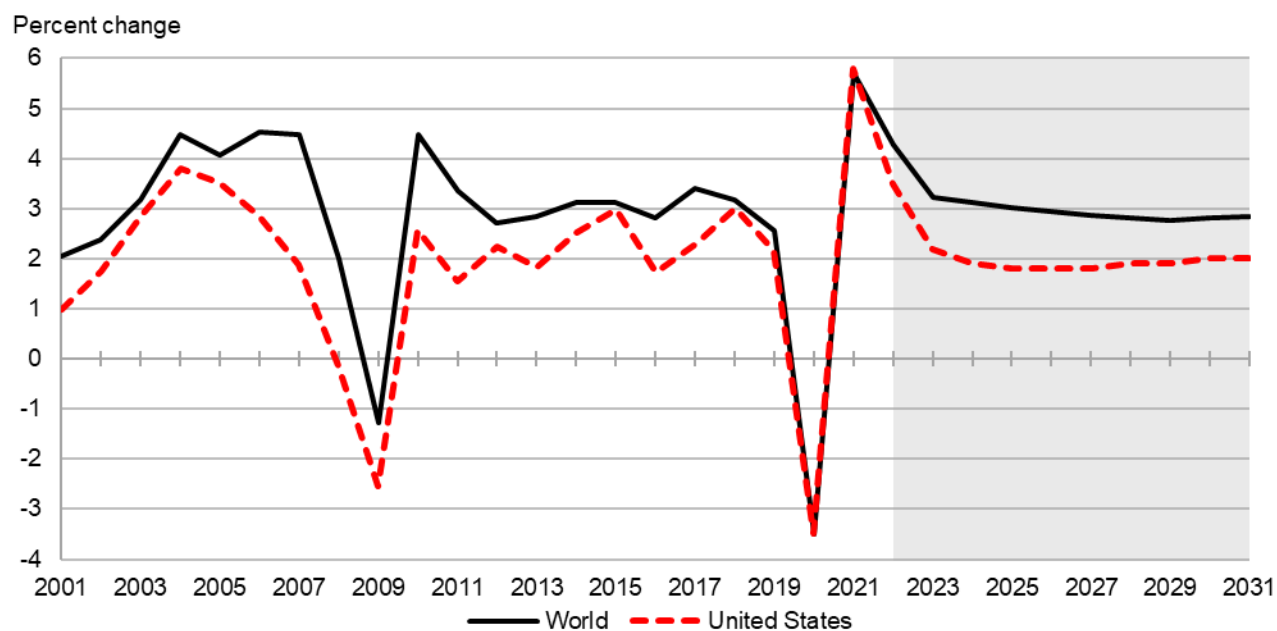


Note: The shaded region represents the projected period.

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 2021, world real GDP is expected to increase by 5.7 percent, a strong rebound from the 2020 COVID-induced recession, when global GDP fell 3.5 percent. While only a handful of countries continue to remain in an economic recession, the vast majority are expected to report positive GDP growth in 2021 as constraints on activity are relaxed. Improvements in the health situation, stronger demand for goods and services, and rapid hiring of workers continue to lead the way to faster economic growth.
- During 2022–31, projected global GDP growth is in line with rates achieved during the pre-pandemic period. The rapid, on average, GDP recovery in 2021 and into 2022 foster support for longer-term growth.
- 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 2022–31, developing countries' growth is projected to average 4.3 percent annually, compared to an average of 2 percent for developed countries. Both developing and developed economies will recover to the pre-pandemic projected GDP growth rates.

Figure 2. U.S. and world real gross domestic product growth, 2001–31



Note: The shaded region represents the projected period.

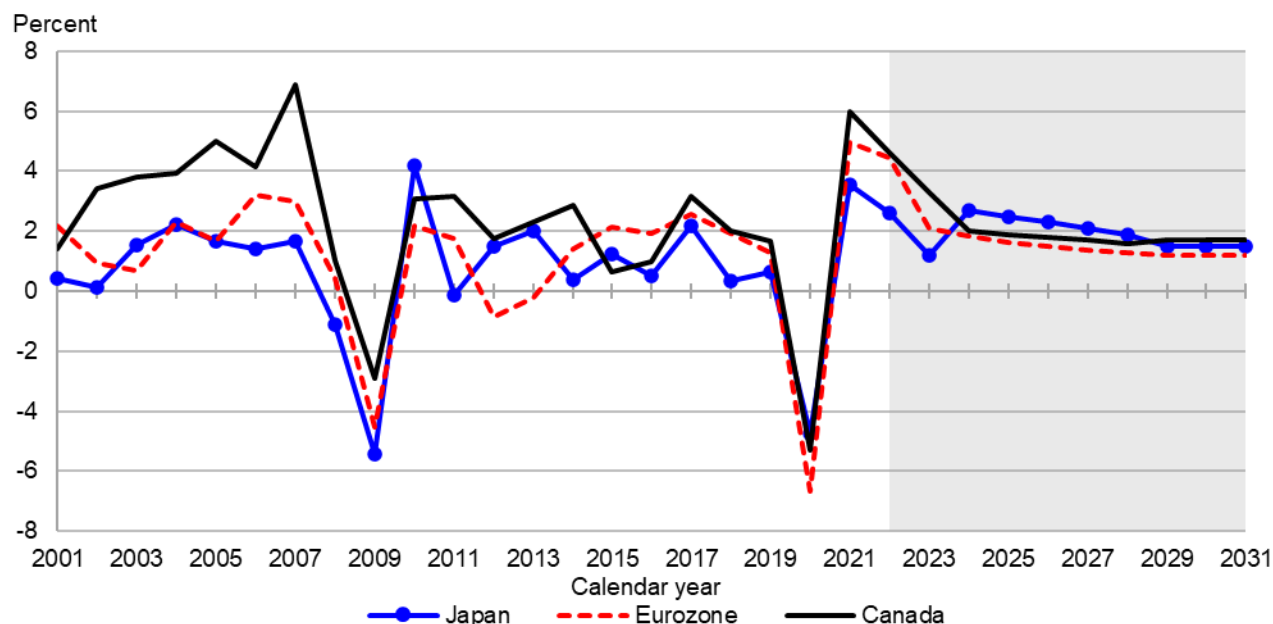
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

- As of August 2021, when the macroeconomic assumptions were completed, U.S. real GDP growth is projected to recover to 5.8 percent in 2021 (table 2), following the 3.5-percent decline in 2020. The United States is among the leading economies to recover fully and exceed pre-pandemic levels of economic recovery. The easing of the health crisis has led to sharp increase in demand for goods and services, compared with the 2020 levels.
- During the full projection period, 2022–31, the U.S. real GDP growth is projected at an average of 2.1 percent. The positive average projected for 2022–31 is largely the result of the recovery from the shock to the economy in 2020. The expected trend is for lower long-term trend growth rates in the United States compared to previous decades.

Developed Country Outlook

Developed economies, excluding the United States, are forecast to recover from the contraction in real GDP which occurred in 2020. Real GDP growth in these economies is expected to average 4.8 percent in 2021, and average 2 percent growth in 2022–31. Many of these economies continue to experience the impacts of the COVID-19 pandemic, enduring economic disruption to business activity and employment.

Figure 3. Japan, Eurozone, and Canada real gross domestic product growth, 2001–31



Note: The shaded region represents the projected period.

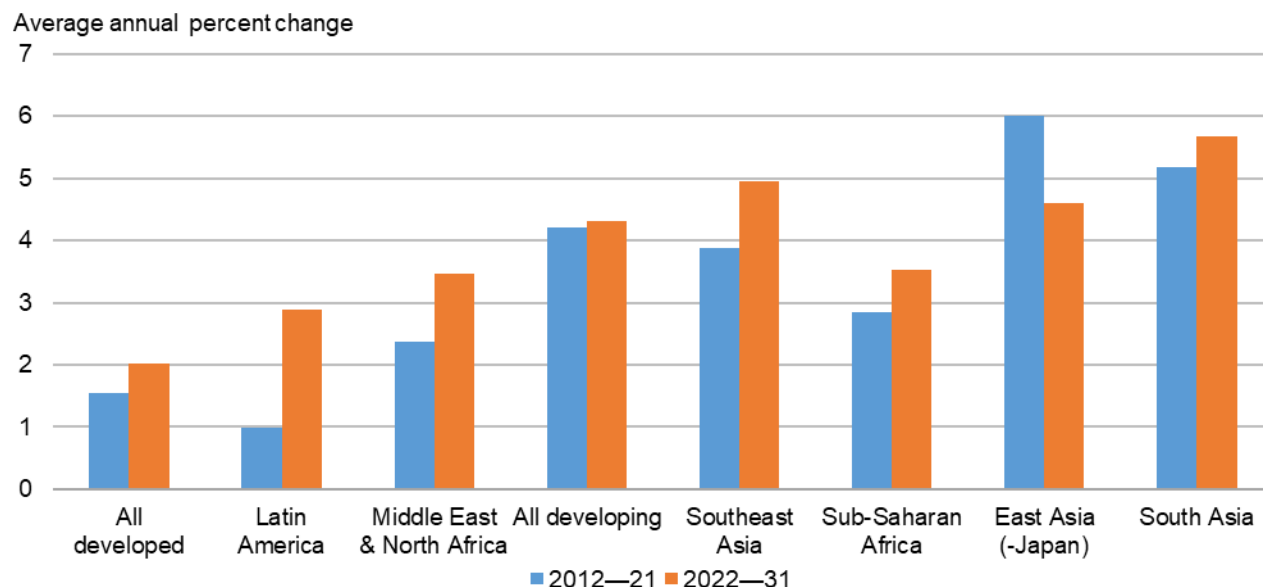
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

- The European Union (EU-27) real GDP is forecast to grow 4.4 percent in 2022, following the recovery growth rate of 4.9 in 2021, with growth averaging 1.9 percent during 2022–31. The macroeconomic assumptions in this year's Baseline reflect Brexit, separating the United Kingdom (UK) from the European Union, leaving 27 countries as member states of the European Union. The UK GDP growth rate is projected at 6.6 percent in 2021 and 5.2 percent in 2022. The UK average growth rate for the next decade is projected at nearly 2 percent, higher than the EU-27. In the short term, rising virus numbers caused containment measures to be reimposed in several EU member countries, but because of vaccinations they are not as stringent as during 2020.
- Japan's economy is expected to grow at 2.6 percent in 2022, with a 3.6 percent recovery in 2021. During 2022–31, growth is projected to average 2 percent, continuing an established downward growth-rate trend associated with an aging and a declining labor force.
- The Canadian economy, linked closely to the United States and energy prices, is forecast to grow by 4.6 percent in 2022, following 6-percent growth in 2021, and is projected to average 2.2 percent growth over 2022–31.

Developing Country Outlook

Developing country economies in all regions were affected by the COVID-19. Because of the evolving pandemic situation, there is substantial uncertainty about how overall economic effects will unfold across the developing countries. Developing economies are also experiencing a faster recovery than developed economies, and higher long-term growth of GDP. As of August 2021, the developing countries real GDP growth in 2021 is 6.4 percent, a rapid recovery from a 1.8 percent drop in 2020.

Figure 4. Real gross domestic product growth by region, 2012–31



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.

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 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 2022–31.

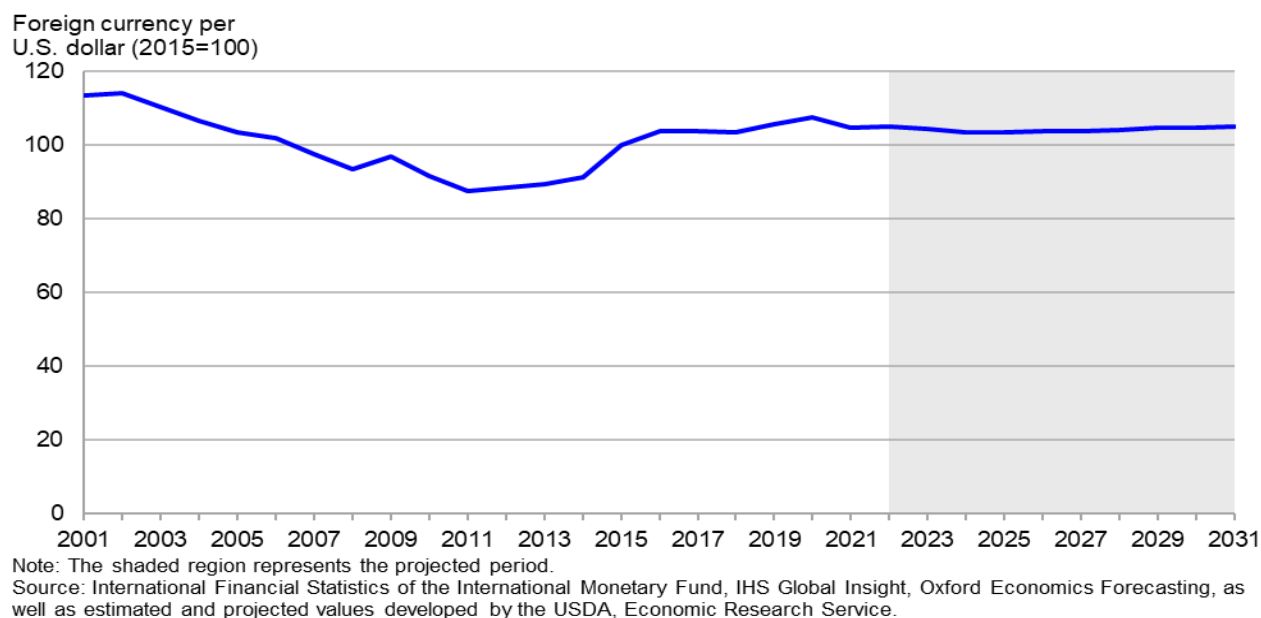
- During 2021, developing countries are projected to average a 6.4-percent growth in real GDP, recovering quickly to the pre-pandemic level.
- In 2022, all developing countries' real GDP are projected to grow and restore economic output to pre-pandemic levels. The largest growth rates in 2022 are expected to be observed by China, India, and Southeast Asian countries.
- In the longer term, during 2022–31, developing regions are projected to reestablish growth rates that continue their pre-pandemic pattern. Growth in developing countries is projected to average 4.3 percent annually during 2022–31. Despite continuous growth, China's economy is expected to slow, below 5 percent, towards the end of the decade, while other major Asia economies like India, Indonesia, Philippines, and Vietnam, will average higher rates of up to 6 percent during 2022–31.
- China's economy is forecast to grow 8.5 percent in 2021, higher than the rest of the major economies in the world, following a positive 2.3 percent growth in 2020. The economic

expansion is projected to continue into 2022, with a real GDP growth rate of 5.8 percent. China's growth is supported by efforts to control COVID-19, fiscal spending, and strong exports. China's average longer-term growth during 2022–31 is projected at nearly 5 percent, continuing a downward trend in the annual growth-rate observed since 2010 as the economy gradually becomes more consumer-oriented and population growth continues to decline.

- Other East Asian economies, including South Korea, Japan, and Hong Kong, continue their economic recovery from COVID-19. Taiwan, like China, had economic expansion in 2020 and continues to have economic growth in 2021 and 2022 but growth rates decline beyond 2022. Over the longer term, these economies are projected to continue the pre-pandemic pattern of slowing growth rates.
- In Southeast Asia, only Burma is forecast to have a negative shock to real GDP in 2021, a 10- percent decline in real GDP. In the longer term, the region is projected to remain one of the fastest growing regions in the world with an average growth rate of 5 percent during 2022–31, a higher rate than the long-term growth rate of 4.8 percent in last year's projection.
- In South Asia, India's real GDP is forecast to grow at 7.7 percent in 2021. This sets the world's second most populous country on the path to recovery following the severe 7.4- percent decline in GDP growth a year earlier due to prolonged national lockdown aimed at controlling COVID-19. Pakistan and Bangladesh are forecast to have a more modest economic recovery spread across 2021 and 2022. During 2022–31, South Asian economies collectively are projected to average 5.7 percent real GDP growth, with India as the region's lead driver of the economic growth.
- Latin American economies have been among the most affected by the COVID-19 pandemic since 2020, leading to a projected longer period before reaching pre-pandemic growth levels. Latin American real GDP is expected to grow at high rate of 5.6 percent in 2021, but it remains insufficient to fully recover from the 6.9-percent decline in 2020. Growth is projected at 2.9 percent annually in 2022–31. The major economies of Latin America, Mexico, Argentina, Brazil, and Colombia are expected to be more significantly slowed by widespread lack of vaccinations, the costs associated with the pandemic, and social and policy uncertainties. The sluggish long-term recovery is 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, is forecast to partially recover from the pandemic shock with 3.7 percent growth in 2021 and a projected 3.2 percent in 2022. Growth is projected to average 3.5 percent per year during 2022–31. While Nigeria—the region's largest economy—recovers in 2021, South Africa—the region's second largest economy—is projected to face moderate near-term growth. An oil price recovery from the pandemic shock helps Nigeria's economic growth. The West African community outside of Nigeria has strong short-term economic growth and continues to out-perform its neighbors with an average 4.4-percent growth projected for 2022–31.
- Most of the North Africa and the Middle East region economies are projected to recover in 2021. North Africa economic growth is projected slightly higher for the next decade compared to sub-Saharan Africa. The recovery of oil prices and increases in oil exports will contribute to the region's economic growth.
- The countries of the former Soviet Union region, especially Russia and Ukraine, are expected recover to the pre-pandemic level, with average real GDP growth of 3.8 in 2021. Higher energy prices in 2021 and stronger demand are major contributors to the economic recovery of the region. The region is projected to have a 2.7 percent annual growth rate for 2022–31.

Exchange Rate Outlook

Figure 5. Agricultural trade-weighted U.S. dollar exchange rate, 2001–31



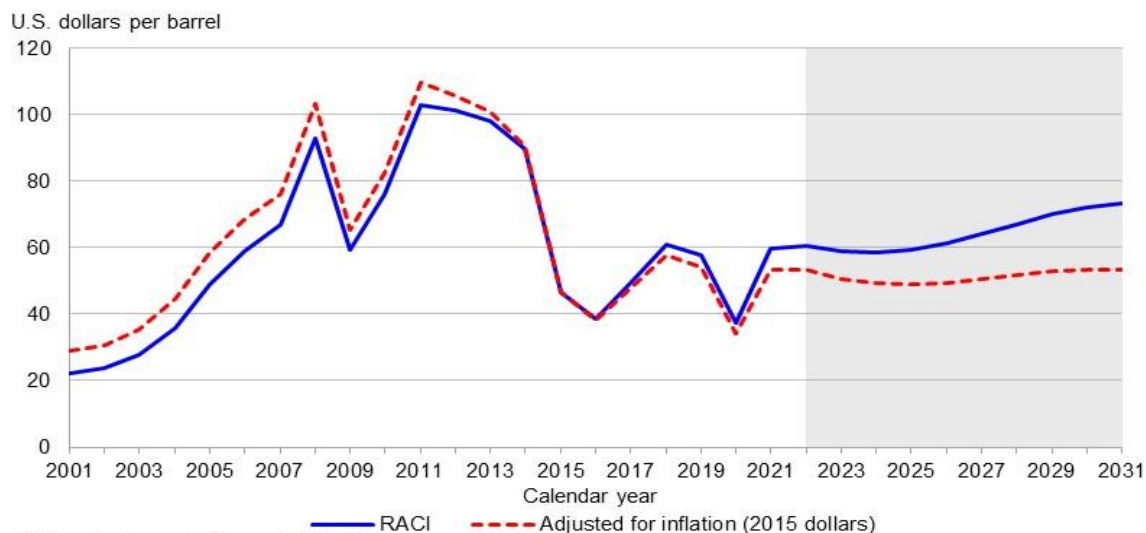
In 2021, the real (inflation-adjusted) agricultural trade-weighted exchange rate for the United States declined after reporting a stronger value in 2020. The U.S. dollar, which was on upward trend since 2010, reached its highest level in 2020 (table 3). For the projection period, the agricultural trade-weighted exchange rate of the U.S. dollar is essentially 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 2022–31 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, the U.S. dollar value is expected to have zero change against its agricultural trade partners.

- During 2021, the U.S. dollar was weaker in real terms broadly across the currencies of both developed and developing countries, including with most of the important agricultural trading partners except Latin America and the Middle East. Real U.S. dollar value decreased against bordering countries of Canada and Mexico, by more than 7 percent. The real values of Euros and the United Kingdom's Pound sterling strengthened against the U.S. dollar in 2021.
- Over the next decade, the real value of the U.S. dollar remains stable or declines against most of U.S. major trading partners in North America, Europe, South America, Southeast Asia, the Middle East, and North Africa. In a few other countries, the dollar is projected to gradually appreciate. These include the Chinese Yuan renminbi, the New Taiwan dollar, the Brazilian real, and the Argentine peso.

Oil Price Outlook

Figure 6. Crude oil price: refiner's acquisition cost of imports, 2001–31



RACI = refiner's acquisition cost of imports.

Note: The shaded region represents the projected period.

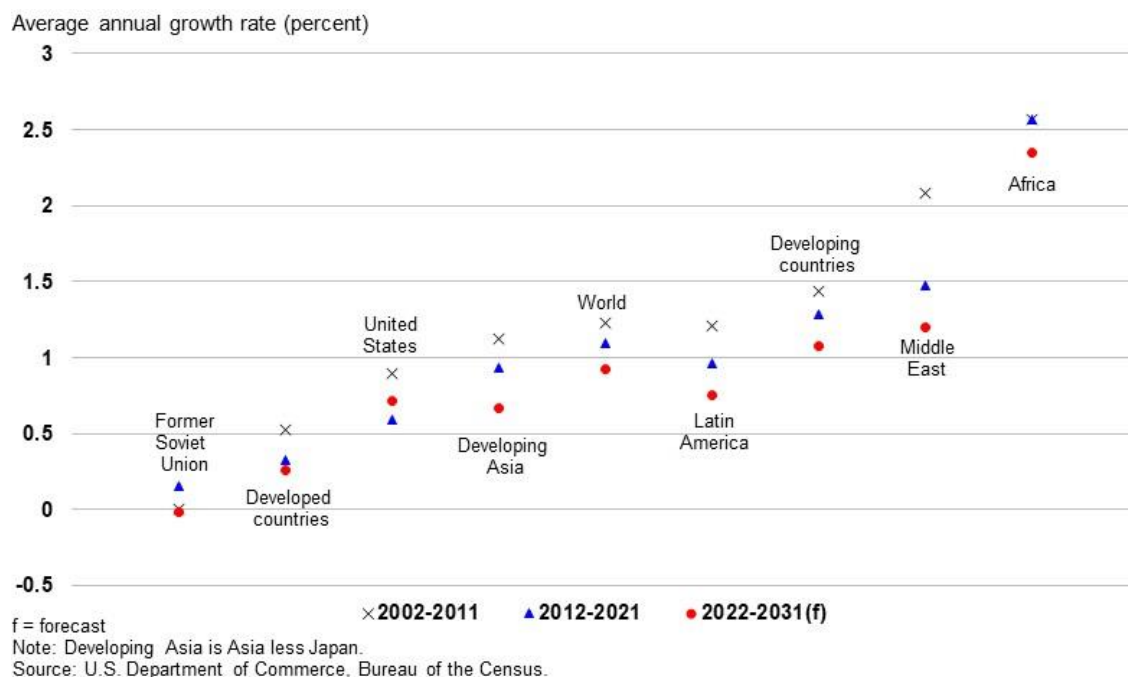
Source: International Financial Statistics of the International Monetary Fund, IHS Global Insight, Oxford Economics Forecasting, as well as estimated and projected values developed by the USDA, Economic Research Service.

Despite a significant market decline in 2020, the global oil market adjusted swiftly to shifting demand and supply conditions. As of August 2021, the projected price of crude oil in 2021 increased substantially from 2020 values. In the longer term, while crude oil demand is projected to slow, nominal oil prices are expected to rise during 2022–31 because of supply management measures by Organization of Petroleum Exporting Countries (OPEC) and Russia (table 2).

In the longer term, nominal crude oil prices are projected to rise from under \$60 per barrel in 2021 to more than \$73 per barrel in 2031, with projected prices averaging above the projections from last year. The increases in oil prices led to increases in production costs for agricultural producers in the United States and other countries.

Population Outlook

Figure 7. World population growth rates, 2001–31



World population growth is projected to continue to slow during 2022–31, with annual growth projected at 0.9 percent per year compared with 1.1 percent over the prior decade (table 4).

Developed countries have a relatively low projected population growth rates, averaging 0.3 percent per year over the coming decade. U.S. population growth is projected to remain faster than other developed countries, growing 0.7 percent per year on average. Almost no population growth is expected for the European Union, while “other Europe” (which includes the UK), averages 0.4 percent annual growth. Japan’s population is projected to continue to decline.

Population growth rates in developing countries are higher than in developed countries but are also projected to slow during 2022–31. 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 1.1 percent during 2022–31.

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 2022–31, while lower income regions, including Southeast Asia (0.8 percent), South Asia (1 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 2022–31. In all cases, developing region population growth is projected to slow compared with previous decades.

Average annual population growth in the former Soviet Union region is expected to decline to zero during the 2022–31 projection period. Key factors for declining growth include continued emigration, low birth rates, and relatively high mortality rates.

Table 1. Global real Gross Domestic Product (GDP) shares and GDP growth assumptions to 2031

Region/country	GDP	GDP share	Per capita								Average		
	2021	2019-21	GDP, 2021	2021	2022	2023	2024	2025	2026	2002-11	2012-21	2022-31	
	Billion 2015 dollars	Percent	2015 dollars	Annual percent change in real GDP									
World	85,554	100.0	11,159	5.7	4.3	3.2	3.1	3.0	2.9	3.2	2.6	3.1	
U.S. and Canada	22,075	25.8	59,920	5.8	3.6	2.3	1.9	1.8	1.8	1.9	2.1	2.1	
Canada	1,688	2.0	44,439	6.0	4.6	3.3	2.0	1.9	1.8	3.1	1.6	2.2	
United States	20,387	23.8	61,699	5.8	3.5	2.2	1.9	1.8	1.8	1.8	2.1	2.1	
Latin America	5,199	6.2	8,374	5.6	3.3	2.7	2.7	2.8	2.8	3.6	1.0	2.9	
Mexico	1,218	1.4	9,354	6.1	2.9	2.2	2.2	2.2	2.2	1.9	1.6	2.3	
Caribbean and Central America	585	0.7	6,476	4.2	4.2	3.3	3.3	3.2	3.2	3.1	1.5	3.2	
South America	3,397	4.0	8,484	5.6	3.3	2.8	2.8	2.9	3.0	4.3	0.7	3.1	
Argentina	535	0.6	11,668	4.1	3.5	3.4	3.2	3.1	3.0	4.7	-0.8	2.9	
Brazil	1,822	2.1	8,547	5.3	3.0	2.0	2.2	2.4	2.6	4.0	0.3	2.7	
Other South America	1,039	1.2	7,354	7.1	3.8	3.7	3.7	3.8	3.6	4.8	2.4	3.6	
Europe	18,768	22.3	34,245	5.1	4.5	2.1	1.9	1.8	1.6	1.4	1.1	1.9	
European Union 27	14,498	17.2	32,100	4.9	4.4	2.2	1.9	1.7	1.6	1.4	1.0	1.9	
Other Europe 1/	4,271	5.1	44,295	5.8	4.6	1.9	1.9	1.8	1.7	1.6	1.3	2.0	
Former Soviet Union (FSU)	2,097	2.5	7,308	3.8	3.2	2.9	2.9	2.8	2.7	5.4	1.6	2.7	
Russia	1,457	1.7	10,304	3.8	2.8	2.5	2.5	2.4	2.3	4.8	1.1	2.3	
Ukraine	102	0.1	2,327	4.2	4.1	3.6	3.6	3.5	3.4	4.2	-0.5	3.4	
Other FSU-10 2/	538	0.6	5,286	3.5	4.0	3.9	3.8	3.7	3.6	8.1	3.4	3.6	
Asia and Oceania	31,828	36.7	7,462	6.4	4.9	4.5	4.6	4.5	4.3	5.7	4.5	4.3	
East Asia	23,092	26.4	14,350	7.1	4.9	4.3	4.5	4.4	4.2	5.8	4.7	4.1	
China	15,894	17.9	11,370	8.5	5.8	5.4	5.3	5.2	5.0	10.7	6.8	5.0	
Hong Kong	334	0.4	45,994	6.8	3.3	3.0	2.7	2.5	2.3	4.6	1.8	2.2	
Japan	4,490	5.3	35,944	3.6	2.6	1.2	2.7	2.5	2.3	0.6	0.8	2.0	
Korea	1,678	2.0	32,446	3.8	2.9	2.6	2.4	2.3	2.0	4.6	2.5	2.1	
Taiwan	650	0.7	27,605	5.9	3.1	2.5	2.4	2.3	2.2	4.8	3.1	2.3	
Southeast Asia	2,970	3.5	4,421	2.8	5.6	5.6	5.4	5.2	5.0	5.5	3.9	5.0	
Cambodia	23	0.0	1,360	3.2	5.6	6.4	6.3	6.3	6.2	7.9	5.6	6.1	
Indonesia	1,050	1.2	3,889	2.2	5.6	6.3	6.1	5.9	5.7	5.5	4.2	5.5	
Malaysia	349	0.4	10,657	1.9	6.3	6.2	5.9	5.6	5.3	5.1	3.7	5.2	
Burma	78	0.1	1,366	-10.0	1.2	4.6	4.6	4.6	4.6	11.4	4.6	4.3	
Philippines	380	0.5	3,428	5.9	7.7	5.6	5.4	5.2	5.0	4.9	4.9	5.2	
Thailand	439	0.5	6,332	1.6	3.9	3.9	3.8	3.6	3.4	4.4	2.3	3.4	
Vietnam	271	0.3	2,697	4.9	7.5	7.3	6.9	6.7	6.7	6.6	5.8	6.7	
South Asia	3,451	4.0	1,882	6.3	5.9	5.3	5.4	5.5	5.6	6.4	5.2	5.7	
Bangladesh	273	0.3	1,663	2.0	4.1	6.3	6.1	6.0	5.9	5.7	6.0	5.6	
India	2,709	3.2	2,023	7.7	6.6	5.5	5.6	5.7	5.8	6.8	5.4	5.9	
Pakistan	327	0.4	1,373	1.0	2.5	4.1	4.2	4.3	4.4	4.2	3.7	4.3	
Oceania	1,748	2.1	42,817	3.5	2.1	2.8	2.8	2.7	2.6	3.0	2.3	2.5	
Australia	1,506	1.8	58,349	3.4	2.2	2.9	2.8	2.7	2.6	3.1	2.2	2.5	
New Zealand	206	0.2	41,291	3.7	1.5	2.4	2.4	2.3	2.2	2.5	2.7	2.1	
Middle East	3,536	4.2	10,422	3.8	5.0	4.4	4.1	3.8	3.5	5.0	2.0	3.5	
Iran	396	0.5	4,616	5.2	8.2	9.3	7.0	5.4	4.1	4.6	0.1	4.5	
Iraq	188	0.2	4,733	7.6	6.1	3.8	3.6	3.4	3.2	5.6	3.3	3.4	
Saudi Arabia	669	0.8	19,245	2.9	5.4	4.2	4.1	3.9	3.7	4.6	1.8	3.8	
Turkey	1,065	1.2	12,900	6.0	4.2	3.5	3.3	3.2	3.1	5.9	4.6	3.1	
Other Middle East	1,218	1.5	12,632	3.5	4.3	3.8	3.4	3.0	2.9	5.1	1.5	3.0	
Africa	2,618	3.1	1,942	4.2	3.4	3.7	3.7	3.6	3.6	5.1	2.9	3.6	
North Africa	783	0.9	3,825	5.6	3.8	4.2	4.1	4.0	3.9	3.9	2.9	3.8	
Egypt	429	0.5	4,029	2.9	4.7	5.8	5.5	5.2	4.9	4.7	3.8	4.7	
Morocco	108	0.1	3,016	3.6	3.4	3.6	3.6	3.5	3.4	4.8	2.2	3.4	
Sub-Saharan Africa	1,835	2.2	1,605	3.7	3.2	3.4	3.5	3.5	3.5	5.6	2.9	3.5	
South Africa, Republic	318	0.4	5,571	4.6	2.1	1.9	2.0	2.1	2.2	3.5	0.8	2.2	
Nigeria	519	0.6	2,366	3.6	1.5	1.8	2.0	2.2	2.4	7.9	2.5	2.4	
Other West African Community	244	0.3	1,275	4.6	5.2	5.6	5.0	4.5	4.3	3.9	5.4	4.4	
Other Sub-Saharan Africa	754	0.9	1,116	3.1	4.4	4.5	4.5	4.5	4.5	5.9	3.4	4.4	

1/ Other Europe now includes Great Britain. 2/ Includes: 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 the U.S. Department of Agriculture, Economic Research Service. Projections completed in August 2021.

Table 2. U.S. macroeconomic assumptions, 2020-31

Item	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Gross Domestic Product (GDP)												
Nominal billion dollars	20,933	22,974	24,638	25,564	26,405	27,310	28,291	29,374	30,471	31,587	32,746	33,723
Real 2015 chain-weighted dollars	19,269	20,387	21,100	21,564	21,974	22,370	22,772	23,182	23,623	24,072	24,553	25,044
Percent change	-3.5	5.8	3.5	2.2	1.9	1.8	1.8	1.8	1.9	1.9	2.0	2.0
Disposable personal income												
Nominal billion dollars	17,432	18,423	18,668	19,415	20,113	20,808	21,533	22,306	23,115	23,959	24,839	25,778
Percent change	7.5	5.7	1.3	4.0	3.6	3.5	3.5	3.6	3.6	3.7	3.7	3.8
Nominal per capita, dollars	52,869	55,714	56,044	57,863	59,514	61,129	62,813	64,609	66,483	68,432	70,458	72,620
Percent change	7.1	5.4	0.6	3.2	2.9	2.7	2.8	2.9	2.9	2.9	3.0	3.1
Real 2015 chain-weighted dollars	16,054	16,496	16,364	16,653	16,885	17,102	17,329	17,573	17,830	18,101	18,384	18,694
Percent change	6.2	2.8	-0.8	1.8	1.4	1.3	1.3	1.4	1.5	1.5	1.6	1.7
Real per capita, 2015 chained dollars	48,689	49,887	49,128	49,633	49,962	50,243	50,548	50,901	51,282	51,700	52,148	52,664
Percent change	5.9	2.5	-1.5	1.0	0.7	0.6	0.6	0.7	0.7	0.8	0.9	1.0
Personal consumption expenditures												
Real 2015 chain-weighted dollars	13,027	13,984	14,548	14,887	15,107	15,325	15,564	15,839	16,129	16,417	16,707	17,032
Percent change	-3.9	7.4	4.0	2.3	1.5	1.4	1.6	1.8	1.8	1.8	1.8	1.9
Inflation measures												
GDP chained price index, 2015=100	108.6	111.7	114.1	116.6	119.1	121.7	124.3	126.9	129.6	132.4	135.1	137.9
Percent change	1.2	2.9	2.1	2.2	2.2	2.1	2.1	2.1	2.1	2.1	2.1	2.1
CPI-U, 1982-84=100	258.8	267.3	273.9	280.2	286.8	293.7	300.9	308.3	315.8	323.3	330.9	338.6
Percent change	1.2	3.3	2.5	2.3	2.4	2.4	2.4	2.5	2.4	2.4	2.3	2.3
PPI, finished goods 1982=100	203.0	217.0	221.9	225.6	230.2	234.9	239.7	244.5	249.5	254.6	259.7	265.0
Percent change	-1.3	6.9	2.2	1.7	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
PPI, crude goods 1982=100	167.6	227.2	212.7	211.5	212.1	214.5	219.1	224.4	229.8	235.1	239.2	242.5
Percent change	-9.8	35.6	-6.4	-0.6	0.3	1.1	2.1	2.4	2.4	2.3	1.8	1.4
Crude oil price, dollar per barrel												
EIA Refiner acquisition cost, imports	37.3	59.7	60.6	59.0	58.6	59.3	61.5	64.2	67.0	69.9	71.9	73.4
Percent change	-35.6	60.0	1.6	-2.7	-0.7	1.3	3.6	4.4	4.4	4.3	3.0	2.0
Real 2015 chain-weighted dollars	34.3	53.4	53.2	50.6	49.2	48.8	49.5	50.6	51.7	52.8	53.2	53.2
Percent change	-36.3	55.6	-0.5	-4.8	-2.8	-0.9	1.4	2.2	2.2	2.1	0.9	0.0
Labor compensation per hour nonfarm business, 2015=100												
Percent change	116.3	121.5	123.7	127.0	131.4	136.1	140.9	145.9	151.0	156.3	161.8	167.4
Percent change	3.8	4.5	1.8	2.7	3.5	3.6	3.5	3.5	3.5	3.5	3.5	3.5
Interest rates, percent												
3-month Treasury bills	0.36	0.05	0.07	0.18	0.51	0.95	1.28	1.55	1.83	2.11	2.31	2.42
Bank prime rate	3.54	3.25	3.25	3.45	3.76	4.13	4.46	4.88	5.13	5.13	5.13	5.13
10-year Treasury bonds	0.89	1.61	1.90	2.03	2.29	2.57	2.79	2.98	3.16	3.00	3.39	3.48
Labor and population												
Civilian unemployment rate, percent	8.1	5.5	3.8	3.7	4.0	4.2	4.3	4.3	4.3	4.4	4.5	4.5
Civilian nonfarm employees, millions	142.3	146.5	153.2	155.4	155.5	155.5	155.8	156.5	157.0	157.4	157.8	158.4
Percent change	-5.7	3.0	4.6	1.4	0.1	0.1	0.2	0.4	0.4	0.3	0.2	0.4
Total population, millions												
Percent change	329.7	330.7	333.1	335.5	338.0	340.4	342.8	345.2	347.7	350.1	352.5	355.0
Percent change	0.4	0.3	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

PPI = Producer Price Index.

Notes: Domestic macroeconomic assumptions were completed in August 2021. CPI-U is the consumer price index for all urban consumers. EIA is the Energy Information Administration, U.S. Department of Energy. Sources: 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 the Economic Research Service.

Table 3. Real exchange rate growth rates assumptions to 2031

Region/country	Local currency per							Average		
	U.S. dollar, 2021									
	Index value, 2015 base 1/	2020	2021	2022	2023	2024	2025	2002-11	2012-21	2022-31
Percent change in real exchange rate										
Total all countries	104.69	1.8	-2.6	0.3	-0.7	-0.8	0.0	-2.5	1.9	0.0
Canada	1.26	1.6	-7.1	-1.2	-1.3	0.1	1.4	-3.9	2.5	0.3
Latin America	128.59	8.1	9.5	0.6	-0.5	-2.0	0.6	-0.9	4.0	0.0
Mexico	17.78	9.3	-7.2	1.7	0.0	-3.3	1.4	1.1	3.0	0.2
Caribbean and Central America	179.54	0.8	68.9	0.1	0.0	0.0	-0.1	-2.0	7.4	0.1
South America	120.21	12.2	0.2	-1.5	-2.8	-1.5	-0.7	-4.0	4.5	-0.7
Argentina	15.83	6.1	1.9	-3.1	-4.4	-9.2	-11.0	12.3	9.5	-4.7
Brazil	4.49	28.2	-0.3	-1.8	-7.5	-2.2	0.5	-6.7	8.8	-0.8
Other South America	114.76	8.4	0.4	-1.3	-1.4	-1.0	-0.6	-3.5	3.4	-0.5
Europe	100.01	-0.7	-4.5	0.0	-0.4	-0.4	-0.5	-3.3	2.1	0.0
European Union 27	99.88	-0.7	-4.5	0.0	-0.4	-0.4	-0.5	-3.2	1.8	0.0
Other Europe 2/	110.13	-0.2	-6.1	-0.4	-0.3	-0.5	-0.5	-1.4	1.7	0.0
Former Soviet Union (FSU) 3/	106.61	7.0	-0.4	-6.2	-4.3	-3.1	-1.9	-15.8	5.3	-2.2
Russia	63.37	9.3	-0.9	-7.7	-4.7	-3.0	-1.3	-7.6	5.7	-2.0
Ukraine	17.72	2.8	-3.5	-7.2	-5.9	-5.4	-5.4	-3.2	4.2	-5.5
Other FSU-10	128.31	3.3	2.0	-2.5	-2.6	-2.4	-2.2	-15.0	5.2	-1.7
Asia and Oceania	102.34	-0.6	-1.4	0.8	-0.5	-0.4	-0.5	-2.6	0.9	0.1
East Asia	102.14	-0.7	-1.4	0.6	-0.8	-0.7	-0.4	-1.9	0.8	0.2
China	6.45	-1.3	-4.5	-1.0	-1.2	-1.0	-0.9	-2.6	-0.3	0.3
Hong Kong	7.87	0.0	2.0	0.8	0.0	-0.1	0.0	1.3	-0.9	0.4
Japan	121.01	-0.8	5.6	1.6	-2.2	-1.0	-0.1	-1.4	4.7	-0.4
Korea	1,188.55	2.0	-2.8	4.5	2.0	0.7	0.4	-1.9	0.8	1.0
Taiwan	30.10	-2.9	-3.4	0.2	0.5	-0.9	-1.1	0.0	0.4	-0.3
Southeast Asia	102.42	-0.2	0.0	0.7	0.0	-0.1	-0.7	-4.1	1.0	-0.5
Cambodia	3,957.08	-0.8	0.3	-0.6	-0.9	-1.0	-1.1	-2.9	-0.8	-0.8
Indonesia	13,788.76	2.4	0.9	0.8	1.1	1.1	-2.0	-6.3	2.9	-1.7
Malaysia	4.26	3.9	-1.3	1.6	-1.5	-0.6	-0.4	-2.0	3.1	-0.3
Myanmar	1,202.73	-13.1	9.9	2.0	1.0	0.6	0.5	-10.9	4.6	0.7
Philippines	45.98	-5.5	-2.2	-0.2	-0.8	-1.4	-1.5	-3.5	0.2	-1.0
Thailand	34.14	2.9	1.7	1.3	0.3	0.5	0.6	-4.0	1.1	0.5
Vietnam	21,959.93	-1.1	1.1	-0.2	-0.4	-0.4	-0.4	-3.2	-0.7	-0.3
South Asia	102.92	-0.8	-2.2	1.1	-0.3	-0.8	-1.6	-3.6	0.3	-1.1
Bangladesh	69.16	-3.7	-2.0	-1.1	2.4	5.6	1.1	-1.7	-2.7	1.0
India	63.88	-0.1	-1.6	0.1	-1.6	-2.6	-2.5	-4.1	0.6	-2.3
Pakistan	120.37	-0.2	-6.4	4.4	0.1	-1.9	-2.1	-3.4	1.4	-0.3
Oceania	102.02	1.3	-7.3	3.7	2.7	3.3	0.9	-6.6	2.9	0.9
Australia	1.36	1.5	-7.9	3.6	3.3	3.4	0.1	-6.8	3.3	0.7
New Zealand	1.46	0.5	-6.0	4.7	0.7	3.1	4.0	-6.0	1.8	1.9
Middle East	126.24	8.1	3.6	3.7	1.0	0.2	-0.8	-4.2	2.8	0.1
Iran	73,842.30	291.2	-20.3	-24.0	-3.7	-0.9	-5.2	18.4	28.1	-5.8
Iraq	1,535.99	1.4	19.9	-0.4	0.1	2.2	1.2	-16.3	2.3	0.1
Saudi Arabia	3.92	-2.1	0.4	1.4	0.6	0.6	0.6	-0.9	0.0	0.8
Turkey	4.54	11.5	6.8	8.6	1.6	-0.4	-2.4	-5.9	7.7	-0.2
Other Middle East	107.37	2.7	3.8	2.7	1.0	0.5	0.2	-2.4	0.6	0.5
Africa	109.12	-2.1	-1.3	-1.3	-1.9	-1.3	-0.9	20.4	1.4	-0.7
North Africa	109.37	-6.4	-0.8	0.4	-1.4	-0.8	-0.4	-1.5	1.7	-0.4
Egypt	8.77	-9.1	-1.8	-2.0	-2.8	-1.5	-0.6	-1.6	1.8	-1.2
Morocco	9.61	-0.4	-2.7	3.5	0.9	0.8	0.4	-2.6	1.9	1.0
Sub-Saharan Africa	108.85	2.9	-1.9	-3.1	-2.5	-1.9	-1.4	20.8	1.3	-1.1
South Africa, Republic	12.51	11.7	-12.3	1.0	1.8	-0.2	-0.5	-3.4	4.3	0.9
Nigeria	202.77	3.8	-0.7	-5.7	-7.3	-6.5	-4.6	-5.5	0.0	-3.5
Other West African Community	95.11	-3.0	-2.3	-0.7	-0.5	-0.5	-0.5	-3.0	2.5	-0.4
Other Sub-Saharan Africa	119.69	1.3	1.4	-3.3	-0.8	0.5	0.1	21.2	1.6	-0.2

1/ index values are for regional aggregates only. 2/ Other Europe now includes Great Britain. 3/ Includes: 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 the Economic Research Service. Projections completed August 2021.

Table 4. Population growth assumptions to 2031

Region/country	Population							Average		
	in 2021	2020	2021	2022	2023	2024	2025	2002-11	2012-21	2022-31
	Millions	Percent change in population								
World 1/	7,667	1.0	1.0	1.0	1.0	1.0	0.9	1.2	1.1	0.9
U.S. and Canada	368	0.4	0.3	0.7	0.7	0.7	0.7	0.9	0.6	0.7
Canada	38	0.8	0.8	0.8	0.7	0.7	0.7	1.0	0.9	0.7
United States	330	0.4	0.3	0.7	0.7	0.7	0.7	0.9	0.6	0.7
Latin America	621	0.9	0.9	0.8	0.8	0.8	0.8	1.2	1.0	0.7
Mexico	130	1.1	1.1	1.0	1.0	1.0	1.0	1.4	1.2	0.9
Caribbean and Central America	90	0.9	0.9	0.8	0.8	0.8	0.8	1.2	1.0	0.8
South America	400	0.8	0.8	0.8	0.8	0.7	0.7	1.2	0.9	0.7
Argentina	46	0.9	0.8	0.8	0.8	0.8	0.8	1.0	0.9	0.8
Brazil	213	0.7	0.7	0.6	0.6	0.6	0.6	1.1	0.8	0.6
Other South America	141	1.0	1.0	1.0	0.9	0.9	0.9	1.3	1.1	0.9
Europe	548	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.2	0.0
European Union 27	452	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.0
Other Europe 2/	96	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.4
Former Soviet Union (FSU)	287	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Russia	141	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.3	-0.1	-0.3
Ukraine	44	-0.1	-0.4	-0.5	-0.5	-0.5	-0.5	-0.6	-0.4	-0.5
Other FSU-10 3/	102	0.7	0.7	0.6	0.6	0.6	0.6	0.8	0.8	0.5
Asia and Oceania	4,265	0.8	0.8	0.8	0.7	0.7	0.7	1.1	0.9	0.6
East Asia	1,609	0.3	0.2	0.2	0.2	0.1	0.1	0.5	0.4	0.0
China	1,398	0.3	0.3	0.2	0.2	0.2	0.1	0.5	0.4	0.1
Hong Kong	7	0.2	0.2	0.2	0.2	0.1	0.1	0.5	0.3	0.1
Japan	125	-0.3	-0.4	-0.4	-0.4	-0.4	-0.4	0.0	-0.2	-0.5
Korea	52	0.3	0.3	0.3	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	0.4	0.2	0.0
Southeast Asia	672	1.0	0.9	0.9	0.9	0.9	0.8	1.3	1.0	0.8
Cambodia	17	1.4	1.4	1.3	1.3	1.2	1.2	1.6	1.6	1.2
Indonesia	270	0.9	0.8	0.8	0.8	0.7	0.7	1.3	0.9	0.7
Malaysia	33	1.1	1.1	1.1	1.0	1.0	1.0	1.9	1.3	1.0
Burma	57	0.9	0.8	0.8	0.8	0.7	0.7	1.0	0.9	0.7
Philippines	111	1.5	1.5	1.5	1.5	1.5	1.4	1.9	1.6	1.4
Thailand	69	0.3	0.3	0.2	0.2	0.2	0.1	0.6	0.3	0.1
Vietnam	101	1.1	1.0	1.0	1.0	0.9	0.9	1.2	1.1	0.8
South Asia	1,833	1.2	1.2	1.2	1.1	1.1	1.1	1.6	1.3	1.0
Bangladesh	164	1.0	1.0	0.9	0.9	0.9	0.9	1.3	1.0	0.9
India	1,339	1.1	1.1	1.0	1.0	1.0	1.0	1.5	1.2	0.9
Pakistan	238	2.1	2.0	2.0	1.9	1.9	1.9	2.3	2.1	1.8
Oceania	41	1.4	1.4	1.3	1.2	1.2	1.1	1.6	1.5	1.1
Australia	26	1.4	1.3	1.3	1.2	1.2	1.1	1.5	1.5	1.1
New Zealand	5	1.5	1.3	1.2	1.1	1.0	0.9	1.2	1.5	0.9
Middle East	339	1.3	1.4	1.5	1.5	1.3	1.2	2.1	1.5	1.2
Iran	86	1.1	1.1	1.0	1.0	0.9	0.9	1.2	1.2	0.8
Iraq	40	2.2	2.1	2.0	2.0	2.0	2.0	2.5	2.8	1.9
Saudi Arabia	35	1.6	1.6	1.6	1.7	1.6	1.6	2.8	1.9	1.5
Turkey	83	0.5	0.6	0.7	0.7	0.6	0.6	1.2	0.9	0.6
Other Middle East	96	1.7	1.9	2.3	2.4	1.9	1.4	3.5	1.5	1.6
Africa	1,348	2.5	2.5	2.5	2.4	2.4	2.4	2.6	2.6	2.3
North Africa	205	1.8	1.7	1.7	1.6	1.6	1.5	1.8	1.9	1.4
Egypt	106	2.3	2.2	2.2	2.1	2.0	2.0	2.2	2.5	1.9
Morocco	36	1.0	0.9	0.9	0.9	0.9	0.8	1.2	1.1	0.8
Sub-Saharan Africa	1,143	2.6	2.6	2.6	2.6	2.5	2.5	2.7	2.7	2.5
South Africa, Republic	57	1.0	1.0	0.9	0.9	0.9	0.9	1.2	1.0	0.9
Nigeria	219	2.6	2.6	2.6	2.6	2.6	2.6	2.8	2.6	2.5
Other West African Community	191	2.7	2.7	2.7	2.7	2.6	2.6	2.8	2.8	2.6
Other Sub-Saharan Africa	676	2.8	2.7	2.7	2.7	2.7	2.6	2.8	2.9	2.6

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

2/ Other Europe now includes Great Britain.

3/ Includes: Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Uzbekistan.

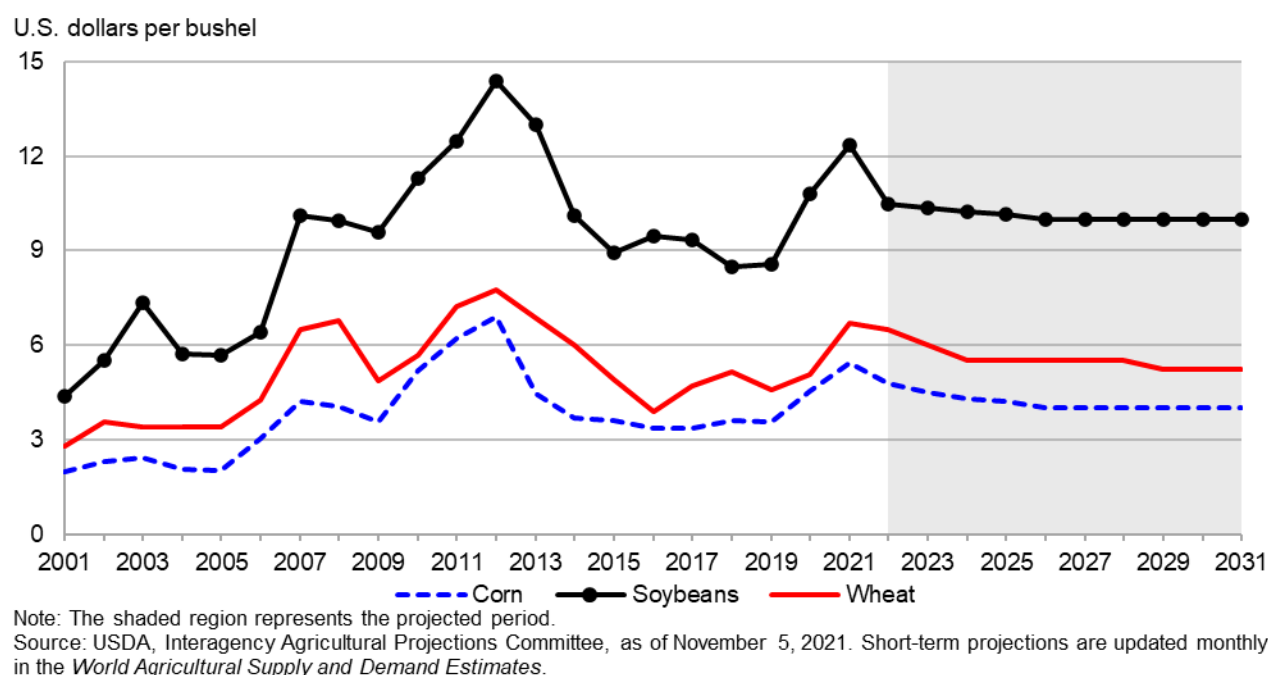
Source: U.S. Department of Commerce, Bureau of the Census. The population assumptions were completed in August 2021.

U.S. Crops, Livestock, and Farm Income Projections

U.S. Crops

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 countries such as Brazil, Argentina, the European Union, India, Russia, and Ukraine. The United States also faces 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. commodities remain generally competitive in global agricultural markets, with U.S. corn, soybean, and cotton exports projected at record highs by 2031/32. Nominal prices for corn, soybeans, wheat, and cotton are expected to decline from their recent peaks in 2021/22 (as of October 12, 2021) and stabilize at significantly lower levels by 2031/32. Of these crops, only cotton prices trend upward after the initial decline, rising each year after 2023/24. Projections starting in 2022/23, and data for 2021/22 and prior years are based on information available as of the October 2021 *World Agricultural Supply and Demand Estimates (WASDE)*.

Figure 8. U.S. corn, soybean, and wheat prices, 2001–31



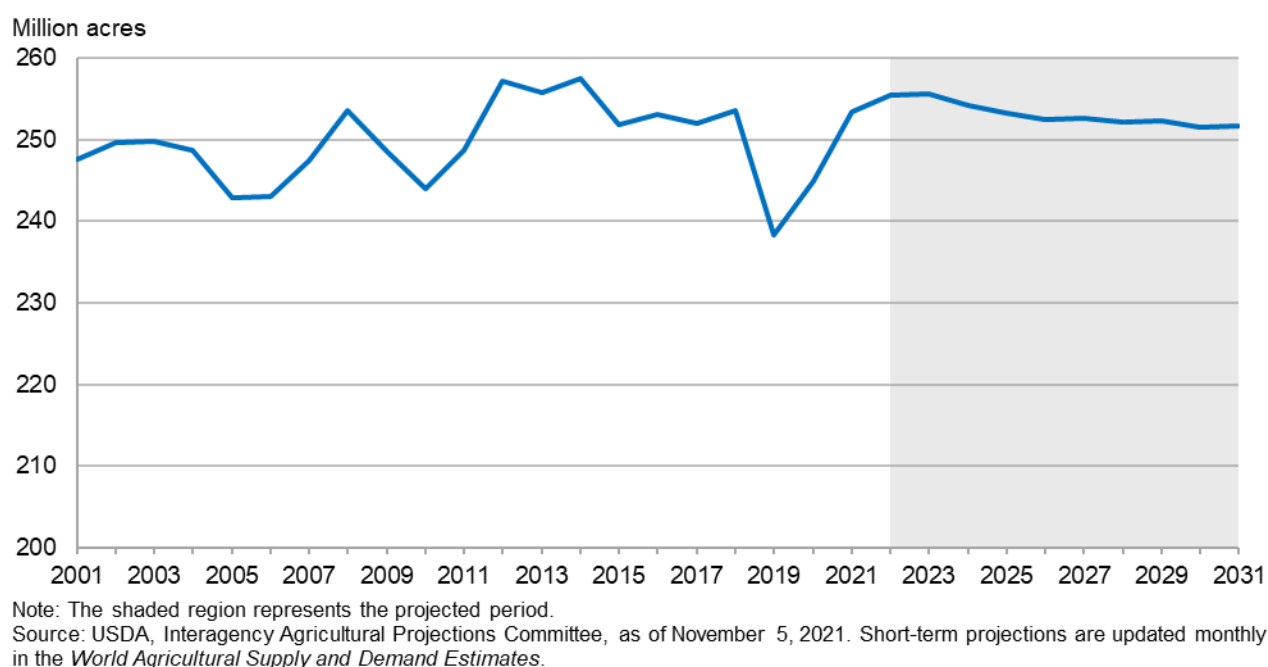
Nominal corn prices are projected to fall from \$4.80 per bushel in 2022/23 to \$4.00 by 2026/27, and then remain stable at that level through 2031/32. Growth in domestic corn use is driven exclusively by feed and residual use, driven by domestic meat production to meet both domestic and export demand for beef, pork, and poultry. The baseline projects corn use for ethanol to be somewhat lower at the end of the projections than in 2022/23.

Nominal soybean prices are projected to start at \$10.50 per bushel in 2022/23, declining significantly from 2021/22 and continuing to fall through 2026/27 before flattening at \$10.00 the

remainder of the projection. Global import demand growth, led by China, is mainly fulfilled by increased export from Brazil, and modest gains from the U.S.

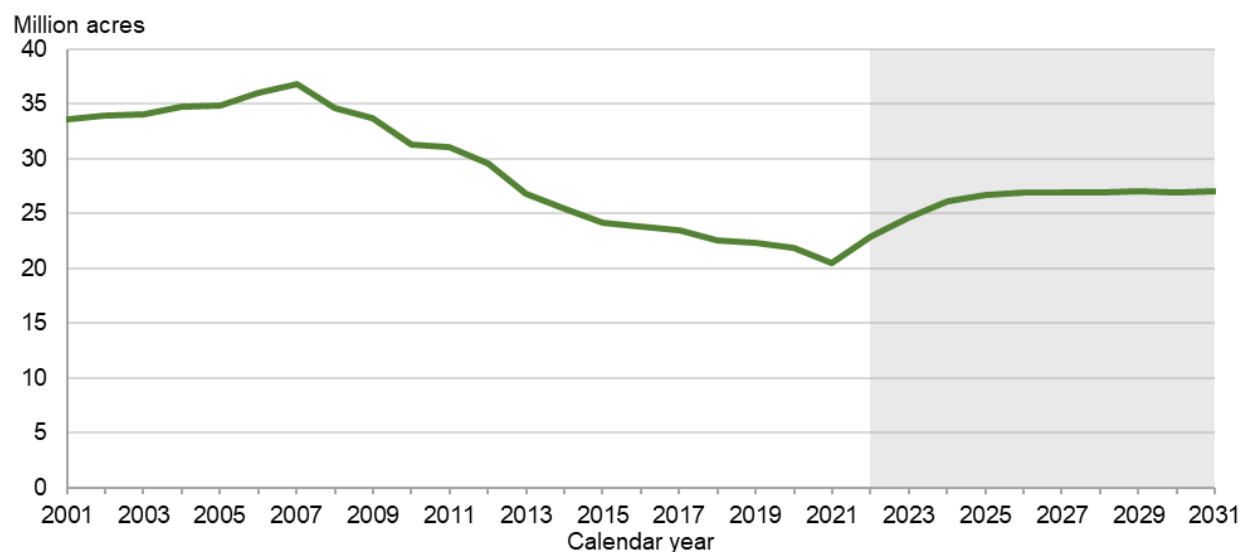
The baseline does not project demand growth—either domestic or export—to tighten the all wheat balance sheet, nor is it expected to provide significant price support. The stocks-to-use ratio generally rises throughout the projection period and prices for all wheat decline from \$6.50 per bushel in 2022/23 to the projection period low point of \$5.25 from 2029/30 through 2031/32. Rising global demand, particularly from emerging economies, supports projected growth in wheat trade, but sustained price competition from Russia, Ukraine, and the EU is projected to keep U.S. exports essentially flat, rising by only 50 million bushels from the beginning to the end of the projections.

Figure 9. Planted area for the eight major U.S. row crops, 2001–31



The baseline projects net returns per acre (returns over variable costs) to initially decline and then trend back upwards for most crops. The exceptions are soybeans and rice, which experience rising net returns over the course of the projections (although significantly down from 2021/22). Net returns for sorghum decline during the first half of the projections and then steadies the latter half. Planted acres for corn declines from 92 million in 2022/23 to 89.5 million in 2031/32; soybeans are relatively steady at between 87.5 and 88 million acres throughout the projection. Wheat acres decline from 49 million acres in 2022/23 to 46 million in 2031/32. Upland cotton is the only crop with projected acres rising steadily. Plantings of the 8 major U.S. crops are expected to range between 255.6 million and 251.7 million acres over the next decade, with the trend mostly downwards. Except for sorghum, yield growth and/or relatively steady or rising acreage lifts the production of all crops, with corn and soybean output ending the projection period at record-high levels.

Figure 10. Acreage enrolled in the USDA Conservation Reserve Program, 2001–31

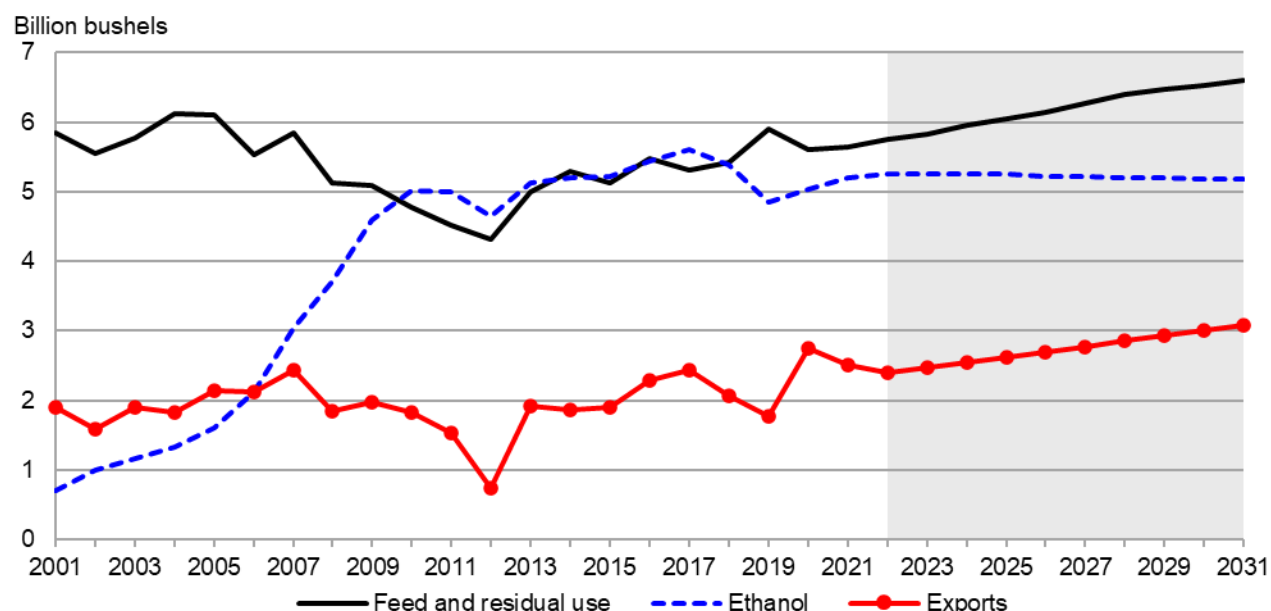


Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of September, 2021. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

Acreage enrolled in USDA's Conservation Reserve Program rises to 27 million acres during 2029/30–2031/32, up from 22.8 million acres in 2022/23 (data as of end of September 2021). Twenty-seven million acres is the maximum level legislated by the Agriculture Improvement Act of 2018, also known as the 2018 Farm Bill.

Figure 11. U.S. corn feed and residual use, ethanol, and exports, 2001–31



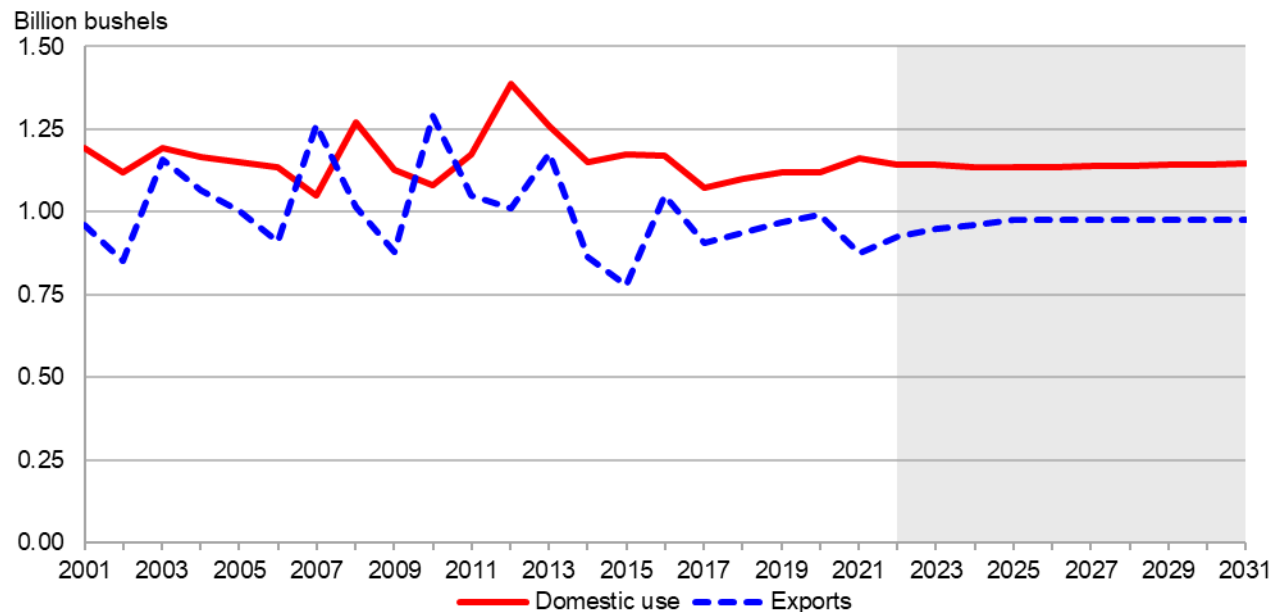
Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. 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 gradual decline in acreage. Planted area is projected to steadily decline after 2021/22'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 increases, supported by growing livestock inventories and meat production, as well as greater residual disappearance with expanding supplies. Through the baseline period, supply grows at a faster rate than use, resulting in a steadily increasing stocks-to-use ratio. Season-average nominal producer prices begin the projection period carrying a relatively elevated \$4.80 per bushel in 2022/23 before steadily declining to \$4.00 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 5.250 billion bushels to 5.175 billion by 2031/32. 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 line with population growth, although production of glucose and dextrose and starch are projected to remain flat for the next decade.
- U.S. exports are projected to reach 3.150 billion bushels by 2031/32, compared with the record-setting 2020/21 total of 2.753 billion. Strong global demand, particularly from China, is expected to support somewhat higher stocks relative to use to mitigate against global weather and production risks, as the United States competes for market share with other major exporters in South America and Eastern Europe.

Figure 12. U.S. wheat domestic use and exports, 2001–31



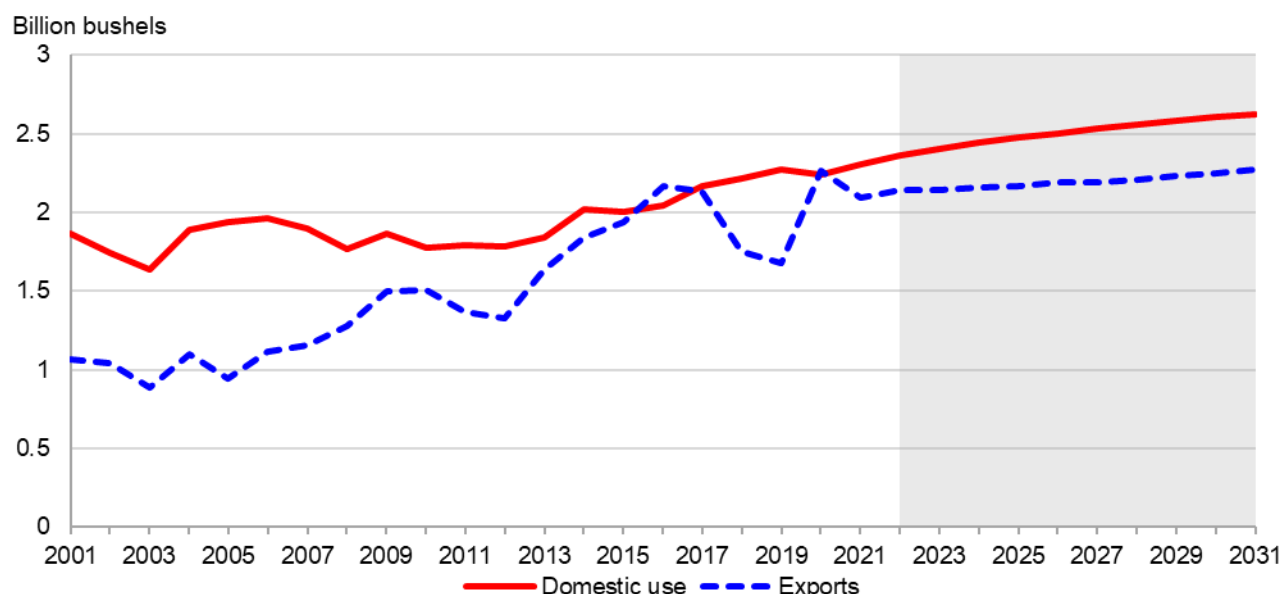
Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

U.S. plantings of wheat are projected to start at 49 million acres in 2022/23 and decline to 46 million acres by 2031/32, remaining close to the recent five-year average (2017/18-2021/22) of 46.1 million. The higher expected plantings in 2022/23 are a result of strong pricing amidst tight U.S. and global supply. However, over the rest of the projection period, prices are expected to gradually decline, and plantings are expected 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 increase slightly outpaces declining per capita consumption. On expectations of continued growth in production and exportable supplies for key global competitors, U.S. exports are projected to rise only slightly over the projection period, while gradually losing global market share. Additionally, the baseline projects the following wheat market outlook:

- 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.
- 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 essentially flat through 2031/32, consistent with relatively level production and limited demand for wheat feed use generally.
- Wheat imports, mainly from Canada, are projected to be flat throughout 2022–31.
- Rising incomes, particularly in emerging economies with rising per capita demand, support growth in global demand and a corresponding increase in global wheat trade.
- Sustained price competition from Russia, Ukraine, and the European Union tempers U.S. exports.

Figure 13. U.S. soybean domestic use and exports, 2001–31



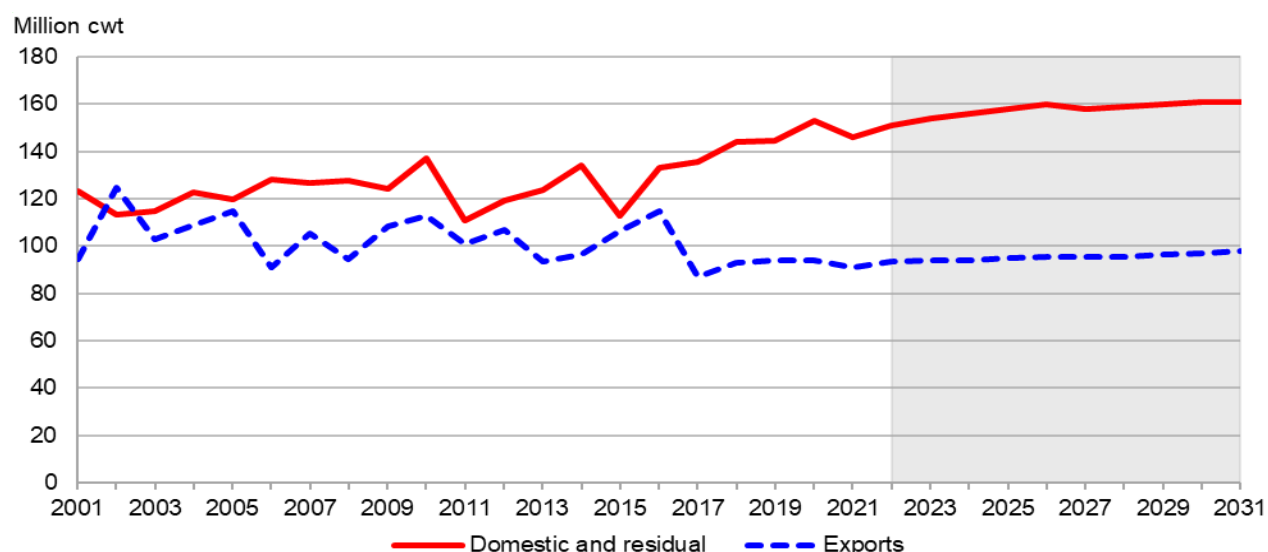
Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

U.S. soybean plantings rebounded sharply in 2021/22 from the prior two years, with the area projected to remain elevated over the course of the decade. Plantings remain near 88 million acres, supported by high prices and net returns relative to much of the last 5-7 years. In addition, the baseline projects the following outlook for the soybean market:

- U.S. soybean prices improved since 2020/21 with bigger crops as strong crush and relatively high exports keep projected ending stocks low relative to use. Nominal soybean prices start high but then gradually decline through the middle of the projection period as production gains exceed increases in use.
- Growth in domestic soybean meal and oil demand remains steady, supporting a continued increase in soybean crush over the next decade. Gains in crush reflect moderate feed prices, expanding animal products output, and growing demand for soybean oil use for biofuels.
- U.S. soybean exports grow steadily after recovering from substantial declines prior to 2020/21 as consumption rebounds, particularly in China. The U.S. share of global soybean trade drops from 33 to 27 percent between 2021/22 and 2031/32.
- 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 43 percent by 2031/32. Brazil is expected to boost its soybean meal market share to about 27 percent by 2031/32. Despite increasing meal exports, the United States loses global share, slipping from about 19 percent to 17 percent of the market by the end of the decade.
- Soybean oil use for production of biofuels increases from 8.8 billion pounds in 2020/21 to 15 billion pounds by the end of the projection period. Current policy is assumed, which is largely driven by soybean-oil based renewable diesel for the California market and substitution of renewable diesel for Fatty Acid Methyl Ester in all markets.

Figure 14. U.S. rice domestic and residual use and exports, 2001–31



cwt = hundredweight.

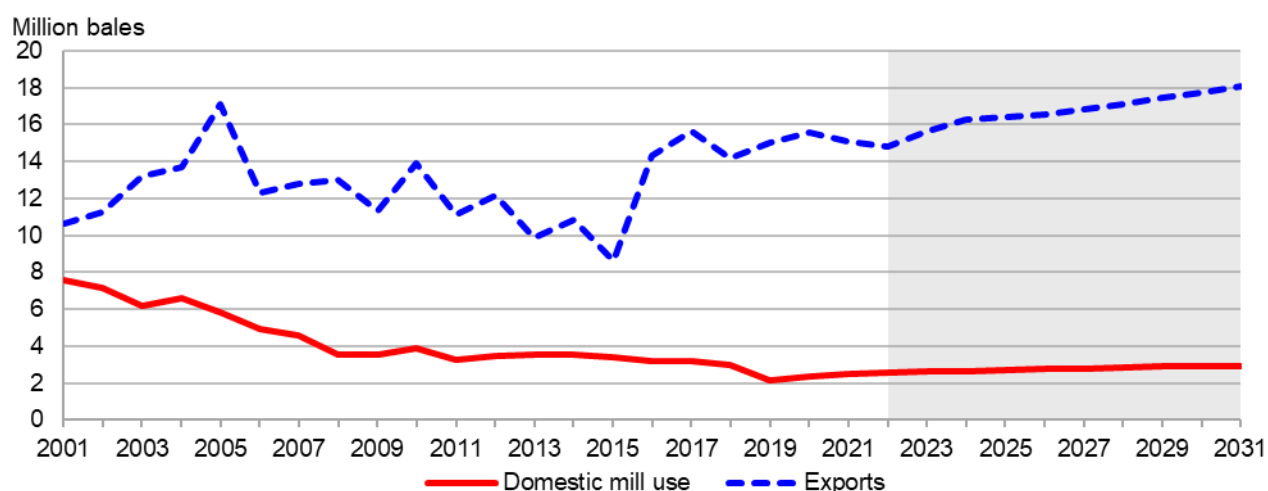
Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

After decreasing 16 percent in marketing year 2021/22, the baseline projects U.S. rice planted area to increase 10 percent in 2022/23 and remain unchanged through 2026/27 and drops 2 percent thereafter. Long grain area is expected to increase more than 6 percent in 2022/23, remain unchanged through 2026/27, and then drops 2 percent through 2031/32. Medium- and short-grain area is projected to increase 23 percent in 2022/23 following a drought in 2021/22 and remain unchanged through 2031/32. Annual yield increases push production higher each year. The Baseline also projects the following:

- Domestic and residual use remains the primary component of demand, expanding 3 percent the first year of the baseline, slowing to 1 percent growth through 2026/27 and then slowing to just 0.6 percent for 2028/29–2030/31. The growth is driven by a rising population and increasing consumer preferences for imported aromatic varieties. Demand for imports grows around 2 percent per year. Imports are mostly Asian long-grain aromatic varieties from Thailand, India, Pakistan, and Vietnam.
- U.S. exports slowly expand over the baseline, with a total increase of just 4.8 percent. Long-grain exports increase more than 4 percent, with Latin America accounting for the bulk of sales, with growth limited by strong competition from South American suppliers.
- U.S. exports of medium- and short-grain increase more than 5 percent by 2031/32. Shipments to East Asia—the largest U.S. market for these classes—remain steady, while North Africa and the Middle East account for nearly all the gain.
- The U.S. share of global exports is projected to drop to 5.5 percent by the end of the decade from 6 percent in 2022/23. 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, mostly from Asian suppliers.
- Nominal U.S. long-grain and Southern medium- and short-grain prices are projected to decrease by around 2 percent by 2031/32, while California medium- and short-grain prices are projected to increase by almost 3 percent.

Figure 15. U.S. upland cotton domestic mill use and exports, 2001–31



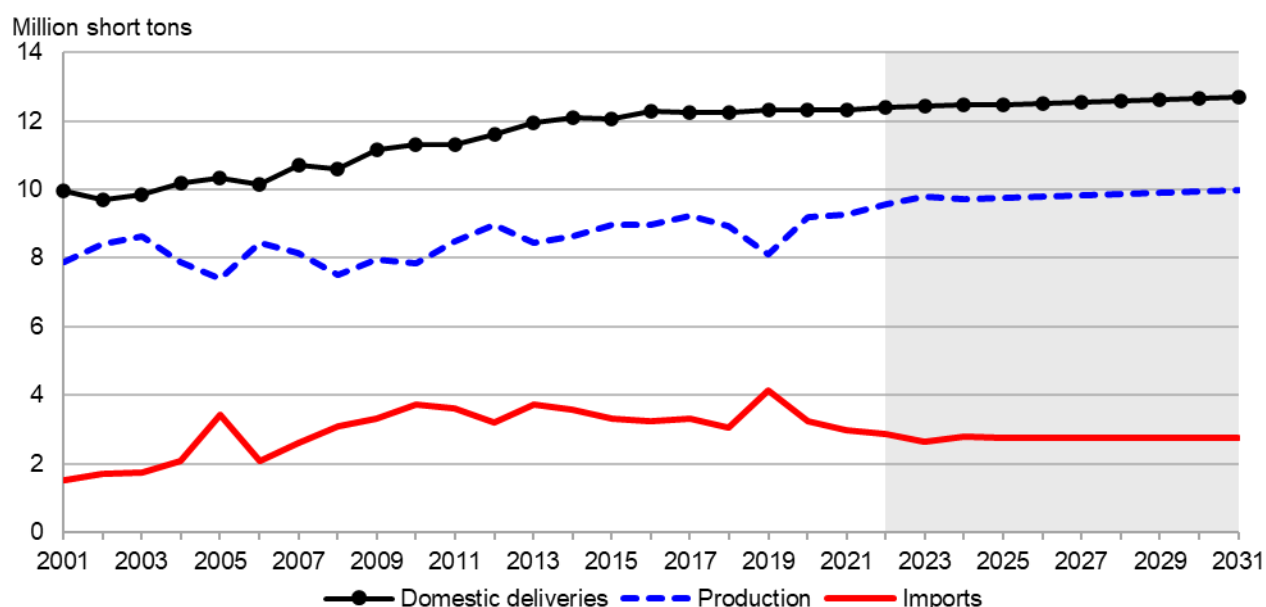
Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. 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 72 cents in 2023/24, and then rise to 76.5 cents per pound in nominal terms by 2031/32. The cotton price ratio is higher relative to corn and soybeans for 2022–31 compared with the previous 10 years. The baseline projects cotton plantings of 12 million acres in 2022/23, rising to 13.4 million acres in 2031/32. The average plantings for the projection period are roughly 1.4 million acres higher than in the prior decade. Domestic mill use continues to recover from a recent low of 2.14 million bales in 2019/20, gradually rising from about 2.6 million bales early in the projection period to 2.9 million bales from 2029/30 through 2031/32. Upland cotton exports grow after falling in the first year of the projection, rising from 14.8 million bales to 18.1 million by the final year, the highest on record. In addition, the baseline projects the following outlook for the cotton market:

- U.S. mill use recovers from its recent nadir in 2019/20, its lowest since the 1880s, following the COVID-19-related slowdown of the global economy. Mill use makes up about 14 percent of total U.S. disappearance of upland cotton over the projection period. Mill use in the late 1990s was closer to 60 percent of total U.S. cotton use, but increased competition from foreign manufacturing of both cotton and synthetic fibers, such as polyester, reduced mill use significantly after 1997/98.
- U.S. upland cotton export growth remains strong and exports trend higher through the projection period, as the United States remains the largest cotton exporter. However, 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, averages about 32 percent during the baseline period, compared with 33 percent during the previous 10 years. Brazil, India, and the countries that are part of the Economic Community of West African States (ECOWAS) exported roughly 21.5 million bales combined in 2020/21 and the baseline projects their exports to increase to 27.6 million bales by 2031/32. China, Bangladesh, and Vietnam are expected to remain the largest importers, accounting for 61 percent of total imports in 2031/32.

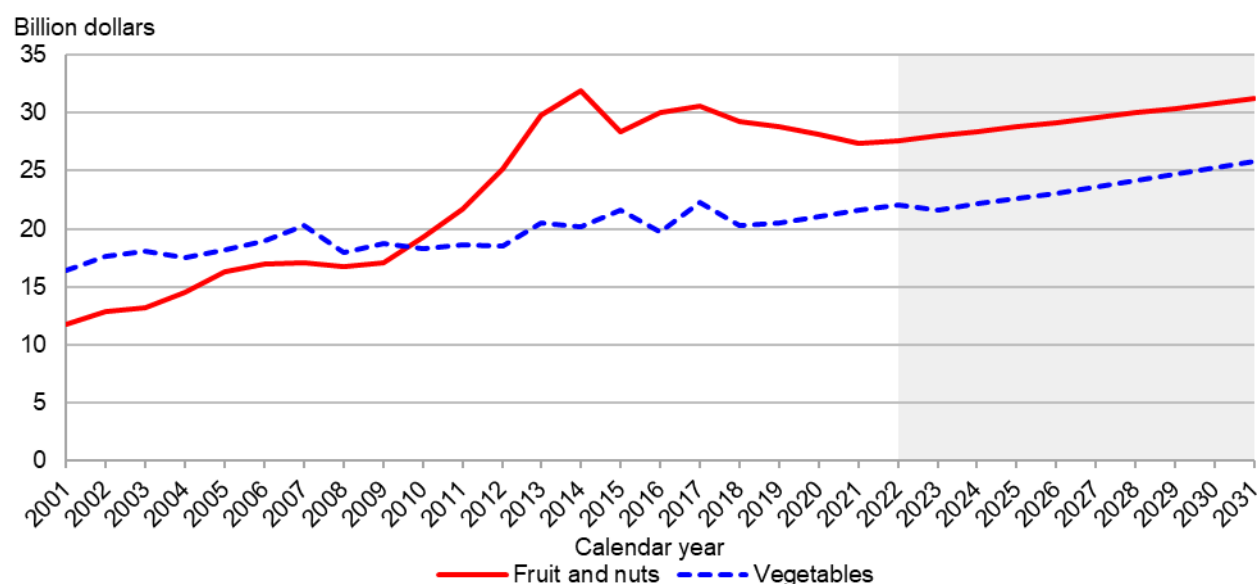
Figure 16. U.S. sugar domestic deliveries, production, and imports, 2001–31



The baseline projects total caloric sweetener deliveries (which include non-sugar sweeteners such as High Fructose Corn Syrup) to decline, although domestic sugar use increases from 12.4 million short tons, raw value (STRV) in 2022/23 to 12.7 million in 2031/32 in line with population growth. Imports, primarily from Mexico, are expected to decline, due to slower demand and larger domestic sugar production.

- Domestic sugar production increases from 9.6 million STRV in 2022/23 to 10 million by 2031/32. Beet sugar production remains about 5.4 million STRV. Sugarbeet harvested area gradually declines after 2022/23 due to higher input costs but increasing yields and factory sucrose recovery rates offset lower area. Cane sugar production is less affected by higher input costs and increases from 4.2 million STRV in 2022/23 to 4.7 million STRV by 2031/32, with modest increases in harvested area, yields, and recovery rates.
- Total imports are projected to decline due to lower demand and larger domestic production. 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 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, imports from Mexico are expected to decline over the projection, consistent with calculated U.S. Needs—as defined by the agreements.
- U.S. prices for both sugarcane and sugarbeet growers increase gradually in nominal terms by 2031/32, as relatively tight projected ending stock levels 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 17. Farm value of U.S. fruit, nut, and vegetable production, 2001–31



The total combined farm value of fruit, tree nuts, vegetable, and pulse crop production is projected to reach \$57.1 billion by calendar year 2031, up from \$49.1 billion in 2020. By 2031, the value of fruit (citrus and non-citrus) represents 34 percent of the total value, tree nuts approximately 21 percent, and vegetable and pulse crops roughly 45 percent. The baseline outlook for these crops also includes:

- Combined production of fruit, tree nuts, vegetable, and pulses grow slightly over the next decade, reaching 187 billion pounds by 2031, up from 181 billion in 2020. By 2031, fruit contribute 24 percent of total output, tree nuts approximately 5 percent, while vegetable and pulse crops roughly 71 percent.
- Vegetable and pulse crop production grows only slightly to 2031. This continues to primarily reflect technical measurement issues and rising import competition. 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. This projection assumes imports continue to rise.
- The vegetable category is split into five main categories: fresh representing, processing, potatoes, pulses, and other. Fresh-market domestic output rises slightly from 30 to 31 percent of vegetable production as imports largely fill stronger demand through 2031. Processing vegetable production remains at 28 percent by 2031 largely due to slower import growth compared with fresh crops. Potatoes are expected to see reduced market share as

exports remain sluggish and domestic demand wanes for processed products such as frozen french fries. Pulse crops are projected to remain at 6 percent of all vegetable production by 2031.

- The value of fresh-market vegetable production rises by about 5 percent between 2019–21 and 2029–31, buoyed partly by increasing production of higher-priced organic vegetables. The value of production for fresh market vegetables accounts for about 61 percent of vegetable and pulse receipts by 2031—up from an estimated 56 percent in 2020.
- Key vegetable commodities in the fresh-market include lettuce, tomatoes, onions, and sweet potatoes. Within the lettuce subsector, growth is projected in romaine while leaf production and iceberg output continue to decline. Production of sweet potatoes continues to trend upward based primarily on rising exports.
- Vegetables for processing account for about one-fourth of annual vegetable and pulse output. In 2020, 69 percent of processing vegetable production consisted of tomatoes, a share that is projected to rise to 73 percent by 2031. Given maturing domestic demand, an increasingly competitive export market is expected to be the driving force in tomato production over the baseline period. By the end of the baseline period, tomato output is projected to return to the average of the 2010's—a decade that featured 2015's record high crop.
- Domestic area and production of most other processing vegetables are projected lower through 2031. Processing vegetable area has been declining for the past two decades and the baseline expects this trend to continue as consumers continue to focus on fresh vegetables and imported products. Baseline trends suggest that by 2031, only a third of processing vegetables (e.g., broccoli, cauliflower, chile peppers) will exhibit higher domestic per capita availability than experienced during the 2010s.
- 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. Over the past 20 years, processing vegetable prices have only risen about 14 percent. However, the baseline indicates that as growers continue to shift acreage to more profitable alternative crops over the next decade, the average unit value of vegetables used to manufacture canned, frozen, and dehydrated products could rise 15 percent between 2019–21 and 2029–31.
- Potatoes will account for 19 percent of vegetable market share by 2031, a 2-percent decrease from 2021, according to baseline projections. Projected potato production grows 7 percent as value rises 7 percent over the baseline period. The baseline projects total potato export volume (on a fresh-weight basis) trends upward between 2021 and 2031, reaching roughly 8.5 billion pounds by 2031. The United States is a projected net exporter of potatoes between 2022 and 2025. Projected potato imports decrease slightly from 2021 to 2023 and then trend higher between 2023 and 2031.

- Production of pulse crops between the three-year periods 2020–22 and 2029–31 is expected to rise about 18 percent. This increase is expected even though dry bean production likely reached a peak in 2020/21 crop year due to unusually strong pandemic-inspired demand. Chickpeas and dry edible peas continue exhibiting the strongest growth, and the total value of pulse crop production trends higher through 2031.
- U.S. fruit and tree nut production (pounds) is expected to reach 54.1 billion pounds in 2031 while fluctuating throughout the projection period. Citrus output declines from 13.8 billion pounds in 2021 to 12.5 billion pounds in 2031, lowering total fruit production. While higher prices are expected to raise the farm value of U.S. fruit and tree nuts.
- Total citrus production levels are projected to decrease through the decade due to expected losses of orange and grapefruit bearing acreage in Florida. Projected growth in lemon and tangerine production are expected to somewhat temper orange and grapefruit production losses.
- Tree nut production is expected to increase from 8.3 billion pounds in 2021 to 9.7 billion pounds in 2031. Tree nut output continues to grow over the decade in response to increasing domestic and foreign demand.
- The farm value of fruit and tree nuts grows to reach \$31.3 billion by 2031, up from \$27.4 billion in 2021, led by the farm value of tree nuts.

Table 5: U.S. acreage for major field crops and Conservation Reserve Program assumptions, long-term projections to 2031

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
	Million acres											
Planted acreage, eight major crops												
Corn	90.7	93.3	92.0	91.0	91.0	90.0	90.0	90.0	90.0	90.0	89.5	89.5
Sorghum	5.9	7.3	6.7	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Barley	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Oats	3.0	2.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Wheat	44.5	46.7	49.0	49.0	48.0	48.0	47.0	47.0	46.5	46.5	46.0	46.0
Rice	3.0	2.5	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Upland cotton	11.9	11.1	12.0	12.8	12.4	12.5	12.7	12.8	13.0	13.1	13.3	13.4
Soybeans	83.4	87.2	87.5	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0
Total	245.0	253.4	255.5	255.6	254.2	253.3	252.5	252.6	252.2	252.4	251.5	251.7
CRP acreage assumptions												
Total CRP	21.9	20.5	22.8	24.6	26.1	26.7	26.9	26.9	26.9	27.0	27.0	27.0
Total planted plus CRP	266.9	273.9	278.3	280.2	280.3	280.0	279.4	279.5	279.2	279.4	278.5	278.7
Harvested acreage, eight major crops												
Corn	82.3	85.1	84.2	83.2	83.2	82.2	82.2	82.2	82.2	82.2	81.7	81.7
Sorghum	5.1	6.5	5.9	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Barley	2.2	1.9	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Oats	1.0	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Wheat	36.8	37.2	40.8	40.8	40.0	40.0	39.2	39.2	38.7	38.7	38.3	38.3
Rice	3.0	2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Upland cotton	8.1	9.8	9.9	10.6	10.2	10.3	10.5	10.6	10.7	10.8	11.0	11.1
Soybeans	82.6	86.4	86.7	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2
Total	221.1	230.1	233.3	233.4	232.3	231.4	230.7	230.8	230.4	230.5	229.7	229.9

CRP=Conservation Reserve Program.

Note: The projections were completed in October 2021. CRP data are as of end of September 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 6: U.S. corn long-term projections to 2031

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (million acres):												
Planted acres	90.7	93.3	92.0	91.0	91.0	90.0	90.0	90.0	90.0	90.0	89.5	89.5
Harvested acres	82.3	85.1	84.2	83.2	83.2	82.2	82.2	82.2	82.2	82.2	81.7	81.7
Yield:												
Bushels per harvested acre	171.4	176.5	181.0	183.0	185.0	187.0	189.0	191.0	193.0	195.0	197.0	199.0
Supply and use (million bushels):												
Beginning stocks	1,919	1,236	1,500	1,935	2,205	2,445	2,495	2,560	2,595	2,620	2,665	2,675
Production	14,111	15,019	15,240	15,225	15,390	15,370	15,535	15,700	15,865	16,030	16,095	16,260
Imports	24	25	25	25	25	25	25	25	25	25	25	25
Supply	16,055	16,280	16,765	17,185	17,620	17,840	18,055	18,285	18,485	18,675	18,785	18,960
Feed and residual	5,597	5,650	5,750	5,825	5,950	6,050	6,150	6,275	6,400	6,475	6,525	6,600
Food, seed, and industrial	6,469	6,630	6,680	6,680	6,675	6,670	6,645	6,640	6,615	6,610	6,585	6,580
Ethanol and byproducts	5,032	5,200	5,250	5,250	5,250	5,250	5,225	5,225	5,200	5,200	5,175	5,175
Domestic use	12,066	12,280	12,430	12,505	12,625	12,720	12,795	12,915	13,015	13,085	13,110	13,180
Exports	2,753	2,500	2,400	2,475	2,550	2,625	2,700	2,775	2,850	2,925	3,000	3,075
Total use	14,819	14,780	14,830	14,980	15,175	15,345	15,495	15,690	15,865	16,010	16,110	16,255
Ending stocks	1,236	1,500	1,935	2,205	2,445	2,495	2,560	2,595	2,620	2,665	2,675	2,705
Stocks-to-use ratio, percent	8.3	10.1	13.0	14.7	16.1	16.3	16.5	16.5	16.5	16.6	16.6	16.6
Prices (dollars per bushel):												
Farm price	4.53	5.45	4.80	4.50	4.30	4.20	4.00	4.00	4.00	4.00	4.00	4.00
Variable costs of production (dollars):												
Per acre	333	342	346	344	339	334	332	331	331	330	325	326
Returns over variable costs (dollars per acre):												
Net returns	444	620	523	479	457	452	424	433	441	450	463	470

Notes: Totals may not add due to rounding. Marketing year beginning September 1 for corn.

The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 7: U.S. sorghum long-term projections to 2031

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (million acres):												
Planted acres	5.9	7.3	6.7	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
Harvested acres	5.1	6.5	5.9	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Yield:												
Bushels per harvested acre	73.2	72.3	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5	69.5
Supply and use (million bushels):												
Beginning stocks	30	20	37	32	30	28	31	34	32	30	28	26
Production	373	471	410	403	403	403	403	403	403	403	403	403
Imports	0	0	0	0	0	0	0	0	0	0	0	0
Supply	403	492	447	435	433	431	434	437	435	433	431	429
Feed and residual	89	125	85	75	75	70	70	75	75	70	70	70
Food, seed, and industrial	10	10	10	10	10	10	10	10	10	10	10	10
Domestic use	99	135	95	85	85	80	80	85	85	80	80	80
Exports	284	320	320	320	320	320	320	320	320	325	325	325
Total use	383	455	415	405	405	400	400	405	405	405	405	405
Ending stocks	20	37	32	30	28	31	34	32	30	28	26	24
Stocks-to-use ratio, percent	5.3	8.1	7.7	7.4	6.9	7.8	8.5	7.9	7.4	6.9	6.4	5.9
Prices (dollars per bushel):												
Farm price	5.04	5.45	4.70	4.45	4.25	4.15	3.95	3.95	3.95	3.95	3.95	3.95
Variable costs of production (dollars):												
Per acre	138	141	144	144	142	141	141	141	141	141	139	140
Returns over variable costs (dollars per acre):												
Net returns	231	253	183	166	153	148	134	134	133	133	135	134

Notes: Totals may not add due to rounding. Marketing year beginning September 1 for sorghum.

The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 8: U.S. barley long-term projections to 2031

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (million acres):												
Planted acres	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Harvested acres	2.2	1.9	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2
Yield:												
Bushels per harvested acre	77.2	60.4	75.5	76.2	76.8	77.5	78.1	78.8	79.4	80.1	80.7	81.4
Supply and use (million bushels):												
Beginning stocks	80	71	60	68	73	79	82	81	81	83	81	81
Production	171	118	166	168	169	171	172	173	175	176	178	179
Imports	7	7	9	9	9	9	9	9	9	9	9	9
Supply	258	196	235	245	251	259	263	263	265	268	268	269
Feed and residual	26	10	15	20	20	25	30	30	30	35	35	35
Food, seed, and industrial	147	115	145	145	145	145	145	145	145	145	145	145
Domestic use	172	125	160	165	165	170	175	175	175	180	180	180
Exports	14	11	7	7	7	7	7	7	7	7	7	7
Total use	186	136	167	172	172	177	182	182	182	187	187	187
Ending stocks	71	60	68	73	79	82	81	81	83	81	81	82
Stocks-to-use ratio, percent	38.4	44.2	40.7	42.4	45.9	46.3	44.5	44.5	45.6	43.3	43.3	43.9
Prices (dollars per bushel):												
Farm price	4.75	5.30	5.15	4.90	4.75	4.65	4.50	4.50	4.50	4.50	4.50	4.50
Variable costs of production (dollars):												
Per acre	172	177	179	178	177	176	176	177	178	178	176	177
Returns over variable costs (dollars per acre):												
Net returns	195	144	210	195	188	184	175	178	180	182	188	189

Notes: Totals may not add due to rounding. Marketing year beginning June 1 for barley.
The projections were completed in October 2021.
Source: USDA, Interagency Agricultural Projections Committee.

Table 9: U.S. oats long-term projections to 2031

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (million acres):												
Planted acres	3.0	2.6	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Harvested acres	1.0	0.7	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Yield:												
Bushels per harvested acre	65.1	61.3	65.9	66.2	66.4	66.7	66.9	67.2	67.4	67.7	67.9	68.2
Supply and use (million bushels):												
Beginning stocks	37	38	25	36	38	39	40	40	40	40	40	39
Production	66	40	59	60	60	60	60	60	61	61	61	61
Imports	85	69	95	90	90	90	90	90	90	90	90	90
Supply	188	147	179	186	188	189	190	190	191	191	191	190
Feed and residual	68	40	60	65	65	65	65	65	65	65	65	65
Food, seed, and industrial	78	80	81	81	82	82	83	83	84	84	85	85
Domestic use	147	120	141	146	147	147	148	148	149	149	150	150
Exports	3	2	2	2	2	2	2	2	2	2	2	2
Total use	150	122	143	148	149	149	150	150	151	151	152	152
Ending stocks	38	25	36	38	39	40	40	40	40	40	39	38
Stocks-to-use ratio, percent	25.4	20.4	25.2	25.7	26.2	26.8	26.7	26.7	26.5	26.5	25.7	25.0
Prices (dollars per bushel):												
Farm price	2.77	3.60	3.30	3.15	3.05	3.00	2.90	2.90	2.90	2.90	2.90	2.90
Variable costs of production (dollars):												
Per acre	124	128	130	129	128	127	127	127	128	128	126	127
Returns over variable costs (dollars per acre):												
Net returns	56	92	88	79	75	73	67	68	68	68	71	71

Notes: Totals may not add due to rounding. Marketing year beginning June 1 for oats.
The projections were completed in October 2021.
Source: USDA, Interagency Agricultural Projections Committee.

Table 10: U.S. wheat long-term projections to 2031

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (million acres):												
Planted acres	44.5	46.7	49.0	49.0	48.0	48.0	47.0	47.0	46.5	46.5	46.0	46.0
Harvested acres	36.8	37.2	40.8	40.8	40.0	40.0	39.2	39.2	38.7	38.7	38.3	38.3
Yield:												
Bushels per harvested acre	49.7	44.3	49.1	49.5	49.9	50.3	50.7	51.1	51.5	51.8	52.2	52.6
Supply and use (million bushels):												
Beginning stocks	1,028	845	580	636	683	704	726	721	730	727	735	735
Production	1,828	1,646	2,003	2,020	1,996	2,012	1,987	2,003	1,993	2,005	1,999	2,015
Imports	100	125	120	120	120	120	120	120	120	120	120	120
Supply	2,957	2,616	2,703	2,776	2,799	2,836	2,833	2,844	2,843	2,852	2,854	2,870
Food	961	964	966	968	970	972	974	976	978	980	982	984
Seed	64	62	66	65	65	63	63	63	63	62	62	62
Feed and residual	95	135	110	110	100	100	100	100	100	100	100	100
Domestic use	1,120	1,161	1,142	1,143	1,135	1,135	1,137	1,139	1,141	1,142	1,144	1,146
Exports	992	875	925	950	960	975	975	975	975	975	975	975
Total use	2,111	2,036	2,067	2,093	2,095	2,110	2,112	2,114	2,116	2,117	2,119	2,121
Ending stocks	845	580	636	683	704	726	721	730	727	735	735	749
Stocks-to-use ratio, percent	40.0	28.5	30.8	32.6	33.6	34.4	34.1	34.5	34.4	34.7	34.7	35.3
Prices (dollars per bushel):												
Farm price	5.05	6.70	6.50	6.00	5.50	5.50	5.50	5.50	5.50	5.25	5.25	5.25
Variable costs of production (dollars):												
Per acre	129	133	135	135	133	132	132	132	132	132	130	131
Returns over variable costs (dollars per acre):												
Net returns	122	164	184	162	141	145	147	149	151	140	144	145

Notes: Totals may not add due to rounding. Marketing year beginning June 1 for wheat.

The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 11: U.S. soybeans and soybean products long-term projections to 2031

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Soybeans												
Area (million acres):												
Planted	83.4	87.2	87.5	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0	88.0
Harvested	82.6	86.4	86.7	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2	87.2
Yield, bushels per harvested acre	51.0	51.5	51.5	52.0	52.5	53.0	53.5	54.0	54.5	55.0	55.5	56.0
Supply (million bushels)												
Beginning stocks, September 1	525	256	320	300	306	300	295	280	284	288	292	296
Production	4,216	4,448	4,465	4,535	4,580	4,620	4,665	4,710	4,750	4,795	4,840	4,885
Imports	20	15	20	20	20	20	20	20	20	20	20	20
Total supply	4,761	4,719	4,805	4,855	4,906	4,940	4,980	5,010	5,054	5,103	5,152	5,201
Use (million bushels)												
Crush	2,141	2,190	2,240	2,280	2,320	2,350	2,380	2,405	2,430	2,455	2,480	2,500
Seed and residual	98	119	124	125	125	125	125	126	126	126	126	127
Exports	2,265	2,090	2,140	2,145	2,160	2,170	2,195	2,195	2,210	2,230	2,250	2,275
Total use	4,505	4,399	4,504	4,550	4,605	4,645	4,700	4,726	4,766	4,811	4,856	4,902
Ending stocks, August 31												
Total ending stocks	256	320	300	306	300	295	280	284	288	292	296	299
Stocks-to-use ratio, percent	5.7	7.3	6.7	6.7	6.5	6.4	6.0	6.0	6.0	6.1	6.1	6.1
Prices (dollars per bushel)												
Soybean price, farm	10.80	12.35	10.50	10.35	10.25	10.15	10.00	10.00	10.00	10.00	10.00	10.00
Variable costs of production (dollars):												
Per acre	187	190	192	191	189	188	188	188	188	188	185	186
Returns over variable costs (dollars per acre):												
Net returns	364	446	349	347	349	350	347	352	357	362	370	374
Soybean oil (million pounds)												
Beginning stocks, October 1	1,853	2,063	1,798	1,833	1,828	1,858	1,908	1,928	2,013	2,158	2,238	2,283
Production	24,980	25,535	26,135	26,620	27,105	27,475	27,845	28,160	28,470	28,780	29,095	29,350
Imports	295	450	500	500	350	350	350	350	350	350	350	350
Total supply	27,128	28,048	28,433	28,953	29,283	29,683	30,103	30,438	30,833	31,288	31,683	31,983
Domestic disappearance	23,350	25,000	25,600	26,100	26,300	26,450	26,600	26,750	26,900	27,050	27,175	27,300
Biofuel 1/	8,800	11,000	11,400	11,700	11,800	11,850	11,900	11,950	12,000	12,050	12,100	12,150
Food, feed, and other industrial	14,550	14,000	14,200	14,400	14,500	14,600	14,700	14,800	14,900	15,000	15,075	15,150
Exports	1,715	1,250	1,000	1,025	1,125	1,325	1,575	1,675	1,775	2,000	2,225	2,375
Total use	25,065	26,250	26,600	27,125	27,425	27,775	28,175	28,425	28,675	29,050	29,400	29,675
Ending stocks, September 30	2,063	1,798	1,833	1,828	1,858	1,908	1,928	2,013	2,158	2,238	2,283	2,308
Soybean oil price (dollars per pound)	0.569	0.650	0.545	0.510	0.490	0.480	0.470	0.460	0.460	0.460	0.460	0.460
Soybean meal (thousand short tons)												
Beginning stocks, October 1	341	400	400	450	450	450	450	450	450	450	450	450
Production	50,604	51,650	52,800	53,775	54,675	55,475	56,075	56,675	57,275	57,875	58,475	58,975
Imports	805	450	450	450	450	450	450	450	450	450	450	450
Total supply	51,750	52,500	53,650	54,675	55,575	56,375	56,975	57,575	58,175	58,775	59,375	59,875
Domestic disappearance	37,450	37,900	38,650	39,425	40,225	40,925	41,575	42,200	42,800	43,400	44,000	44,600
Exports	13,900	14,200	14,550	14,800	14,900	15,000	14,950	14,925	14,925	14,925	14,925	14,825
Total use	51,350	52,100	53,200	54,225	55,125	55,925	56,525	57,125	57,725	58,325	58,925	59,425
Ending stocks, September 30	400	400	450	450	450	450	450	450	450	450	450	450
Soybean meal price (dollars per ton)	392	325	290	295	303	307	312	318	320	322	324	327
Crushing yields (pounds per bushel)												
Soybean oil	11.70	11.66	11.67	11.68	11.68	11.69	11.70	11.71	11.72	11.72	11.73	11.74
Soybean meal	47.40	47.20	47.19	47.19	47.18	47.18	47.17	47.16	47.16	47.15	47.15	47.14
Crush margin (dollars per bushel)	5.15	2.90	2.70	2.56	2.61	2.69	2.86	2.88	2.93	2.97	3.02	3.10

Notes: 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 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 12: U.S. rice long-term projections to 2031, total rice, rough basis

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (thousand acres):												
Planted	3,036	2,541	2,800	2,800	2,800	2,800	2,800	2,750	2,750	2,750	2,750	2,750
Harvested	2,987	2,499	2,748	2,748	2,748	2,748	2,748	2,699	2,699	2,699	2,699	2,699
Yield:												
Pounds per harvested acre	7,619	7,625	7,682	7,715	7,755	7,787	7,820	7,855	7,888	7,929	7,955	7,992
Supply and use (million hundredweight):												
Beginning stocks	28.7	43.7	33.2	36.8	38.6	40.3	40.7	40.4	40.1	40.5	40.7	40.9
Production	227.6	190.5	211.1	212.0	213.1	214.0	214.9	212.0	212.9	214.0	214.7	215.7
Imports	34.1	36.0	36.8	37.5	38.4	39.2	40.1	40.9	41.8	42.5	43.3	44.0
Total supply	290.3	270.2	281.1	286.3	290.0	293.5	295.7	293.3	294.7	297.0	298.7	300.6
Domestic use and residual	152.7	146.0	150.8	153.8	155.8	157.8	159.8	157.8	158.8	159.8	160.8	160.8
Exports	93.9	91.0	93.5	94.0	94.0	95.0	95.5	95.5	95.5	96.5	97.0	98.0
Total use	246.6	237.0	244.3	247.8	249.8	252.8	255.3	253.3	254.3	256.3	257.8	258.8
Ending stocks	43.7	33.2	36.8	38.6	40.3	40.7	40.4	40.1	40.5	40.7	40.9	41.9
Stocks-to-use ratio, percent	17.7	14.0	15.1	15.6	16.1	16.1	15.8	15.8	15.9	15.9	15.9	16.2
Price (dollars per hundredweight):												
Average farm price	13.70	14.80	14.10	14.20	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
Variable costs of production (dollars):												
Per acre	540	551	558	556	552	551	551	553	554	555	548	553
Returns over variable costs (dollars per acre):												
Net returns	504	578	525	539	534	539	544	547	550	555	566	566

Notes: Totals may not add due to rounding. Marketing year beginning August 1 for rice.

The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 13: U.S. rice long-term projections to 2031, long-grain rice, rough basis

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (thousand acres):												
Planted	2,332	1,972	2,100	2,100	2,100	2,100	2,100	2,050	2,050	2,050	2,050	2,050
Harvested	2,302	1,942	2,058	2,058	2,058	2,058	2,058	2,009	2,009	2,009	2,009	2,009
Yield:												
Pounds per harvested acre	7,422	7,428	7,480	7,513	7,557	7,590	7,623	7,656	7,689	7,733	7,766	7,799
Supply and use (million hundredweight):												
Beginning stocks	16.9	29.7	23.0	24.4	24.7	25.7	26.7	26.6	26.1	26.1	26.3	26.3
Production	170.9	144.3	153.9	154.6	155.5	156.2	156.9	153.8	154.5	155.4	156.0	156.7
Imports	27.4	28.0	28.8	29.5	30.3	31.0	31.8	32.5	33.3	34.0	34.8	35.5
Total supply	215.1	202.0	205.6	208.5	210.5	212.9	215.3	212.9	213.9	215.5	217.0	218.5
Domestic use and residual	120.3	114.0	115.8	117.8	118.8	119.8	121.8	119.8	120.8	121.8	122.8	122.8
Exports	65.1	65.0	65.5	66.0	66.0	66.5	67.0	67.0	67.0	67.5	68.0	68.5
Total use	185.4	179.0	181.3	183.8	184.8	186.3	188.8	186.8	187.8	189.3	190.8	191.3
Ending stocks	29.7	23.0	24.4	24.7	25.7	26.7	26.6	26.1	26.1	26.3	26.3	27.2
Stocks-to-use ratio, percent	16.0	12.8	13.5	13.5	13.9	14.3	14.1	14.0	13.9	13.9	13.8	14.2
Price (dollars per hundredweight):												
Average farm price	12.60	13.00	12.50	12.50	12.30	12.20	12.20	12.20	12.20	12.20	12.20	12.20

Notes: Totals may not add due to rounding. Marketing year beginning August 1 for rice.

The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 14. U.S. rice long-term projections to 2031, medium- and short-grain rice, rough basis

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (thousand acres):												
Planted	704	569	700	700	700	700	700	700	700	700	700	700
Harvested	685	557	690	690	690	690	690	690	690	690	690	690
Yield:												
Pounds per harvested acre	8,282	8,311	8,294	8,316	8,349	8,371	8,404	8,437	8,459	8,492	8,514	8,547
Supply and use (million hundredweight):												
Beginning stocks	10.7	11.5	7.7	9.9	11.3	12.0	11.5	11.3	11.4	11.8	11.9	12.1
Production	56.7	46.3	57.2	57.4	57.6	57.8	58.0	58.2	58.4	58.6	58.7	59.0
Imports	6.7	8.0	8.0	8.0	8.1	8.2	8.3	8.4	8.5	8.5	8.5	8.5
Total supply	74.2	65.7	72.9	75.3	77.0	78.0	77.8	77.9	78.3	78.9	79.1	79.6
Domestic use and residual	32.4	32.0	35.0	36.0	37.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
Exports	28.8	26.0	28.0	28.0	28.0	28.5	28.5	28.5	28.5	29.0	29.0	29.5
Total use	61.2	58.0	63.0	64.0	65.0	66.5	66.5	66.5	66.5	67.0	67.0	67.5
Ending stocks	11.5	7.7	9.9	11.3	12.0	11.5	11.3	11.4	11.8	11.9	12.1	12.1
Stocks-to-use ratio, percent	18.7	13.4	15.8	17.7	18.5	17.4	17.1	17.2	17.8	17.8	18.1	18.0
Price (dollars per hundredweight):												
Average farm price	17.70	20.10	19.00	19.20	19.20	19.30	19.30	19.30	19.30	19.30	19.30	19.30
California	19.70	23.00	22.00	22.20	22.40	22.60	22.60	22.60	22.60	22.60	22.60	22.60
Other States	13.00	14.00	12.70	12.70	12.50	12.40	12.40	12.40	12.40	12.40	12.40	12.40

Notes: 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 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 15: U.S. upland cotton long-term projections to 2031

Item	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Area (million acres):												
Planted acres	11.9	11.1	12.0	12.8	12.4	12.5	12.7	12.8	13.0	13.1	13.3	13.4
Harvested acres	8.1	9.8	9.9	10.6	10.2	10.3	10.5	10.6	10.7	10.8	11.0	11.1
Yield:												
Pounds per harvested acre	835	865	865	870	875	880	885	890	895	900	905	910
Supply and use (thousand bales):												
Beginning stocks	6,868	3,020	3,152	3,700	4,598	4,346	4,244	4,292	4,340	4,438	4,486	4,534
Production	14,061	17,651	17,800	19,100	18,600	18,900	19,300	19,600	20,000	20,300	20,600	21,000
Imports	0	0	5	5	5	5	5	5	5	5	5	5
Supply	20,929	20,671	20,957	22,805	23,203	23,251	23,549	23,897	24,345	24,743	25,091	25,539
Domestic use	2,385	2,485	2,550	2,600	2,650	2,700	2,750	2,800	2,850	2,900	2,900	2,900
Exports	15,586	15,075	14,775	15,675	16,275	16,375	16,575	16,825	17,125	17,425	17,725	18,075
Total use	17,971	17,560	17,325	18,275	18,925	19,075	19,325	19,625	19,975	20,325	20,625	20,975
Ending stocks	3,020	3,152	3,700	4,598	4,346	4,244	4,292	4,340	4,438	4,486	4,534	4,632
Stocks-to-use ratio, percent	16.8	18.0	21.4	25.2	23.0	22.3	22.2	22.1	22.2	22.1	22.0	22.1
Prices (dollars per pound):												
Farm price	0.663	0.900	0.800	0.720	0.730	0.735	0.740	0.745	0.750	0.755	0.760	0.765
Variable costs of production (dollars):												
Per acre	422	430	436	436	433	433	433	436	437	438	433	437
Returns over variable costs (dollars per acre):												
Net returns*	238	478	373	305	320	327	335	340	348	355	369	373

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 use projections of cottonseed prices and yields, so are not directly comparable to values from years prior to 2017.

The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 16: U.S. sugar long-term projections to 2031

Item	Units	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Sugarbeets													
Planted area	1,000 acres	1,162	1,162	1,208	1,234	1,195	1,189	1,174	1,166	1,153	1,143	1,131	1,123
Harvested area	1,000 acres	1,142	1,151	1,186	1,211	1,173	1,168	1,153	1,145	1,132	1,123	1,111	1,102
Yield	Tons/acre	29.4	31.0	32.1	32.4	32.7	33.0	33.3	33.6	33.9	34.1	34.4	34.6
Production	Million short tons	33.6	35.7	38.1	39.2	38.4	38.5	38.4	38.4	38.3	38.3	38.2	38.2
Sugarcane													
Harvested area	1,000 acres	904	892	893	897	900	902	904	906	908	909	911	912
Yield	Tons/acre	38.1	36.8	36.8	37.0	37.2	37.4	37.6	37.8	38.0	38.2	38.4	38.6
Production	Million short tons	34.4	32.8	32.8	33.2	33.4	33.7	34.0	34.2	34.5	34.7	35.0	35.2
Supply:													
Beginning stocks	1,000 short tons, raw value	1,618	1,681	1,628	1,676	1,681	1,686	1,690	1,695	1,700	1,704	1,709	1,713
Production	1,000 short tons, raw value	9,182	9,287	9,578	9,788	9,709	9,773	9,795	9,841	9,868	9,908	9,936	9,977
Beet sugar	1,000 short tons, raw value	5,031	5,348	5,346	5,504	5,374	5,389	5,364	5,363	5,344	5,339	5,322	5,319
Cane sugar	1,000 short tons, raw value	4,151	3,939	4,231	4,284	4,334	4,383	4,431	4,478	4,524	4,569	4,613	4,658
Total Imports	1,000 short tons, raw value	3,252	3,000	2,885	2,667	2,782	2,753	2,766	2,754	2,760	2,753	2,758	2,749
TRQ Imports 1/	1,000 short tons, raw value	1,751	1,591	1,639	1,647	1,655	1,664	1,672	1,681	1,690	1,698	1,704	1,710
Imports from Mexico	1,000 short tons, raw value	981	1,084	921	687	797	762	768	750	750	737	738	725
Other imports	1,000 short tons, raw value	520	325	325	334	331	328	326	323	321	318	316	313
Total supply	1,000 short tons, raw value	14,052	13,968	14,090	14,131	14,172	14,212	14,251	14,290	14,328	14,365	14,402	14,438
Use:													
Exports	1,000 short tons, raw value	52	35	35	35	35	35	35	35	35	35	35	35
Domestic deliveries	1,000 short tons, raw value	12,319	12,305	12,379	12,415	12,451	12,486	12,521	12,555	12,589	12,622	12,654	12,686
Total use	1,000 short tons, raw value	12,371	12,340	12,414	12,450	12,486	12,521	12,556	12,590	12,624	12,657	12,689	12,721
Ending stocks	1,000 short tons, raw value	1,681	1,628	1,676	1,681	1,686	1,690	1,695	1,700	1,704	1,709	1,713	1,717
Raw sugar price:													
New York, No. 16 contract 2/	Cents/lb.	35.33	35.00	26.42	26.93	27.24	27.52	27.82	28.07	28.32	28.55	28.79	28.99
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	50.50	46.63	56.96	49.43	51.58	50.82	51.58	51.22	51.63	51.38	51.93	51.72
Sugarcane	Dollars/ton	40.90	34.34	35.98	36.49	36.90	37.29	37.70	38.08	38.47	38.84	39.22	39.58

Notes: Data shown is for an October-September year. The projections were completed in October 2021.

1/ TRQ=Trade-Rate Quota.

2/ Price for July-September quarter.

Source: USDA, Interagency Agricultural Projections Committee.

Table 17. Fruit, nuts, and vegetables long-term projections to 2031

Item	Unit	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Production, farm weight													
Fruit and nuts	Mil. lbs.	54,672	52,773	50,908	51,681	52,851	53,173	53,554	53,337	53,792	53,807	53,944	54,099
Citrus	Mil. lbs.	15,704	13,804	12,190	12,571	12,558	12,546	12,533	12,521	12,508	12,496	12,483	12,471
Noncitrus	Mil. lbs.	30,729	31,087	30,465	30,772	31,758	31,939	32,163	31,794	32,095	31,958	31,942	31,944
Tree nuts	Mil. lbs.	8,239	7,882	8,253	8,338	8,535	8,688	8,858	9,022	9,188	9,353	9,519	9,684
Vegetables 1/	Mil. lbs.	126,096	125,850	133,940	133,551	131,931	130,907	130,808	130,771	131,332	131,895	132,150	132,518
Fresh market	Mil. lbs.	38,799	42,350	43,515	42,850	42,821	42,883	42,900	42,921	43,054	43,160	43,072	42,984
Processing	Mil. lbs.	32,976	31,993	34,313	33,028	33,068	33,328	33,585	33,835	34,084	34,323	34,558	34,792
Potatoes	Mil. lbs.	42,020	41,316	44,297	46,546	44,386	43,082	42,559	42,208	42,254	42,275	42,239	42,398
Pulses	Mil. lbs.	6,638	4,508	6,162	5,500	6,054	6,041	6,220	6,290	6,448	6,670	6,835	6,921
Other 2/	Mil. lbs.	5,663	5,683	5,654	5,627	5,603	5,572	5,543	5,517	5,492	5,469	5,446	5,424
Total fruit, nuts, vegetables	Mil. lbs.	180,767	178,623	184,849	185,232	184,782	184,080	184,362	184,107	185,124	185,703	186,094	186,618
Farm value													
Fruit and nuts	Million dollars	28,119	27,425	27,648	28,058	28,421	28,802	29,193	29,592	30,000	30,410	30,834	31,268
Citrus	Million dollars	3,396	3,310	3,274	3,376	3,407	3,437	3,468	3,500	3,531	3,563	3,595	3,627
Noncitrus	Million dollars	14,655	14,147	14,194	14,289	14,410	14,547	14,695	14,851	15,015	15,180	15,351	15,527
Tree nuts	Million dollars	10,068	9,967	10,180	10,392	10,605	10,817	11,029	11,242	11,454	11,667	11,888	12,114
Vegetables	Million dollars	21,020	21,640	22,061	21,665	22,184	22,617	23,076	23,595	24,123	24,663	25,223	25,818
Fresh market	Million dollars	11,660	12,238	12,301	12,603	12,893	13,199	13,511	13,859	14,215	14,587	14,983	15,398
Processing	Million dollars	2,008	1,887	2,004	1,848	1,878	1,917	1,957	1,997	2,038	2,079	2,121	2,164
Potatoes	Million dollars	3,906	4,111	4,472	3,990	4,025	4,076	4,130	4,185	4,238	4,293	4,349	4,405
Pulses	Million dollars	1,462	1,387	1,243	1,154	1,281	1,295	1,322	1,375	1,432	1,479	1,516	1,568
Other 2/	Million dollars	1,984	2,017	2,040	2,070	2,107	2,131	2,156	2,179	2,200	2,226	2,254	2,284

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

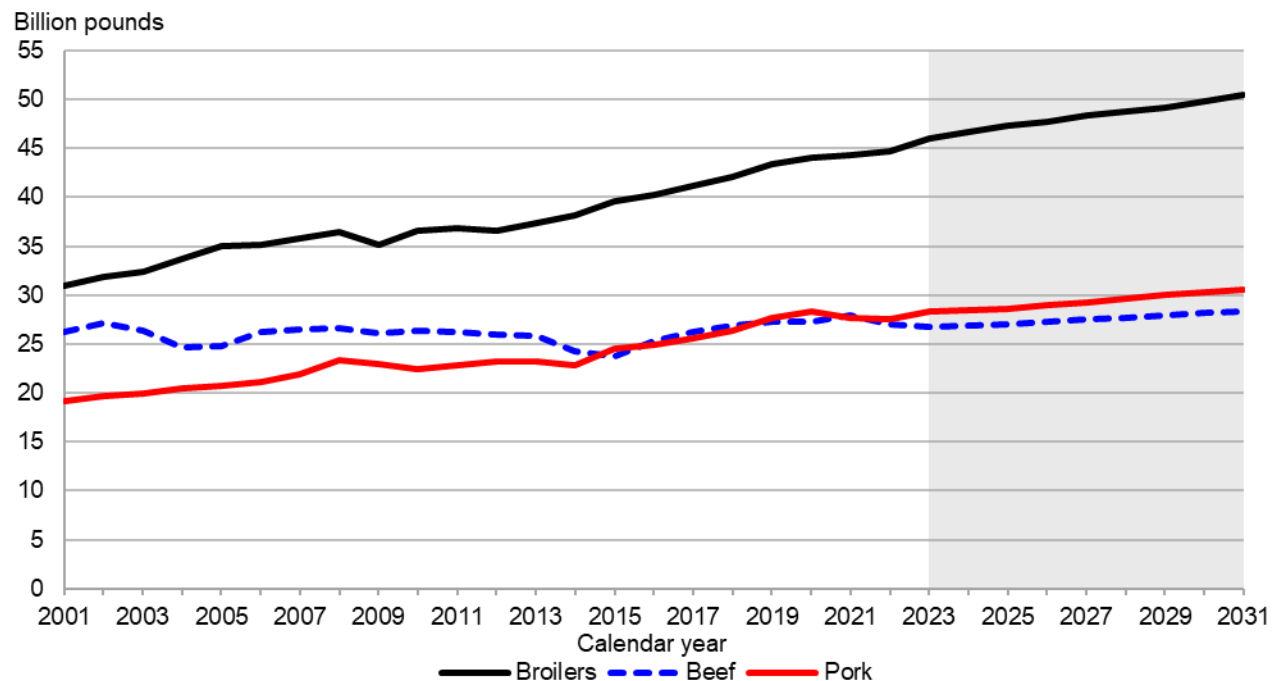
2/ Other includes melons and mushrooms. Sweet potatoes included with fresh vegetables.

Note: Totals may not add due to rounding. The projections were completed in December 2021.

Source: USDA, Interagency Agricultural Projections Committee.

U.S. Livestock

Figure 18. U.S. animal product production, 2001–31



Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

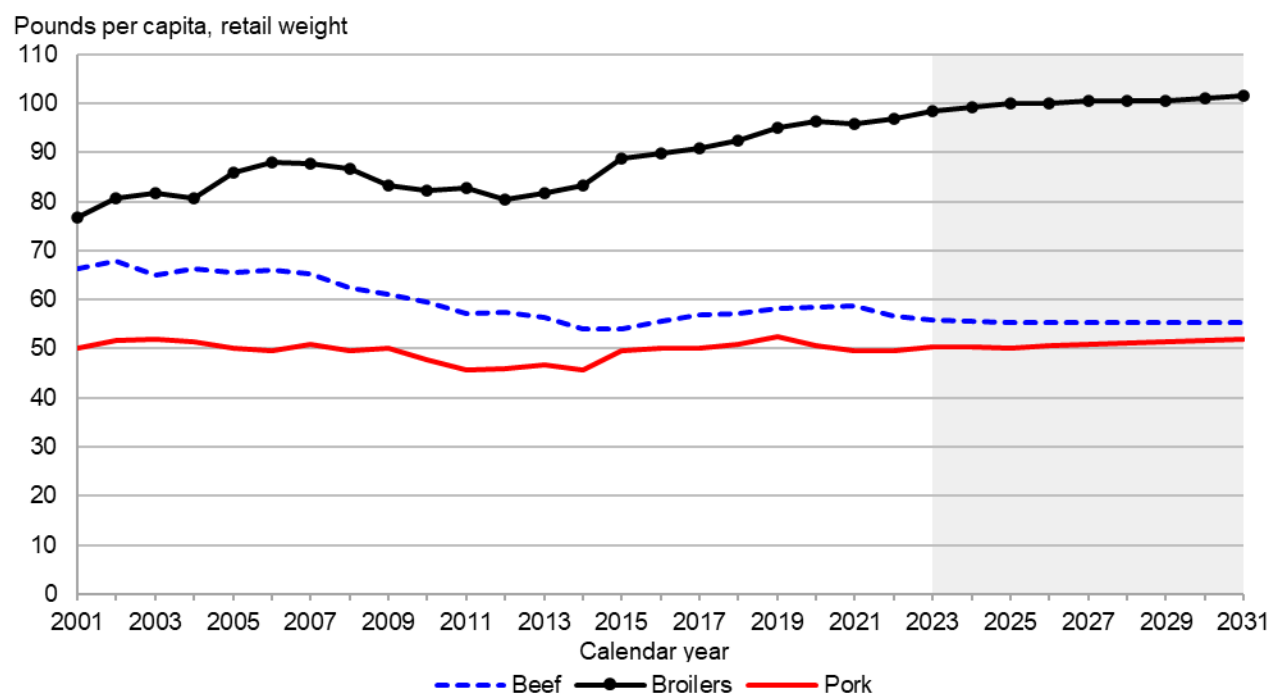
Moderating feed costs, rising consumer incomes, and export growth provide incentives for growth of the U.S. livestock sector over the next 10 years. With deflated live animal prices mostly stable or declining (primarily for hogs) during the projection period, combined domestic and global production and demand for beef, pork, and poultry are expected to rise through 2031 due to efficiency gains. The projection period for animals and animal products begin with calendar year 2023. The projections and data for 2022 and prior years are based on information available as of the publication of the October 2021 *World Agricultural Supply and Demand Estimates*.

- In the beef cattle industry, cattle inventory declines in 2022 and into 2023, the first year of the projection period, as the sector contracts from drought conditions in major U.S. cattle producing regions. The decline in cattle numbers in 2022 is expected to lead to continued strengthening of cattle prices in 2023, after which a modest herd expansion slows the rising pace of cattle prices 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 2024 at year-over-year rates that average almost 1 percent.
- After spiking higher in 2021 on a combination of lower production and pandemic-related pork demand, hog prices trend lower through the projection period, driving the hog/feed price ratio lower, even as feed prices decline early in the period, and later stabilize. Farrowings are lower year-over-year early in the projection period but increase starting in 2026. Litter rate productivity growth more than offsets farrowing weakness in 2023 and

2025, but not in 2024. Beginning in 2026, both farrowings and litter rates increase year over year to drive pig crop increases at rates that average about 1 percent through 2031. Pork production increases 2.8 percent in the first year of the projection period to 28.4 billion pounds. After the first year, pork production increases at a pace that averages about 1 percent per year through 2031, ending at 30.6 billion pounds.

- Broiler production is expected to continue increasing steadily over the forecast period, driven by increasing domestic and foreign demand. However, production growth will largely reflect a continuation of the shift toward the production of heavier-weight birds. After contracting between 2018–21, turkey production is expected to increase gradually over the projection period, while per capita disappearance is forecast to decline.
- Milk production is anticipated to rise throughout the projection period with growth to the dairy herd along with gains in milk per cow (see dairy section later in this report).

Figure 19. U.S. per capita meat disappearance, 2001–31



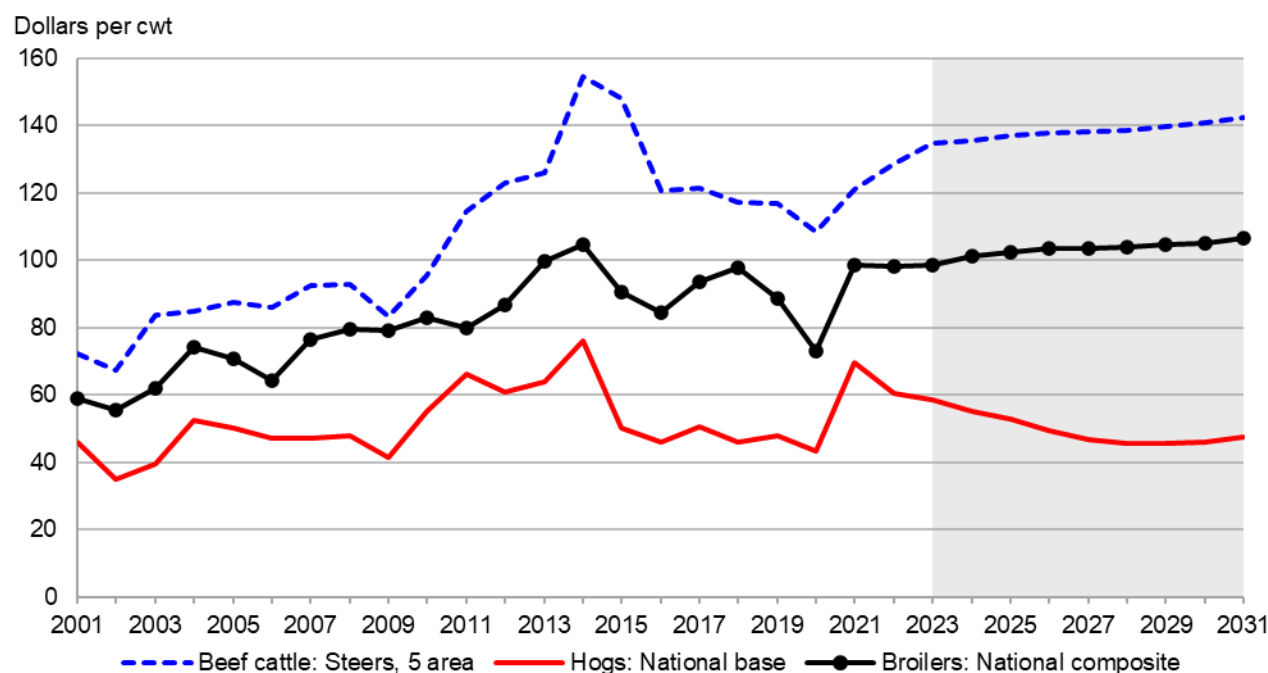
Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. 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 to begin the projection period in 2023 at 222.9 pounds and end the period in 2031 at 226.8 pounds, with poultry meat continuing to account for most of the projected growth in disappearance.

- While U.S. per capita beef disappearance is expected to decline in the first part of the projection period, it is projected to stabilize and gradually rise in the second half of the period. Beef disappearance is projected at 55.8 pounds per capita in 2023, decreasing to 55.3 in both 2026 and 2027, and then climbing to 55.5 pounds per capita by 2031. Despite steady growth rates of commercial beef production beyond 2023, beef exports expand more than imports, limiting increases in domestic per capita consumption.
- Expected per capita pork disappearance over the projection period averages about 51 pounds. The period begins at 50.5 pounds per person; reaches its low in 2025 at 50.1 and finishes in 2031 at 52.0 pounds per person.
- Broiler per capita disappearance is expected to increase steadily, growing from 98.6 pounds in 2023 to 101.6 pounds by 2031. Per capita turkey disappearance is expected to decline slowly over the decade, dropping to 15.1 pounds per person in 2031 from 15.3 in 2023.

Figure 20. U.S. nominal livestock prices, 2001-31



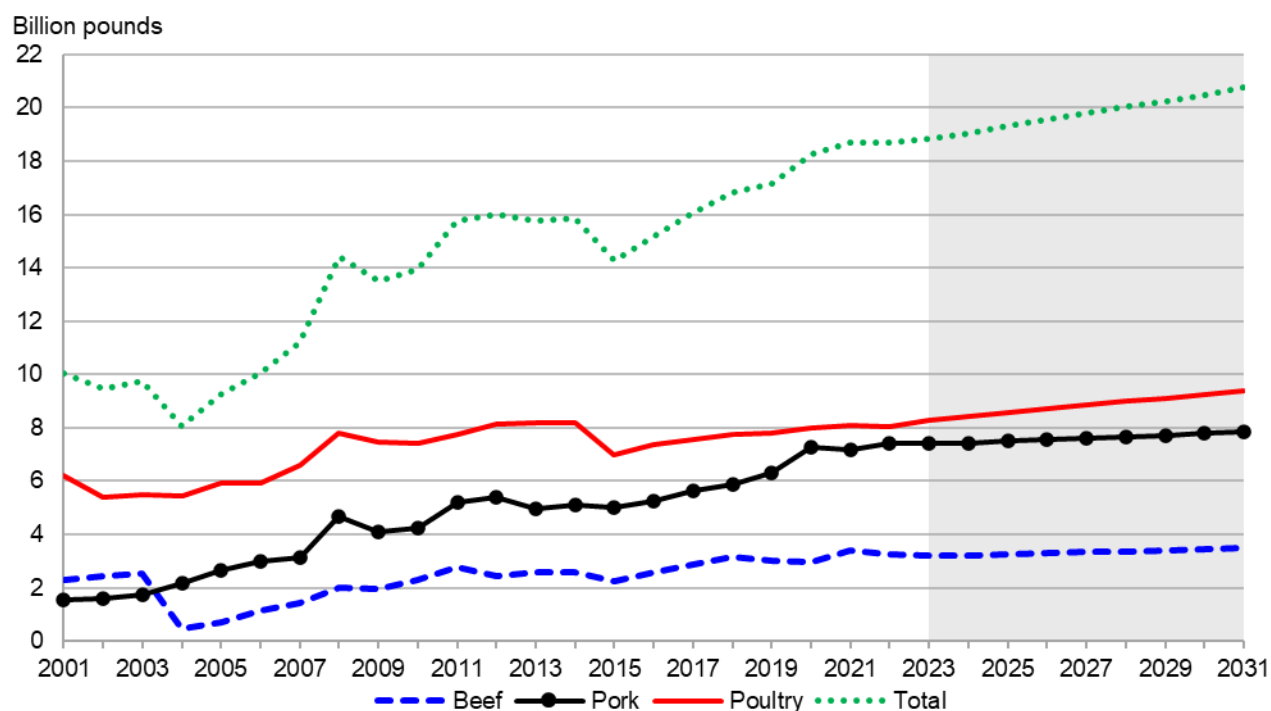
cwt = hundredweight

Notes: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

- Tighter supplies of fed cattle at the start of the projection period, coupled with continued strong demand support 5-area steer prices during 2023–31. Supply growth is not expected to keep pace with demand despite the cattle herd expanding and beef production increasing throughout the remainder of the period; steer prices are expected to increase to almost \$143 per hundredweight by the end of the period. Nominal cattle-corn price ratios are expected to rise as cattle prices increase and corn prices initially decline and then stabilize.
- The U.S. pork sector in the projection period is characterized by steady production growth deriving largely from innovations adopted by the industry in hog production and processing technologies. Despite some volatility early in the period, progressively increasing supplies of pork are expected to pressure hog prices lower through 2029, before reversing and trending higher through the end of the projection period. National base lean prices for live-equivalent hogs are expected to average just under \$50 per hundredweight over the projection period. The hog-feed price ratio is expected to decline steadily from 2023 to 2029, as increasing production pressures hog prices lower, offsetting initially lower, then stable corn prices.
- Wholesale broiler prices are expected to increase from 98.8 cents per pounds in 2023 to 106.5 cents per pound in 2031, as demand remains strong. Farm prices are also expected to gradually increase over the projection period. The broiler industry's feed price ratio spikes initially—primarily driven by lower corn prices—before achieving moderate increases between 2024–27. The ratio is stable between 2027–31 as slowly increasing broiler prices offset moderately increasing soybean meal costs.

Figure 21. U.S. meat exports, 2001–31



Note: The shaded region represents the projected period.

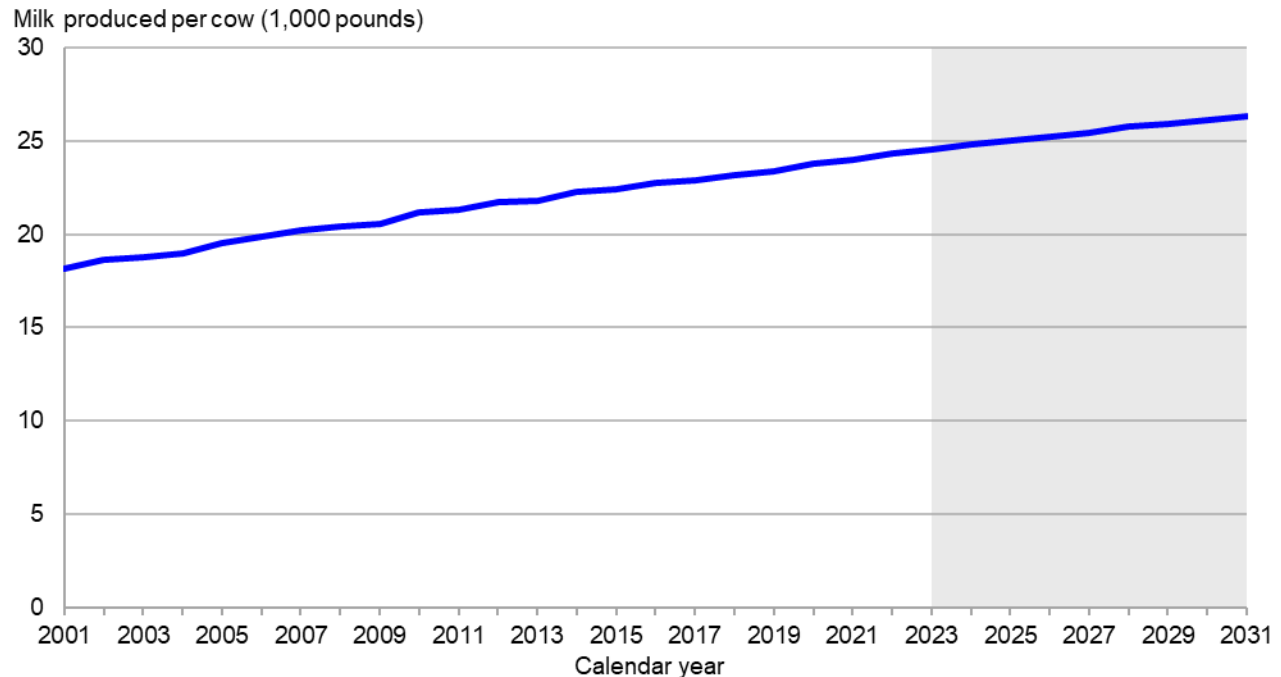
Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. Short-term projections are updated monthly in the *World Agricultural Supply and Demand Estimates*.

The U.S. dollar is assumed to be flat against the currencies of its agricultural trade partners during 2023–31. Nevertheless total U.S. red meat and poultry exports are projected to rise through 2031 as the U.S. red meat-poultry sector continues to adopt technology and management practices that raise productivity and lower production costs to meet foreign demand for U.S. animal proteins.

- Through most of the forecast period, the United States is expected to export more beef than it imports by a moderate margin, a switch from the pattern early in the forecast period. Strong import demand in key Asian markets will support increasing U.S. exports, while U.S. demand for imported processing-grade beef is expected to be dampened by increasing availability of domestic cows through much of the baseline period. Brazil is projected to remain the largest global beef exporter, while India remains second, and the United States and Australia are expected to compete for the third position. Among the major global beef exporters, the U.S. market share is expected to decline, particularly relative to Brazil.
- The annual percent change in U.S. pork exports averages less than 1 percent over the projection period, lower than growth rates for beef and poultry. Production efficiency gains in the hog sector continue to enhance the sector's international competitiveness. The presence of African Swine Fever (ASF) in China and elsewhere is expected to continue to be a potential source of volatility in international animal protein markets. The United States is expected to maintain its position as the second-largest exporter of pork behind the European Union but remain well ahead of other major pork exporters Brazil and Canada.
- U.S. poultry exports are expected to grow over the next 10 years, primarily driven by broiler exports, as turkey export growth is expected to slow after 2025. Broiler export growth is

expected to continue to benefit from gains in production efficiency, along with increasing global demand. Brazil remains the leading poultry exporter throughout the projections, followed by the United States and European Union.

Figure 22. U.S. milk production, 2001–31



Note: The shaded region represents the projected period.

Source: USDA, Interagency Agricultural Projections Committee, as of November 5, 2021. 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 through the projection period, reaching 252.4 billion pounds in 2031. With relatively high feed prices compared to farm-level milk prices, the dairy herd is expected to decline through 2024. Thereafter, 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 developments will contribute to increasing yields and milk components. In 2031, milk production per cow is projected to average 26,330 pounds.

- Domestic use on a milk-fat milk-equivalent basis is projected to increase at a CAGR of 1 percent over the projection period, but growth in domestic use on a skim-solids milk-equivalent basis is expected to rise at a CAGR of 0.7 percent. Demand for cheese is expected to rise because of continued greater consumption of prepared foods and increasing away-from-home eating. Butter demand is also expected to grow significantly. However, the decline in per capita consumption of fluid milk products is expected to continue. Demand for dry skim milk products (nonfat dry milk, skim milk powder, and dry skim milk for animal consumption) is also expected to decline.
- Global demand for U.S. dairy products is expected to continue to grow over the projection period, with substantial growth expected 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. Global demand for U.S. cheese is also expected to grow considerably. Growth of dairy exports on a milk-fat basis is projected to grow at a CAGR of 1.2 percent for the years 2023 through 2031. On a skim-solids basis, growth in dairy exports is expected to grow at a stronger CAGR of 2.1 percent.

- The all-milk nominal price is projected to increase during most years of the projection period with the greatest upward movements in the last 3 years. Adjusted for inflation, the all-milk price is projected to decrease until 2028 and then remain relatively flat for the remainder of the projection period.

Table 18: Per capita meat consumption projections to 2031, retail weight

Item	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<i>Pounds</i>												
Beef	58.4	58.6	56.8	55.8	55.6	55.4	55.3	55.3	55.4	55.4	55.4	55.5
Veal	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Pork	50.6	49.7	49.6	50.5	50.4	50.1	50.5	50.9	51.3	51.5	51.7	52.0
Lamb and mutton	1.2	1.3	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Total red meat	110.4	109.7	107.7	107.6	107.3	106.8	107.1	107.5	107.9	108.2	108.5	108.7
Broilers	96.2	95.8	96.8	98.6	99.2	99.9	99.9	100.4	100.5	100.5	101.1	101.6
Other chicken	1.4	1.5	1.5	1.5	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
Turkeys	15.8	15.4	15.5	15.3	15.4	15.4	15.4	15.4	15.3	15.2	15.1	15.1
Total poultry	113.4	112.7	113.8	115.3	116.0	116.7	116.7	117.2	117.2	117.2	117.7	118.1
Red meat and poultry	223.9	222.4	221.5	222.9	223.3	223.5	223.8	224.7	225.1	225.4	226.2	226.8

Notes: Totals may not add due to rounding. The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 19: Beef long-term projections to 2031

Item	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning stocks	Million lbs.	642	716	640	640	635	640	665	680	690	700	710	715
Commercial production	Million lbs.	27,174	27,832	26,995	26,672	26,777	26,964	27,193	27,410	27,645	27,874	28,097	28,314
Change from previous year	Percent	0.0	2.4	-3.0	-1.2	0.4	0.7	0.9	0.8	0.9	0.8	0.8	0.8
Farm production	Million lbs.	70	70	70	70	70	70	70	70	70	70	70	70
Total production	Million lbs.	27,244	27,902	27,065	26,742	26,847	27,034	27,263	27,480	27,715	27,944	28,167	28,384
Imports	Million lbs.	3,342	3,187	3,165	3,211	3,222	3,163	3,113	3,137	3,162	3,186	3,210	3,234
Total supply	Million lbs.	31,227	31,804	30,870	30,592	30,704	30,837	31,041	31,297	31,567	31,830	32,087	32,333
Exports	Million lbs.	2,951	3,414	3,270	3,201	3,213	3,249	3,290	3,330	3,373	3,415	3,456	3,497
Ending stocks	Million lbs.	716	640	640	635	640	665	680	690	700	710	715	715
Total disappearance	Million lbs.	27,561	27,750	26,960	26,757	26,851	26,923	27,071	27,276	27,494	27,706	27,916	28,121
Per capita, retail weight	Pounds	58.4	58.6	56.8	55.8	55.6	55.4	55.3	55.3	55.4	55.4	55.4	55.5
Change from previous year	Percent	1.0	0.3	-3.2	-1.6	-0.4	-0.4	-0.2	0.0	0.1	0.1	0.1	0.0
Prices:													
Beef cattle, farm	\$/cwt 1/	108.84	119.84	127.44	133.56	134.10	135.84	136.33	136.68	137.25	138.21	139.42	141.10
Calves, farm	\$/cwt	157.25	167.32	180.01	188.66	189.42	191.88	192.57	193.06	193.87	195.23	196.95	199.31
Steers, 5-area 2/	\$/cwt	108.51	121.06	128.75	134.94	135.48	137.24	137.73	138.08	138.66	139.63	140.86	142.55
Feeder steers, Oklahoma City	\$/cwt	135.45	144.80	155.50	171.19	171.80	174.39	174.91	175.14	175.76	177.06	178.83	181.41
Feed price ratio:													
Beef cattle-corn	Ratio	31.7	37.4	25.9	27.3	32.6	34.5	35.5	37.3	37.5	37.8	38.1	38.6
Cattle inventory	1,000 head	93,793	93,595	92,000	91,600	92,311	92,598	92,972	93,321	93,693	94,046	94,389	94,719
Beef cow inventory	1,000 head	31,339	31,158	30,555	30,534	30,596	30,663	30,797	30,946	31,091	31,227	31,350	31,460
Total cow inventory	1,000 head	40,681	40,598	40,000	39,974	40,041	40,113	40,257	40,416	40,581	40,732	40,875	41,010

1/ Cwt = hundredweight (100 pounds).

2/ Texas/Oklahoma/New Mexico; Kansas; Nebraska; Colorado; Iowa/Minnesota feedlots.

Notes: Totals may not add due to rounding. The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 20: Pork long-term projections to 2031

Item	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning stocks	Million lbs.	646	467	460	505	620	630	640	650	660	670	680	680
Commercial production	Million lbs.	28,303	27,674	27,585	28,367	28,394	28,509	28,905	29,269	29,657	29,976	30,286	30,603
Change from previous year	Percent	2.4	-2.2	-0.3	2.8	0.1	0.4	1.4	1.3	1.3	1.1	1.0	1.0
Farm production	Million lbs.	15.0	15.0	15.0	15.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Total production	Million lbs.	28,318	27,689	27,600	28,382	28,408	28,523	28,919	29,283	29,671	29,990	30,300	30,617
Imports	Million lbs.	904	1,107	1,145	954	959	964	969	974	979	983	988	993
Total supply	Million lbs.	29,869	29,264	29,205	29,842	29,987	30,117	30,528	30,907	31,310	31,644	31,969	32,290
Exports	Million lbs.	7,280	7,199	7,405	7,400	7,425	7,498	7,554	7,611	7,668	7,726	7,784	7,840
Ending stocks	Million lbs.	467	460	505	620	630	640	650	660	670	680	680	680
Total disappearance	Million lbs.	22,121	21,605	21,295	21,822	21,932	21,979	22,323	22,636	22,972	23,238	23,505	23,770
Per capita, retail weight	Pounds	50.6	49.7	49.6	50.5	50.4	50.1	50.5	50.9	51.3	51.5	51.7	52.0
Change from previous year	Percent	0.0	-1.8	-0.2	1.7	-0.2	-0.5	0.8	0.7	0.8	0.5	0.5	0.4

Prices:

Hogs, farm	\$/cwt 1/	47.12	71.83	62.60	60.67	57.23	54.82	51.29	48.43	47.12	47.03	47.66	49.01
National base, live equivalent	\$/cwt	43.18	69.45	60.50	58.64	55.31	52.97	49.57	46.80	45.54	45.45	46.06	47.37

Feed price ratio:

Hog-corn	Ratio	13.5	13.1	11.5	13.2	13.0	12.8	12.6	11.9	11.5	11.5	11.7	12.0
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Hog inventory,

December 1, previous year	1,000 head	78,228	76,822	74,750	77,500	77,484	77,554	78,383	79,122	79,922	80,531	81,111	81,705
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1/ Cwt = hundredweight (100 pounds).

Notes: Totals may not add due to rounding. The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 21: Young chicken (broiler) long-term projections to 2031

Item	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning stocks	Million lbs.	937	830	760	775	873	977	990	1003	1016	1029	1043	1056
Federally inspected slaughter	Million lbs.	44,583	44,724	45,240	46,546	47,195	47,805	48,213	48,849	49,275	49,711	50,382	51,020
Change from previous year	Percent	1.5	0.3	1.2	2.9	1.4	1.3	0.9	1.3	0.9	0.9	1.4	1.3
Production	Million lbs.	44,106	44,245	44,756	46,048	46,690	47,293	47,698	48,327	48,748	49,179	49,843	50,475
Total supply	Million lbs.	45,188	45,224	45,661	46,970	47,721	48,427	48,850	49,494	49,934	50,381	51,063	51,707
Change from previous year	Percent	1.7	0.1	1.0	2.9	1.6	1.5	0.9	1.3	0.9	0.9	1.4	1.3
Exports	Million lbs.	7,367	7,491	7,410	7,599	7,730	7,858	7,987	8,116	8,245	8,374	8,503	8,653
Ending stocks	Million lbs.	830	760	775	873	977	990	1,003	1,016	1,029	1,043	1,056	1,063
Disappearance	Million lbs.	36,991	36,974	37,476	38,498	39,014	39,579	39,860	40,362	40,659	40,964	41,503	41,991
Per capita, retail weight	Pounds	96.2	95.8	96.8	98.6	99.2	99.9	99.9	100.4	100.5	100.5	101.1	101.6
Change from previous year	Percent	1.2	-0.4	1.0	1.8	0.6	0.7	0.0	0.5	0.0	0.1	0.6	0.5

Prices:

Broilers, farm	Cents/lb.	36.4	50.7	50.8	51.0	52.4	52.9	53.5	53.4	53.7	54.0	54.3	55.0
Broilers, National composite	Cents/lb.	73.2	98.4	98.3	98.8	101.3	102.4	103.5	103.4	103.9	104.6	105.1	106.5

Feed price ratio:

Broiler-feed 1/	Ratio	3.7	3.5	2.6	2.8	3.3	3.4	3.4	3.5	3.5	3.5	3.5	3.5
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1/ Broiler feed price based on 58 percent corn price and 42 percent soybean price as used by USDA, National Agricultural Statistics Service.

Notes: Totals may not add due to rounding. The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 22: Turkey long-term projections to 2031

Item	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning stocks	Million lbs.	233	223	195	200	236	235	233	231	229	227	226	224
Production	Million lbs.	5,743	5,609	5,695	5,747	5,810	5,887	5,918	5,955	5,978	5,991	6,002	6,013
Total supply	Million lbs.	5,997	5,854	5,911	5,966	6,065	6,143	6,172	6,209	6,231	6,243	6,253	6,262
Change from previous year	Percent	-2.2	-2.4	1.0	0.9	1.7	1.3	0.5	0.6	0.3	0.2	0.2	0.1
Exports	Million lbs.	571	558	560	600	625	662	669	676	682	686	690	695
Ending stocks	Million lbs.	223	195	200	236	235	233	231	229	227	226	224	222
Disappearance	Million lbs.	5,203	5,101	5,151	5,130	5,206	5,247	5,272	5,304	5,322	5,331	5,339	5,345
Per capita, retail weight	Pounds	15.8	15.4	15.5	15.3	15.4	15.4	15.4	15.4	15.3	15.2	15.1	15.1
Change from previous year	Percent	-1.3	-2.3	0.7	-1.3	0.7	0.1	-0.2	-0.1	-0.4	-0.5	-0.5	-0.6

Prices:

Turkey, farm	Cents/lb.	70.9	81.7	80.9	80.6	81.7	81.4	82.8	83.6	84.3	85.1	85.9	86.3
Hen turkeys, National	Cents/lb.	106.5	121.6	120.5	120.1	121.7	121.3	123.3	124.5	125.5	126.7	127.9	128.4

Feed price ratio:

Turkey-feed 1/	Ratio	7.9	6.0	6.0	4.4	4.8	5.6	5.8	5.8	6.0	6.0	6.0	6.0
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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.
Notes: Totals may not add due to rounding. The projections were completed in October 2021.

Source: USDA, Interagency Agricultural Projections Committee.

Table 23: Egg long-term projections to 2031

Item	Units	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Beginning stocks	Million dozen	32	25	21	24	30	30	31	32	33	33	34	35
Production	Million dozen	9,283	9,319	9,460	9,560	9,710	9,866	10,038	10,208	10,378	10,549	10,721	10,894
Change from previous year	Percent	-1.7	0.4	1.5	1.1	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.6
Imports	Million dozen	16	18	16	16	16	16	16	16	16	16	16	16
Total supply	Million dozen	9,330	9,361	9,497	9,600	9,756	9,912	10,085	10,256	10,427	10,598	10,771	10,945
Change from previous year	Percent	-1.6	0.3	1.5	1.1	1.6	1.6	1.7	1.7	1.7	1.6	1.6	1.6
Hatching use	Million dozen	1,079	1,117	1,140	1,152	1,172	1,191	1,210	1,229	1,249	1,268	1,287	1,306
Exports	Million dozen	344	405	374	380	390	395	400	405	410	415	420	425
Ending stocks	Million dozen	25	21	24	30	30	31	32	33	33	34	35	36
Disappearance	Million dozen	7,883	7,818	7,959	8,038	8,164	8,295	8,443	8,589	8,735	8,881	9,029	9,178
Per capita	Number	286.5	283.1	287.2	287.5	289.9	292.5	295.5	298.5	301.5	304.4	307.3	310.3
Change from previous year	Percent	-2.4	-1.2	1.4	0.1	0.8	0.9	1.1	1.0	1.0	1.0	1.0	1.0

Prices:

Eggs, farm	Cents/dozen	91.4	100.2	99.4	101.5	103.6	105.8	107.9	110.0	112.1	114.3	116.4	118.5
New York, Grade A large	Cents/dozen	112.2	118.0	117.0	119.5	122.0	124.5	127.0	129.5	132.0	134.5	137.0	139.5

Feed price ratio:

Egg-feed 1/	Ratio	7.8	5.2	5.3	3.9	4.2	5.0	5.2	5.4	5.6	5.7	5.7	5.8
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1/ Egg feed price based on 75 percent corn price and 25 percent soybean price, as used by USDA, National Agricultural Statistics Service.

Notes: Totals may not add due to rounding. The projections were completed in October 2021

Source: USDA, Interagency Agricultural Projections Committee.

Table 24. Dairy long-term projections to 2031

Item	Units	2020 1/	2021	2022	2023	2024 1/	2025	2026	2027	2028 1/	2029	2030	2031
Milk production and marketings													
Number of milk cows	Thousand	9,388	9,475	9,450	9,435	9,430	9,435	9,450	9,470	9,495	9,520	9,550	9,585
Milk per cow	Pounds	23,777	23,960	24,305	24,530	24,835	24,990	25,220	25,440	25,735	25,885	26,110	26,330
Milk production	Billion lbs.	223.2	227.0	229.7	231.4	234.2	235.8	238.3	240.9	244.4	246.4	249.4	252.4
Farm use	Billion lbs.	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Marketings	Billion lbs.	222.1	226.0	228.6	230.3	233.1	234.7	237.2	239.8	243.3	245.3	248.3	251.3
Supply and use, milk-fat basis:													
Beginning commercial stocks	Billion lbs.	13.6	15.6	15.5	15.3	15.7	16.0	16.4	16.8	17.3	17.8	18.2	18.7
Marketings	Billion lbs.	222.1	226.0	228.6	230.3	233.1	234.7	237.2	239.8	243.3	245.3	248.3	251.3
Imports	Billion lbs.	6.8	6.6	6.7	6.9	6.8	6.7	6.6	6.5	6.4	6.3	6.3	6.2
Commercial supply	Billion lbs.	242.5	248.2	250.8	252.5	255.6	257.4	260.2	263.1	267.0	269.4	272.8	276.2
Domestic commercial use 2/	Billion lbs.	217.4	220.8	224.5	226.6	229.4	230.5	232.6	234.7	237.7	239.6	242.2	244.7
Commercial exports	Billion lbs.	9.3	11.8	11.0	10.2	10.2	10.5	10.8	11.1	11.5	11.6	11.9	12.3
CCC donations 3/	Billion lbs.	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ending commercial stocks	Billion lbs.	15.6	15.5	15.3	15.7	16.0	16.4	16.8	17.3	17.8	18.2	18.7	19.2
Supply and use, milk-fat basis:													
Beginning commercial stocks	Billion lbs.	10.2	10.9	11.0	11.1	11.3	11.6	11.7	12.0	12.2	12.5	12.7	12.9
Marketings	Billion lbs.	222.1	226.0	228.6	230.3	233.1	234.7	237.2	239.8	243.3	245.3	248.3	251.3
Imports	Billion lbs.	5.6	5.6	5.5	5.6	5.5	5.4	5.3	5.2	5.1	5.1	5.0	5.0
Commercial supply	Billion lbs.	237.9	242.5	245.1	247.0	249.9	251.7	254.2	257.0	260.6	262.9	266.0	269.2
Domestic commercial use 2/	Billion lbs.	179.7	180.0	182.2	183.2	184.7	185.4	186.4	187.7	189.6	190.5	192.0	193.7
Commercial exports	Billion lbs.	47.2	51.4	51.8	52.5	53.6	54.6	55.8	57.1	58.5	59.7	61.1	62.4
CCC donations 3/	Billion lbs.	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ending commercial stocks	Billion lbs.	10.9	11.0	11.1	11.3	11.6	11.7	12.0	12.2	12.5	12.7	12.9	13.1
Price received by dairy farmers													
All milk	\$/hundredweight	18.24	18.45	19.20	19.20	19.20	19.35	19.40	19.55	19.50	20.05	20.45	20.85
Wholesale dairy product prices													
Butter	\$/lb.	1.58	1.68	1.76	1.75	1.83	1.88	1.90	1.92	1.92	2.00	2.03	2.08
Cheddar cheese	\$/lb.	1.92	1.68	1.72	1.77	1.77	1.78	1.78	1.79	1.79	1.82	1.85	1.88
Nonfat dry milk	\$/lb.	1.04	1.25	1.38	1.32	1.24	1.24	1.22	1.23	1.21	1.30	1.34	1.38
Dry whey	\$/lb.	0.36	0.56	0.51	0.48	0.47	0.47	0.47	0.47	0.46	0.47	0.47	0.46

1/ Leap year.

2/ Domestic commercial use for 2020 includes significant milk marketed but not processed.

3/ CCC donations include purchases made through the USDA Trade Mitigation program (funded through CCC) but not under other programs

Notes: Totals may not add due to rounding. The Commodity Credit Corporation (CCC) is a wholly-owned Government corporation administered by USDA. The projections were completed in October 2021.

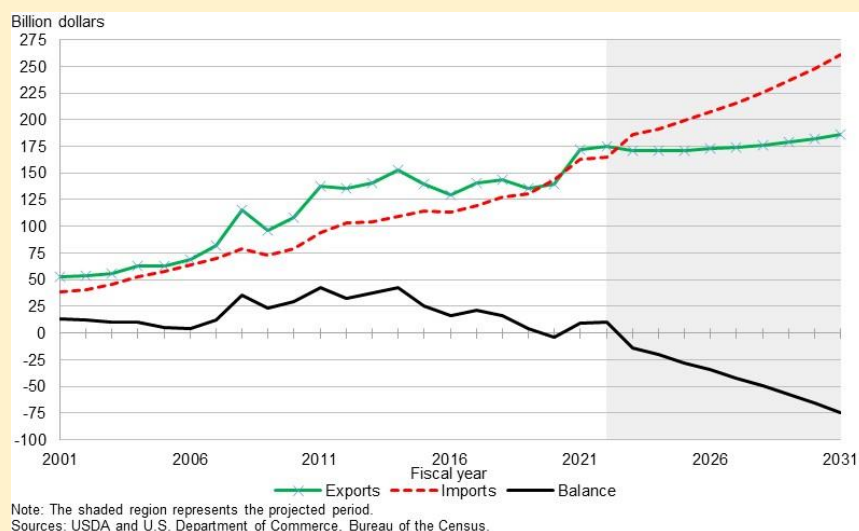
Source: USDA, Interagency Agricultural Projections Committee.

Breakout Box: U.S. Agricultural Trade Projections

U.S. agricultural trade is projected using data released by U.S. Department of Commerce, Bureau of the Census on November 4, 2021 that includes values and volumes of U.S. imports and exports through September 31, 2021. This section covers fiscal years—October 1 through September 31—2020 through 2031 with forecasts beginning in FY 2022. With the release of the January 2021 monthly trade data on March 8, 2021, USDA—in coordination with the U.S. Department of Commerce, Bureau of the Census—adopted the World Trade Organization's internationally recognized definition of "Agricultural Products" as its standard definition for the purposes of reporting U.S. agricultural trade; this is the definition used to define agricultural trade products throughout this section. More information on the changes resulting from this new definition can be found in Appendix A of the Economic Research Service Outlook for U.S. Agricultural Trade: August 2021.

Projected U.S. total agricultural export values increase by 1.9 percent in 2022 surpassing the record of \$172.2 billion in 2021, mainly due to increases in livestock and meat products, cotton, and oilseed exports. Increases in unit values are expected to accompany steady or increasing export volumes for most commodities with a notable exception of grains and feeds following record export volumes for those products in 2021. Beyond 2022, as market prices are expected to compensate for current inflationary pressures, unit values are expected to decrease before resuming a steady upward trend through 2031, having a leveling off effect on total agricultural export value in the near term. Agricultural exports are expected to grow at an annual rate averaging 0.8 percent per year from 2021 through 2031. The value of U.S. agricultural imports is projected to increase by an average annual rate of 6 percent over that same period as domestic consumer spending is expected to remain strong over the next decade combined with domestic preferences for an array of agricultural goods that continue to exceed domestic production.

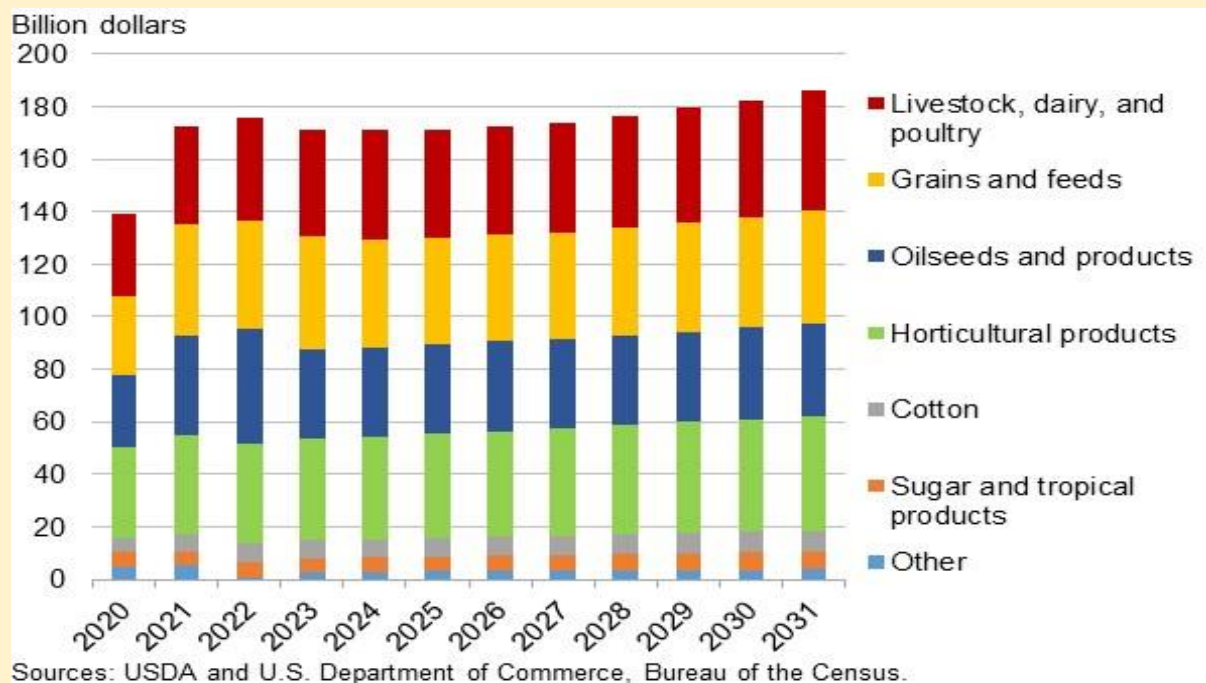
Figure 23. U.S. agricultural trade long-term projections, 2001–31



— Continued

As the United States and global economies adjust after the fluctuations caused by the pandemic, gross domestic product (GDP), income, and spending are expected to resume modest, yet steady growth through the remainder of the projection horizon. U.S. export values are expected to reach a short-term peak of \$175.5 billion in FY 2022 and decrease through 2025 before resuming growth through the projection period.

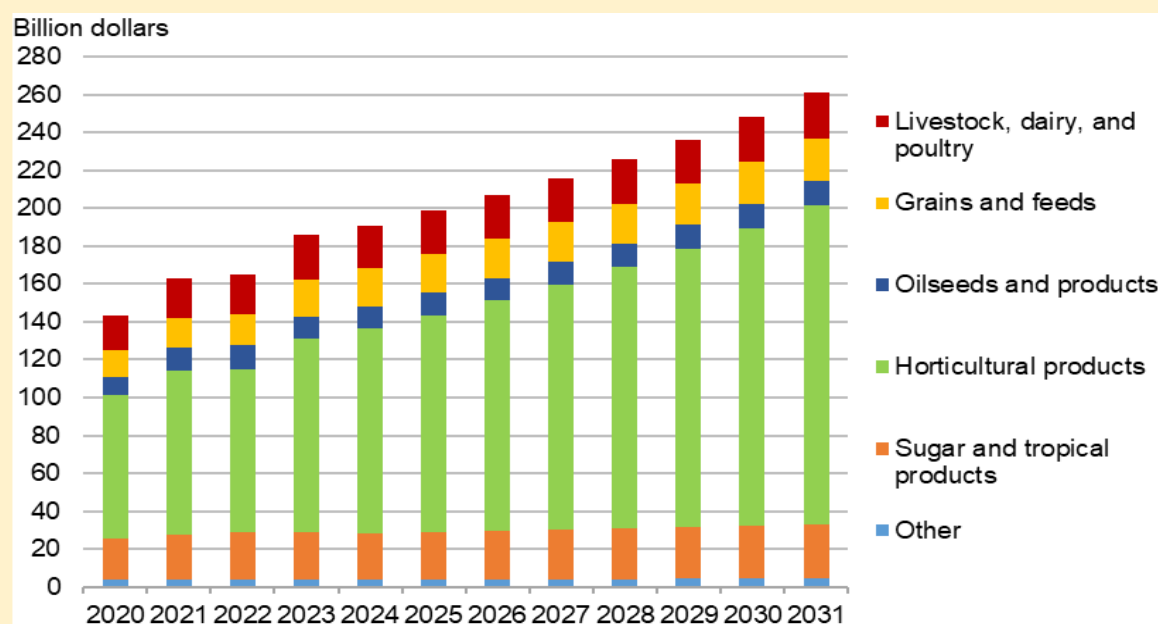
Figure 24. Projected U.S. agricultural exports by commodity group, 2020–31



Compared to bulk commodities, such as soybeans, corn, and wheat, U.S. exports of high-value products, including horticultural and animal products, have grown as a share of total exports, increasing from about a 48-percent share in 1990 to 70.2 percent in 2020. However, in fiscal year 2021, the bulk commodity share began to rebound as exports of feed grains to China were increased to support their growing livestock production. That trend is expected to continue, decreasing the high-value-product share of total exports through 2022, but high-value products are expected to regain share approaching 67 percent by 2031.

— Continued

Figure 25. Projected U.S. agricultural imports by commodity group, 2020–31



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

Growing U.S. consumer demand for year-round availability of a wide variety of foods, the increasing value of those foods, and transportation costs drives increases in U.S. agricultural imports over the projection period. Agricultural imports continue to grow throughout the decade, with the value of imports rising from \$163.3 billion in fiscal year 2021 to \$261.3 billion by fiscal year 2031. The nearly \$100 billion increase (a 60 percent increase) would still be the smallest 11-year percentage increase going back to 1990–2000. The highest growth commodity sector by value is expected to be horticultural products, which are projected to expand about 5 percent per year. The horticultural products category encompasses a wide range of products with growth largely driven by beverages, especially distilled spirits, which alone comprised over 11 percent of the total value of horticultural products in 2021. Other sectors of significant growth include fresh fruit and vegetables (e.g., citrus) and packaged or prepared food products. Many imported products are differentiated (e.g., organic) or high-value products for which demand is less sensitive to price and currency fluctuations.

— End

Table 25: U.S. agricultural trade long-term projections to 2031, fiscal years

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<i>Billion dollars</i>												
Agricultural exports (value)												
Livestock, dairy, and poultry	31.6	37.0	38.8	41.0	41.4	41.2	41.5	41.9	42.4	43.2	44.4	45.8
Livestock and meats	20.1	23.7	24.5	26.2	26.5	26.3	26.4	26.5	26.7	27.1	27.8	28.5
Dairy products	6.5	7.3	7.7	9.0	8.9	8.8	8.9	9.0	9.2	9.4	9.8	10.3
Poultry products	5.1	6.0	6.6	5.9	6.0	6.1	6.2	6.4	6.5	6.7	6.9	7.0
Grains and feeds	29.9	42.7	41.5	42.6	41.3	40.2	40.6	40.3	41.1	41.8	42.2	43.0
Coarse grains	9.3	19.5	19.4	18.3	17.6	17.3	17.3	16.9	17.3	17.8	18.2	18.6
Feeds and fodder	7.9	9.1	8.3	9.1	8.8	8.5	8.5	8.4	8.6	8.7	8.7	8.9
Oilseeds and products	27.5	37.9	43.5	34.0	33.8	33.9	34.0	34.1	34.3	34.6	35.0	35.4
Soybeans and products	23.2	33.0	39.0	29.2	29.0	29.1	29.2	29.3	29.4	29.6	30.0	30.3
Horticultural products 1/	34.8	37.6	37.7	38.7	39.3	39.8	40.4	41.0	41.6	42.3	42.9	43.6
Fruits and vegetables, fresh	7.0	7.1	7.3	7.2	7.2	7.2	7.2	7.3	7.3	7.3	7.3	7.3
Fruits and veg., processed	6.5	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.2	7.2	7.2	7.2
Tree nuts, whole & processed	8.5	8.8	9.0	9.0	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8
Cotton	5.6	6.2	7.3	7.1	6.7	7.1	7.2	7.3	7.5	7.7	7.9	8.1
Sugar and tropical products	5.4	5.7	5.9	5.2	5.4	5.6	5.8	6.0	6.2	6.4	6.7	6.9
Other exports 1/	4.8	5.1	0.8	2.9	3.0	3.0	3.1	3.2	3.3	3.4	3.5	3.6
Total agricultural exports	139.7	172.2	175.5	171.4	170.9	170.9	172.7	174.0	176.4	179.4	182.6	186.3
Major bulk commodities 2/	41.7	62.6	64.1	61.6	59.9	59.2	59.3	59.0	59.6	60.3	60.9	61.7
High-value product exports 3/	98.0	109.5	111.4	109.9	111.0	111.8	113.4	115.0	116.9	119.0	121.7	124.6
<i>Percent</i>												
High-value product share	70.2	63.6	63.5	64.1	65.0	65.4	65.6	66.1	66.2	66.4	66.7	66.9
<i>Million metric tons</i>												
Agricultural exports (volume)												
Volume in million metric tons	135.4	165.8	156.1	157.0	159.9	162.5	165.1	167.7	169.6	172.0	174.6	177.1
<i>Billion dollars</i>												
Agricultural imports (value)												
Livestock, dairy, and poultry	18.2	21.0	20.9	23.4	22.5	23.1	23.2	23.1	23.1	23.4	23.9	24.4
Livestock and meats	14.2	16.4	16.7	18.2	17.3	17.8	17.8	17.6	17.5	17.8	18.1	18.5
Dairy products	3.3	3.7	3.3	4.1	4.2	4.2	4.3	4.4	4.5	4.6	4.6	4.7
Grains and feeds	14.3	15.8	16.2	20.0	20.3	20.4	20.6	20.9	21.2	21.5	21.8	22.2
Grain products	9.8	11.2	11.7	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6	12.6
Oilseeds and products	9.8	12.6	13.2	11.5	12.0	12.1	12.0	12.3	12.6	12.7	12.8	13.2
Vegetable oils	5.7	7.6	8.1	8.7	9.1	9.1	9.1	9.4	9.6	9.7	9.9	10.2
Horticultural products	75.8	86.1	85.8	101.9	108.0	114.6	121.8	129.5	138.0	147.3	157.4	168.4
Fruits and vegetables, fresh	23.9	26.0	26.1	28.3	29.4	30.5	31.7	33.0	34.3	35.6	37.1	38.5
Fruits and vegetables, processed	11.3	13.0	12.7	13.8	14.1	14.5	14.9	15.2	15.6	16.0	16.5	16.9
Sugar and tropical products	21.7	23.9	25.0	25.3	24.5	24.8	25.6	26.2	26.8	27.5	28.2	28.8
Sugar and related products	5.1	5.4	5.3	5.0	3.6	3.4	3.6	3.6	3.7	3.7	3.7	3.7
Cocoa, coffee, and products	10.9	12.1	12.0	13.7	14.1	14.4	14.8	15.2	15.5	15.9	16.3	16.7
Other imports 4/	3.5	3.9	3.9	3.7	3.8	3.8	3.9	4.0	4.1	4.1	4.2	4.3
Total agricultural imports	143.4	163.3	165.0	185.8	191.0	198.9	207.1	215.9	225.7	236.5	248.3	261.3
Net agricultural trade balance	-3.7	8.9	10.5	-14.4	-20.1	-27.9	-34.3	-42.0	-49.3	-57.1	-65.7	-74.9

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

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

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

4/ Includes planting seeds, unmanufactured tobacco, and cotton.

Notes: U.S. trade value projections were completed in December 2021. For updates of the nearby year forecasts, see USDA's *Outlook for U.S. Agricultural Trade* report, published in February, May, August, and November. Sources: U.S. Department of Agriculture and 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 2022, following two consecutive years of increase beginning in calendar year 2020. Net farm income is projected to decrease \$15.8 billion, or 13.5 percent, from \$116.8 billion in 2021 to \$101 billion in 2022. Net cash farm income is projected to decrease \$24 billion (18.1 percent) from \$133 billion in 2021 to \$109 billion in 2022. Lower government payments, including those related to the COVID-19 pandemic, relative to 2021 is the primary contributor to the projected decline in net farm income for 2022. Farmers received an estimated \$27.2 billion in direct payments in 2021 but those payments are forecast to be 67 percent lower, to \$8.9 billion in 2022. The decrease in direct Government payments can be attributed to a projected decline in payments from USDA and non-USDA pandemic assistance programs. The projections assume no new pandemic-related assistance after 2021.

After decreasing by \$18.4 billion in 2022 to \$8.9 billion, direct government payments are projected to decline again in 2023 as relatively high prices in 2021/22 and the next several years reduce government payments for programs such as Price Loss Coverage (PLC). We also assume no further COVID related program payments. After 2023, direct Government payments are expected to marginally increase before starting to decrease in 2029. The Conservation Reserve Program (CRP), Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) payments collectively account for the largest share of direct government payments to the agricultural sector over 2022–31. These projections assume no government payments from potential new farm sector support programs, including any direct loan forgiveness programs.

- Acreage enrolled in the CRP is assumed to be at or slightly less than 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 gradually increase from \$2.1 billion in 2021 to \$2.7 billion in 2031, primarily due to an increase in acres enrolled to the legislative cap of 27 million acres.
- Payments under the ARC and PLC programs are projected to decrease from about \$2.2 billion in 2021 to \$1.7 billion in 2022. ARC and PLC payments are projected to decrease further after 2022. These payments drop to a low of \$62.3 million in 2023. For the 2022–31 projection period, producers are assumed to be able to change their base acre election between the ARC and PLC programs annually. From 2024–28, ARC payments increase and then decrease from 2029 through 2031.
- Total farm production expenses are projected to rise slightly in 2022 because of increase in interest expenses, an upward trend in manufactured inputs, and feed expenses. The average increase in production expenses from 2022 through 2031 is less than 2 percent annually. Expenses for farm-origin inputs, manufactured inputs, and aggregate expenses for other nonfarm-origin inputs are expected to increase below the general inflation rate. However, interest expenses and fuel and oil costs are expected to increase at a rate higher than inflation.

Figure 26. U.S. farm income indicators, 2001–31

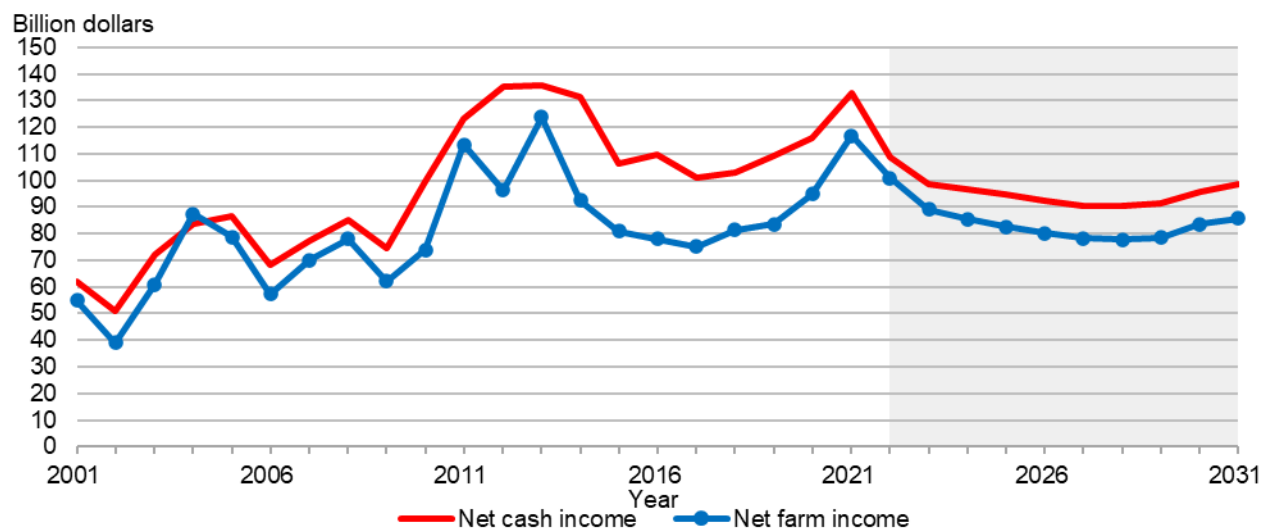


Figure 27. U.S. farm gross cash income, 2001–31

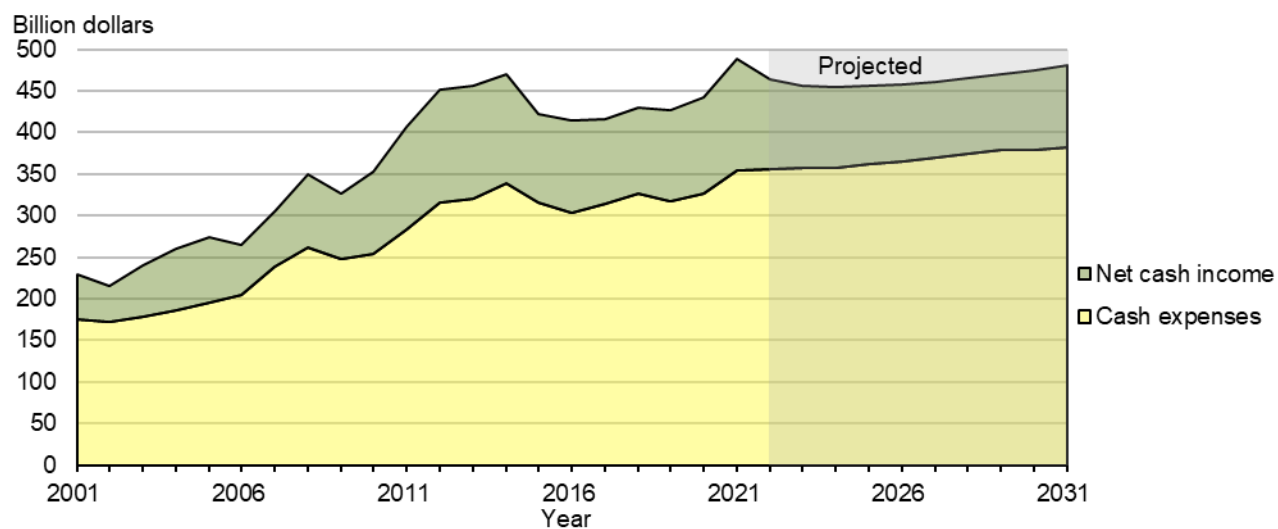
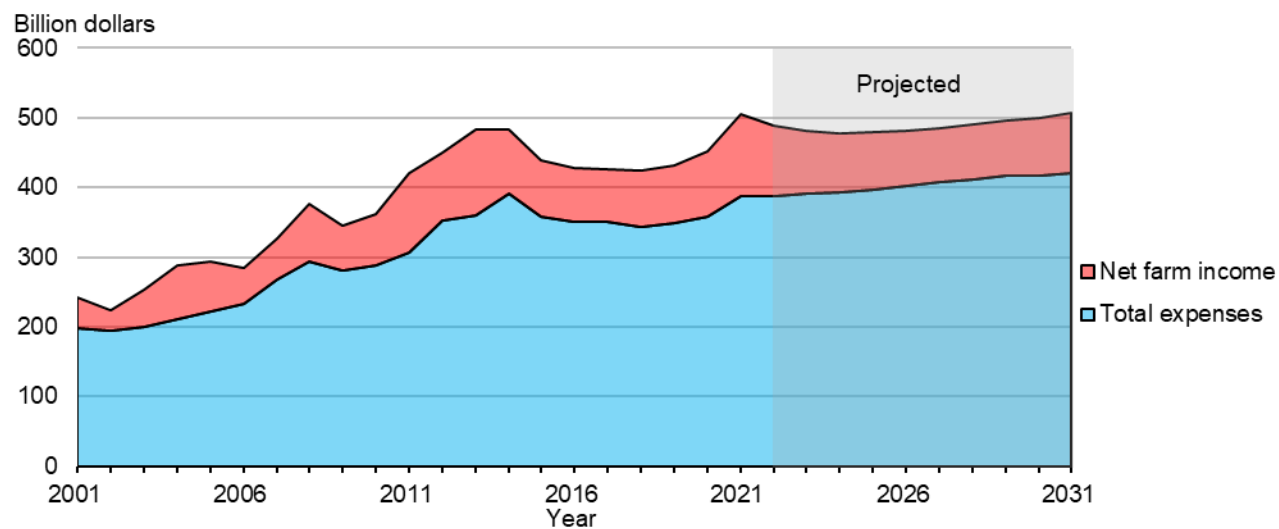
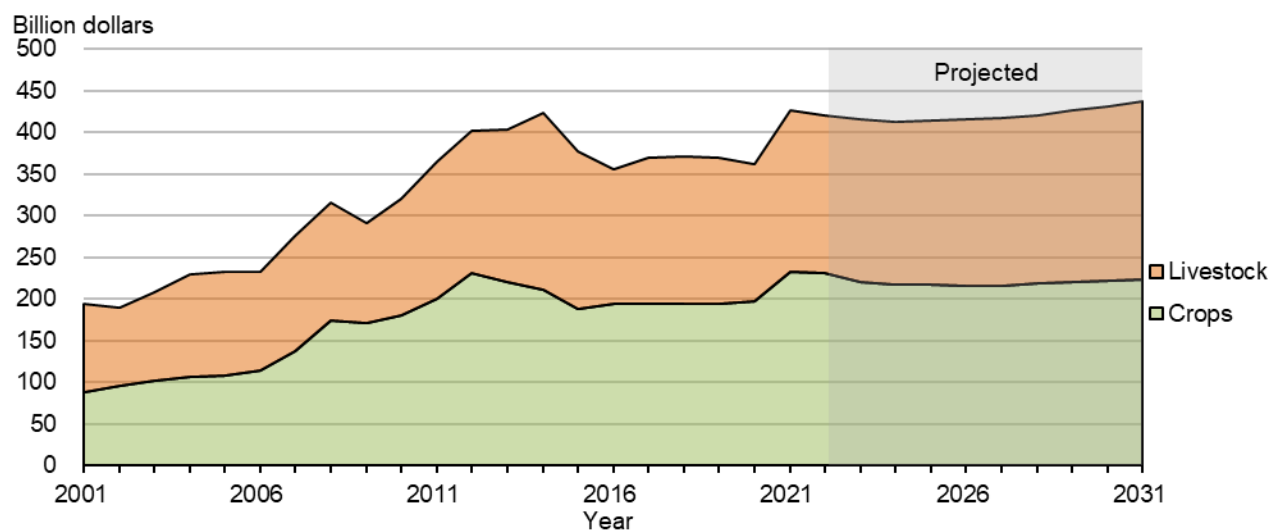


Figure 28. U.S. total gross farm income, 2001–31



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

Figure 29. U.S. farm cash receipts, 2001–31



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

Figure 30. Total direct government payments, 2001–31

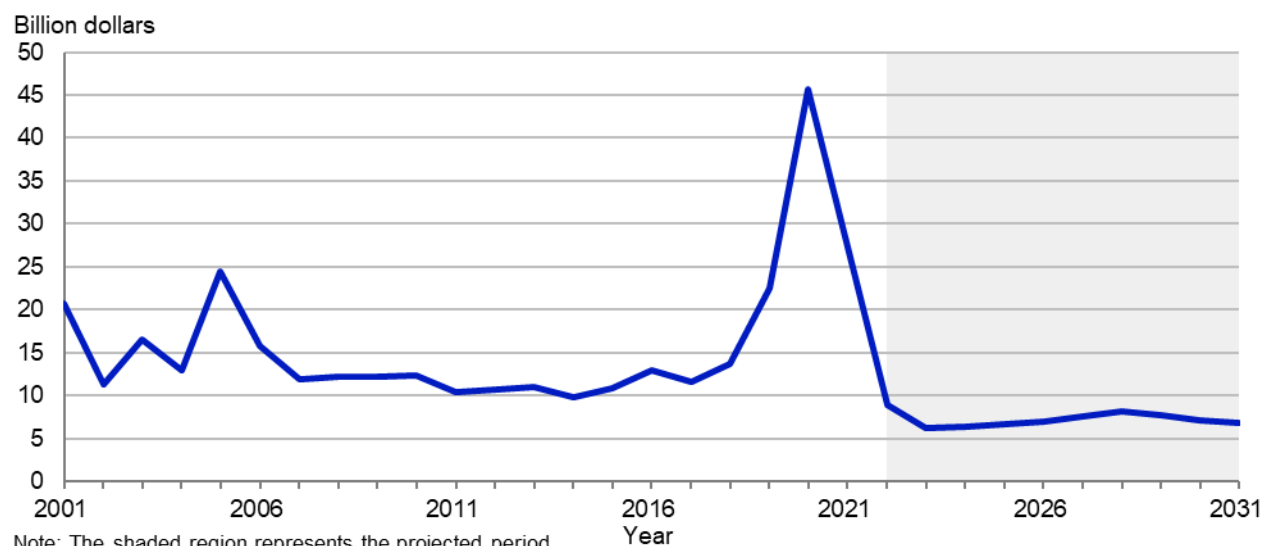


Table 26. Farm receipts, expenses, and income, long-term projections to 2031

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<i>Billions of dollars</i>												
Cash income statement												
Cash receipts	362.6	427.3	420.4	415.3	413.2	414.7	415.4	417.4	421.3	426.5	431.5	438.0
Crops	197.6	233.0	231.4	221.0	217.9	217.1	216.3	216.5	218.5	220.1	221.4	223.6
Livestock	165.0	194.3	188.9	194.2	195.2	197.6	199.1	200.9	202.8	206.3	210.1	214.4
Direct Government payments	45.7	27.2	8.9	6.2	6.3	6.6	6.9	7.5	8.2	7.7	7.1	6.7
Farm-related income	34.3	33.4	35.1	35.3	35.3	35.5	35.6	35.9	36.1	36.3	36.4	36.5
Gross cash income	442.5	487.9	464.4	456.7	454.8	456.7	458.0	460.8	465.5	470.5	475.0	481.2
Cash expenses	326.5	354.9	355.4	358.1	357.9	361.8	365.8	370.2	375.0	378.9	379.2	382.6
Net cash income	116.0	133.0	109.0	98.6	96.9	94.9	92.2	90.6	90.5	91.5	95.8	98.6
Farm income statement												
Gross cash income	442.5	487.9	464.4	456.7	454.8	456.7	458.0	460.8	465.5	470.5	475.0	481.2
Non-money income	18.5	21.5	22.6	22.5	22.5	22.7	22.9	23.2	23.4	23.5	23.5	23.7
Value of inventory change	-8.5	-5.0	2.3	1.6	0.9	0.6	1.2	1.2	1.1	1.2	1.8	1.9
Total gross income	452.6	504.4	489.2	480.8	478.2	480.1	482.1	485.1	490.1	495.3	500.4	506.8
Total expenses	357.8	387.6	388.2	391.7	392.7	397.4	401.8	406.9	412.3	416.8	416.9	421.0
Net farm income	94.8	116.8	101.0	89.1	85.5	82.7	80.3	78.3	77.8	78.4	83.5	85.9

Notes: The projections were completed in January 2022. History for 2020 and short-term forecasts for 2021 are from USDA, Economic Research Service, December 1, 2021. This projection included estimates of Coronavirus Food Assistance programs (CFAPs) that were announced in 2020.
Source: USDA, Economic Research Service.

Agricultural Trade

Relatively strong growth in global and U.S. agriculture trade volume is projected over the next 10 years. World agricultural trade is projected to grow for all commodities. Increasing trade is partially driven by the economic recovery following the lifting of COVID-19-related restrictions that began in 2020 in most countries. Growth in global agricultural trade is driven primarily by rising food and feed demand in middle- and low-income countries. With rising populations and increasing purchasing power, the middle- and low-income countries account for about 80 percent of the projected increase in world demand for grains, oilseeds, and meats, and most of the cotton consumption growth.

Asia has the strongest projected gross domestic product (GDP) growth rates. Southeast Asia's projected real GDP per capita growth rate over the projection period is 4.1 percent and South Asia is projected at 4.6 percent; China is 4.9 percent. The Middle East and Africa have growth rates at 2.2 and 1.2 percent, respectively. Most commodity prices are projected to be stable and slightly lower in real terms over the projection period contributing to increasing consumption and import demand for agriculture commodities and food products. This is especially true for low-income countries and emerging economies that are relatively more responsive to global prices and increases in household income. The growth in agricultural trade is mostly driven by middle- and low-income countries, but several mature economies such as Japan, South Korea, Canada, and the European Union are quite stable with steady and continuing large imports of commodities. China is one of the largest importers for many commodities throughout the projection period.

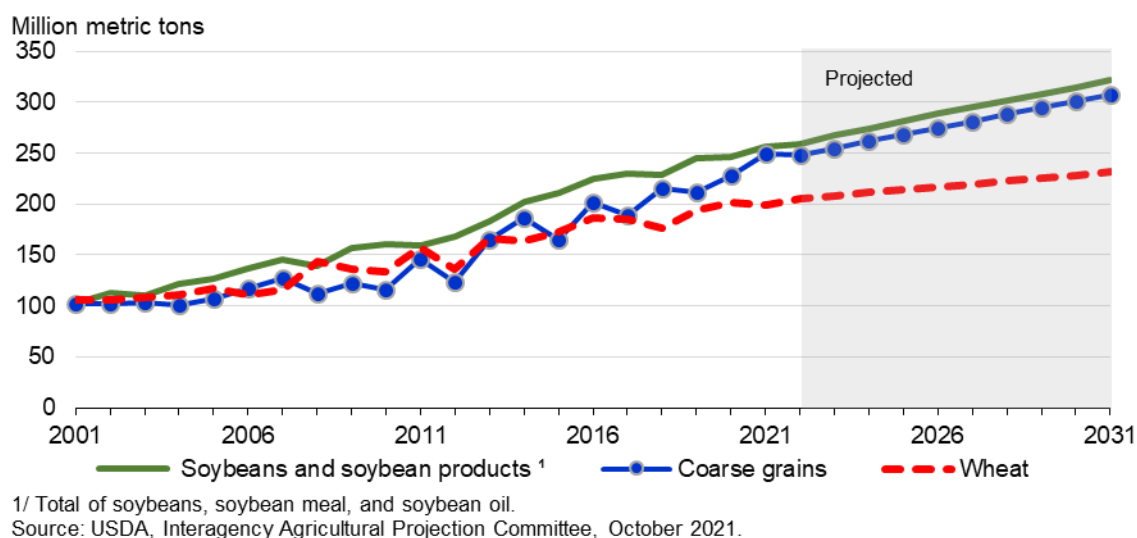
Continued improvements in many middle- and low-income countries' economies, infrastructure advances, and greater job opportunities have a major effect on food consumption patterns and global agricultural trade. Numerous factors affecting food consumption and trade in middle- and low-income countries, including urbanization, income growth, transportation and shipping improvements, infrastructure development such as reliable roads, electricity, and refrigeration. In addition, there is increasing access to a greater variety of food outlets, including open markets, small convenience stores, and larger grocery retail outlets. The effect of urbanization on food consumption and changing diets varies among countries.

Most of the emerging economies in Asia have benefited significantly as job opportunities increased in the cities and urban areas from many sectors of the economy. Family income growth contributes to diet diversification, creating a demand for higher quality food, more protein, and more household labor-saving food products. Increasing meat consumption leads to more imports and expanding domestic meat production with increasing feed demand. Many countries lack the agro-climatic conditions or available arable land for corn and soybean production leading to greater import demand for corn and soybean meal or soybeans as countries develop crushing facilities. Even among low-income families, modest increases in incomes can lead to diet diversification to alternative staple foods and increased imports. In West Africa, rice is more convenient to prepare for family meals than

traditional staples such as millet, sorghum, and maize. West Africa is one of the world's leading regions for rice import demand.

Population growth rates also have a significant effect on total food consumption and trade. Middle- and low-income countries have relatively higher population growth rates and younger age demographics than high-income countries. Even with modest increases in per capita food consumption, large population growth rates will lead to substantial increases in total demand for commodities and food products, increasing imports and global trade. Africa has a population growth rate of 2.3 percent per year over the projection period with the population increasing by 318.7 million people by 2031 reaching 1.7 billion people. This projected increase in population for Africa is nearly equivalent to the population of the entire United States.

Figure 31. Global trade: Wheat, coarse grain, soybeans and soybean products, 2001–31



Growth in global demand and trade for staple food grains—primarily rice and wheat—remains steady, but at a slower pace than for animal products and feedstuffs. Increases in per capita rice and wheat consumption are mostly among low-income households and countries where the demand to increase the consumption of staple foods remains strong. World rice consumption is projected to increase a total of 5.7 percent over the projection period and rice trade by 14.6 percent (7.2 million tons). World wheat consumption is projected to grow a total of 7.3 percent over the projection period, while wheat trade expands 12.5 percent (25.6 million tons). Increasing consumption and trade of coarse grain, soybeans, and soybean meal is driven by increasing meat production. The combined production of beef, pork, and poultry increases by 13 percent over the projection period and coarse grain feed use increases by 15.2 percent.

International Projection Highlights

Wheat

Global wheat consumption increases 8.3 percent above 2022/23 levels by 2031/32. The regions with the greatest increase in food use over the projection period are West Africa (40.8 percent), sub-Saharan Africa (33 percent), and Southeast Asia (22.3 percent). Wheat for all uses expands in the two largest wheat-consuming regions: the European Union and China. Global wheat production is projected to increase by 8.2 percent over the decade, with higher yields accounting for 68 percent of this production increases. Close to 90 percent of the world's wheat production is in 12 countries. The European Union and 6 countries — China, India, Russia, the United States, Canada, and Ukraine— account for almost 73 percent of world wheat production. Africa, the Middle East, and Southeast Asia combined account for about 82 percent of the projected increase in world wheat imports. Increasing wheat production from the European Union, Russia, Ukraine, and Canada supplies almost 94 percent of the projected increase in the world's wheat import demand.

Rice

World rice consumption increases by 5.7 percent over the projection period, with population growth accounting for about 30 percent of the increase. Africa and the Middle East are expected to contribute about 41 percent to the increase in world rice consumption over the projection period. India is projected to account for 22 percent of the global increase in rice consumption, largely due to population growth, adding almost 115 million people over the projection period.

Global rice production is projected to increase by almost 6.5 percent over the projection period driven mostly by the 4.4 percent yield growth, accounting for 70 percent of the higher production. Rice trade is projected to increase by 14.6 percent, reaching 56.7 million tons by 2031/32. West Africa, the rest of sub-Saharan Africa, and the Middle East combined account for almost 66 percent of the projected growth in rice imports. India is projected to remain the largest rice exporter through 2031/32, followed by Thailand, Vietnam, and Pakistan.

Beef, pork, and poultry

Global consumption of beef, pork, and poultry is projected to grow 9.8 percent, 11.4 percent, and 16.7 percent, respectively, between 2023 and 2031. Projected demand growth for all meats is fastest among middle-income developing regions, including Southeast Asia, Latin America, Africa, and the Middle East.

Poultry has greater growth in production and consumption as compared to beef and pork. Unlike beef and pork, poultry production exhibits stronger growth in many countries and regions of the world. In middle- and low-income countries, there have been significant gains in the poultry sectors compared to the other meats. The United States, China, and Brazil are expected to account for about 33 percent of global poultry consumption by 2031. China accounts for the largest single share of increased consumption of all three meats

throughout the projections. The growth of poultry consumption is strongest in developing economies growing at 20.8 percent, where developed economies grow at 8.5 percent over the projection period. Higher population growth rates in developing and emerging economies also contribute to strong growth in consumption, especially in African countries.

Beef consumption in the developing countries increases by 12.6 percent as compared to 5 percent for developed economies over the projection period. China, the United States, Brazil, and the European Union together are projected to account for 49 percent of the world's beef consumption, which is close to their 2021 global share of consumption. China is projected to remain the world's largest pork consuming country at almost 46 percent of the global share, with the European Union and the United States much less at 14 and 8.4 percent of world share by 2031. The strongest growth in pork consumption is in Southeast Asia at 20.8 percent over the projection period. Sub-Saharan Africa, starting from a low consumption level, also shows strong growth. China's pork production begins to recover from African swine fever, reaching 52 to 53 million tons by 2031/32. Consumption also recovers and increases because of pork imports, with consumption reaching about 57 to 58 million tons by 2031/32.

By 2031 the United States and Brazil are projected to account for almost 32 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 percent of the world's beef production by 2031. 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 41 percent of projected increase by 2031. The next largest pork producers—the European Union, the United States, Brazil, and Russia— account for almost 38 percent of the projected production by 2031. By 2031, almost 54 percent poultry production is by the 5 major meat producing countries – 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, with top exporters Brazil, India, the United States, and Argentina supplying most of the increased demand. Brazil's growing supplies provide about 47 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 55 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. Brazil, United States, European Union, and Thailand are the world's largest exporters and are expected to capture the largest shares of projected growth in poultry imports.

Coarse grains

As meat production expands, many countries increase feed use. Corn feed and residual use is projected to expand by 19.7 percent during 2022/23–2031/32. China, the United States, Brazil, European Union, and Mexico are projected to account for almost 68 percent of the world's feed demand by 2031/32. Additional countries and regions with strong growth, include Saudi Arabia, Vietnam, India, Argentina, Egypt, Pakistan, Iran, Indonesia. As meat production expands, many countries increase feed use.

Total corn production is projected to increase 14.4 percent over the projection period, with China and Brazil posting the largest gains and fastest growth among major producers. Overall, area expansion provides about 30 percent of the expected growth in world corn output gains, whereas yield growth provides about 70 percent. Yield growth is concentrated in the developed economies with greater access to advanced technology. Just over 50 percent of new corn area is in Brazil and India followed by the sub-Saharan Africa region, adding about 10 percent of new area over the projection period.

Total corn import increases about 27 percent over the projection period, with an array of middle-income countries in the Middle East, Latin America, Southeast Asia, and North Africa accounting for about 74 percent of the growth. About 93 percent of the increased coarse grain import demand is comprised of corn and is supplied primarily by Brazil, the United States, and Ukraine.

Soybeans and products

Total global soybean meal demand increases by 22.6 percent from 2022/23 to 2031/32. Major animal product producers China, Brazil, the United States, and the European Union, account for the largest share of soybean meal demand. In 2020, these 3 countries and the European Union combined accounted for 61.8 percent of global soybean meal consumption. China exhibits the strongest growth at almost 38 percent as it recovers from African swine fever. However, the projected increase in demand by developing countries is 29.1 percent, which far exceeds the projected increase of 8 percent for developed countries. Regions and countries—including the Middle East, North Africa, Southeast Asia, and Latin America— with strong growth in poultry consumption and production, exhibit the strongest growth in soymeal feed demand.

Projected global use of soybean oil grows 27.5 percent over the decade, with China and India accounting for 72.5 percent of expected growth. Southeast Asia, Africa, and the Middle East all exhibit growth rates near 23 percent in soybean oil consumption over the projection period.

Global soybean production is projected to increase by 19.6 percent over the projection period, with Brazil, Argentina, and the United States supplying about 85 percent of expected growth; Brazil contributes about 60 percent. Increased planted area drives the greatest percent of projected production gains, mostly in Brazil. China is projected to account for 51 percent of the increased soybean crush by 2031, while Argentina, Brazil, and the United States will account for 32.6 percent.

World soybean imports increase by 29 percent between 2022/23 and 2031/32, with China accounting for about 72 percent of the projected increase and Brazil meeting about 83 percent of the increased demand, followed by the United States, other South America, and Canada. Soybean meal import demand expands 15.3 percent and is broad based, including gains by the European Union (the largest global importer), Southeast Asia, Latin America, and other importers. Argentina, Brazil, and the United States remain the major soybean meal exporters. Soybean oil imports rise 26.5 percent over the projection period based on demand by India, the world's largest importer, and other developing country markets. Argentine exports meet virtually all increased import demand.

Cotton

Global demand for cotton fiber to produce cotton yarn is projected to increase 18.7 percent between 2022/23 and 2031/32, with China and India, the two largest producers, accounting for most of the increase, along with smaller, but fast-growing, markets including Vietnam, Bangladesh, Pakistan, and Turkey. Growth in cotton production, also projected at 21.5 percent, is concentrated in the four largest producing countries— India, China, the United States, and Brazil. Yield growth accounts for about 70 percent of projected gains in global cotton production, and increased area about 30 percent. China, Vietnam, and Bangladesh account for more than 76 percent of the projected 23.7 percent increase in world cotton imports during the projection period, while Brazil and the United States supply the bulk of the increase in exports.

General International Assumptions

Trade projections to 2031 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 2021. International macroeconomic assumptions used in the projections were completed in late August 2021.

Breakout Box: China is the Leading Importer for Numerous Commodities

China accounted for 80 percent of world sorghum imports, 60 percent of world soybean imports, and 45 percent of world pork imports during 2020/21. Its share of world imports is also in double digits for corn, barley, cotton, soybean oil, and beef. USDA projections show that China will continue to account for significant shares of imports for these commodities through 2031, reflecting strong demand growth and constraints on China's own production due to limited soil and water resources.

China's share of commodity imports from the world

Commodity	2020/21	2031/32
	Percent	Percent
Wheat	5	4
Rice	9	8
Corn	16	10
Sorghum	80	86
Barley	31	28
Cotton	26	24
Soybeans	60	62
Soybean oil	11	8
Pork	48	45
Beef	26	30
Chicken	8	8

Source: Calculated from the data USDA, Interagency Agricultural Projection Committee, October 2021.

The Phase One agreement signed January 15, 2020, boosted China's imports from the United States during 2020 and 2021. Imports from Ukraine, Brazil, the European Union, India, and many countries in Southeast Asia and Latin America also grew at a robust pace. Imports boomed in 2021 despite China's adoption of new procedures to test, sanitize, segregate, and track imported frozen and chilled foods as a COVID-19 prevention measure.

Diminished government corn reserves, growing feed demand, and soaring corn prices contributed to China's surge of corn, barley, and sorghum imports in 2020/21. China's feed industry output for both swine and poultry were at a record level in 2021. USDA projections show that China's corn imports will exceed the 7.2 million metric ton annual tariff rate quota that analysts previously believed was effectively the maximum permitted by Chinese policy. Corn imports during 2020/21 exceeded the quota by nearly three-fold.

— Continued

China is the Leading Importer for Numerous Commodities — Continued

In 2021, China's agriculture ministry encouraged livestock producers to reduce use of corn and soybean meal in feed. The ministry's recommended substitutes included wheat and rice released from government reserves and commodities like sorghum, barley, cassava, and meals from other oilseeds that China imports. Amino acid supplements recommended by the ministry mostly use corn as raw material.

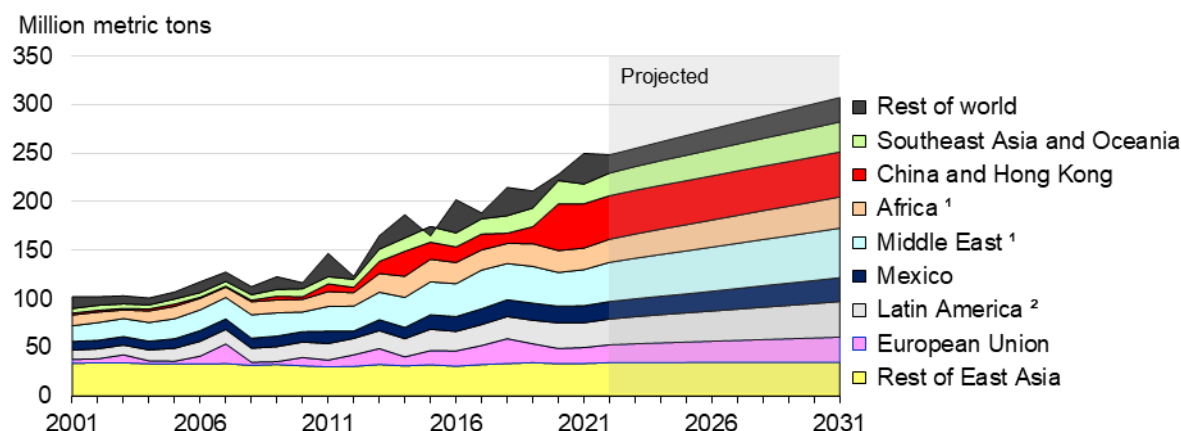
A shrinking farmland base and depletion of groundwater constrain China's crop production. Chinese officials called for improving yields and conserving soil as strategies for maintaining grain output. Some land has been idled in areas with soil contaminated with heavy metals and underground aquifers depleted by irrigation. Officials issued a directive banning diversion of farmland to nonfarm uses and reserving prime cropland for grain crops. Another initiative called for creating 1 million hectares of "high standard" fields annually.

Plantings of corn surged in 2021 in response to soaring prices, but a corresponding drop in soybean output prompted authorities to prioritize production of soybeans and other oilseeds in 2022. Strategic plans for cotton called for keeping production stable as production dropped precipitously in the eastern and central provinces, and production is now centered in Xinjiang. An action plan for ruminant animals called for aggressively expanding production of fodder crops in pastoral regions.

China remained the top importer of pork during 2021 despite a rebound in production that cut its pork prices in half. The agriculture ministry's 2021–25 plan for livestock prioritized improvements in quality, scaling-up of farms, breeding improvements, environmental protection and disease control over increases in output. The plan called for a stable sow inventory and set a pork output target of 55 million metric tons—less than 1 million metric tons higher than output before the epidemic. A 95-percent pork self-sufficiency target included in the plan implies that China would retain its position as top importer.

China is a leading importer of beef, dairy, and poultry products. The 2021–25 plan's production targets for beef, mutton, poultry, and eggs were about the same as their 2020 output. Self-sufficiency targets are 85 percent for beef and mutton, 70 percent for milk, 80 percent for ruminant fodder, and 100 percent for poultry and eggs.

Figure 32. Global coarse grain imports, 2001–31



1/ Egypt is included in Africa and not the Middle East.

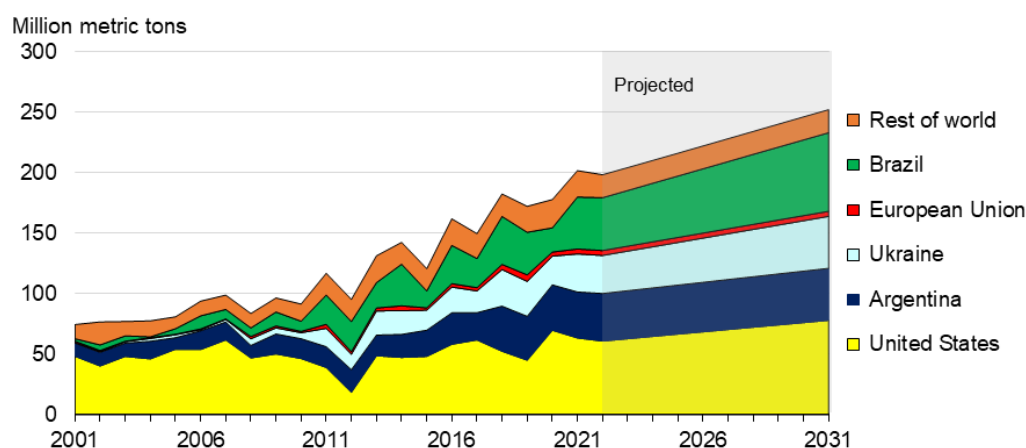
2/ Excludes Mexico.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Expanding livestock production will continue to drive increases in coarse grain trade. China's continued strong demand for imported coarse grains, coupled with demand growth from emerging economies supports production growth for all feed grains. Corn trade is expected to account for about 82.1 percent of the world's coarse grain trade through 2031/32, with barley's share expected to decrease slightly to 12.6 percent. By 2031/32, the world's largest coarse grain importers are projected to be China, the European Union, Mexico, Vietnam, Japan, Egypt, Iran, Saudi Arabia, and South Korea.

- China coarse grain imports are projected to reach 46.3 million tons by 2031/32, an increase of 1.5 million tons. China is projected to import 25 million tons of corn by 2031/32. Growth in feed demand is expected to outpace expansion of domestic corn output, with policy direction to allow increased corn imports. Barley and sorghum import growth is also strong, reaching 20.8 million tons by 2031/32 primarily due to strong feed demand.
- Together, Africa, and the Middle East account for about 32.2 percent of the additional growth (19.1 million tons) in world coarse grain imports through 2031/32. Population growth and rising incomes foster strong demand growth for livestock products. By 2031/32, these regions will account for nearly 27.1 percent of world coarse grains imports, with three countries—Egypt, Iran, and Saudi Arabia—accounting for about 14.9 percent of world coarse grain imports.
- Mexico's imports account for 11.2 percent of the increase in global coarse grain trade by 2031/32, as rising demand for meats supports higher commercial feeding. Corn imports are projected to grow from 17.5 million tons in 2022/23 and reach 24.0 million tons in 2031/32, making Mexico the world's largest corn importer. Mexico's sorghum imports are projected to remain steady at 95,000 tons over the projection period.
- South Asia, Southeast Asia, and Oceania coarse grain imports rise about 30 percent to 34.5 million tons by 2031/32 as feed demand increases by livestock producers driven by relatively high rates of income growth and continue increase in meat demand. These three regions account for about 13.4 percent of expected growth in world corn imports. Vietnam is among the fastest growing corn-importing countries in this region. Thailand and Bangladesh are also emerging corn importers to supply their respective feeding industry. Indonesia, however, implemented policies in 2020 to limit imports of both corn and feed wheat to support domestic corn production.

Figure 33. Global corn exports, 2001–31

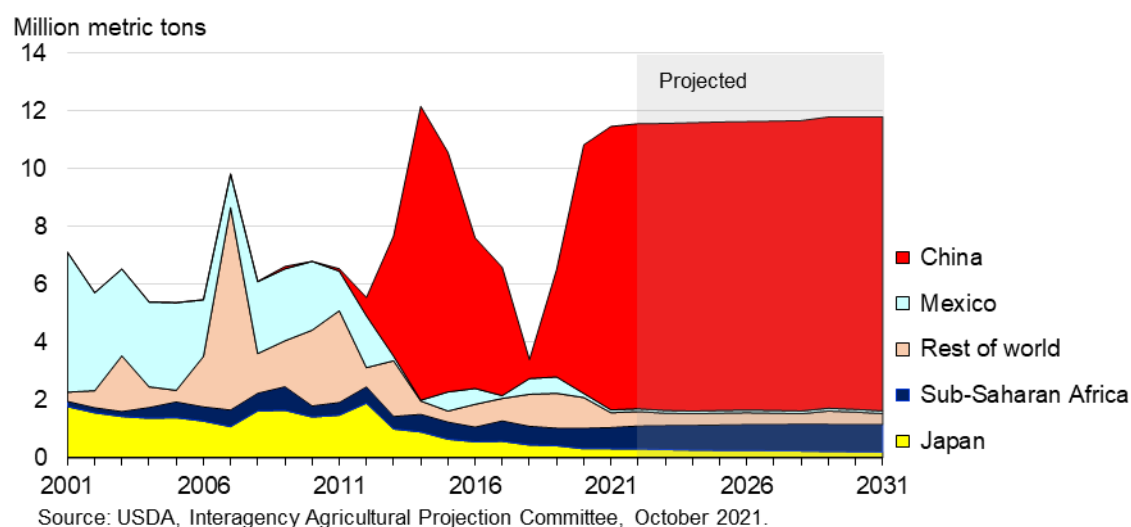


Source: USDA, Interagency Agricultural Projection Committee, October 2021.

U.S. corn exports are expected to increase by 17.1 million tons to 78.1 million tons by 2031/32, while the U.S. share of world corn exports declines from the recent 5-year average of 33.4 percent to 30.9 percent. Brazil and Ukraine are the only major exporters with projected increases in market share over the projection period, from 22 percent to 25.7 percent for Brazil and from 15.9 percent to 17 percent for Ukraine. The 4 largest exporting countries—the United States, Brazil, Ukraine, and Argentina—account for about 88.4 percent to 90.8 percent of global market share over the projection period.

- Brazil's annual corn exports increased by 72.4 percent over the past decade and averaged 32.4 million tons in the past 5 years. Export growth continues to be associated with expanding production on new cropland in the Center-West region. The most important corn crop, the second crop, is less input-intensive and has a lower cost since it follows soybean production in the region. Brazil's second-crop corn production has steadily improved in yields over the past decade. The timing of the second-crop corn harvest boosts exports giving Brazil competitive advantage over Northern Hemisphere countries. Local infrastructure makes it more efficient to move corn from the Center-West to ports rather than to Brazil's southern livestock sector. Brazilian corn exports are expected to rise 48.7 percent by 2031/32 reaching 65 million tons.
- Annual corn exports by the former Soviet Union region are expected to rise 31.1 percent and reach 46.8 million tons in 2031/32. Ukraine's corn sector is projected to grow and become increasingly focused on exports with relatively minor growth in domestic use projected. Ukraine recently evolved from a small regional exporter of corn to a global market competitor. Exports by the country are projected to increase by 11.5 million tons to 43 million tons by 2031/32, which would tie it with Argentina as the third-largest global exporters. Other former Soviet Union countries exhibit a decline of corn exports over the projection period by 429,000 tons.
- Argentina is projected to be equal with Ukraine as the world's third-largest exporters of corn during the projection period. Projected area growth and increasing yields continue to boost corn production, and exports are projected to increase 9.4 percent to 43 million tons by 2031/32.
- European Union exports are expected to increase by 2.9 percent to 4.2 million tons over the projection period, while corn exports from the non-European Union region —primarily Serbian exports to the EU—increase 2.3 percent to reach 3.1 million tons by 2031/32.
- South Africa has a modest projected growth of 7.6 percent in corn exports, which reach 2.5 million tons by 2031/32, while the rest of sub-Saharan Africa corn exports remain stable near 650,000 tons.

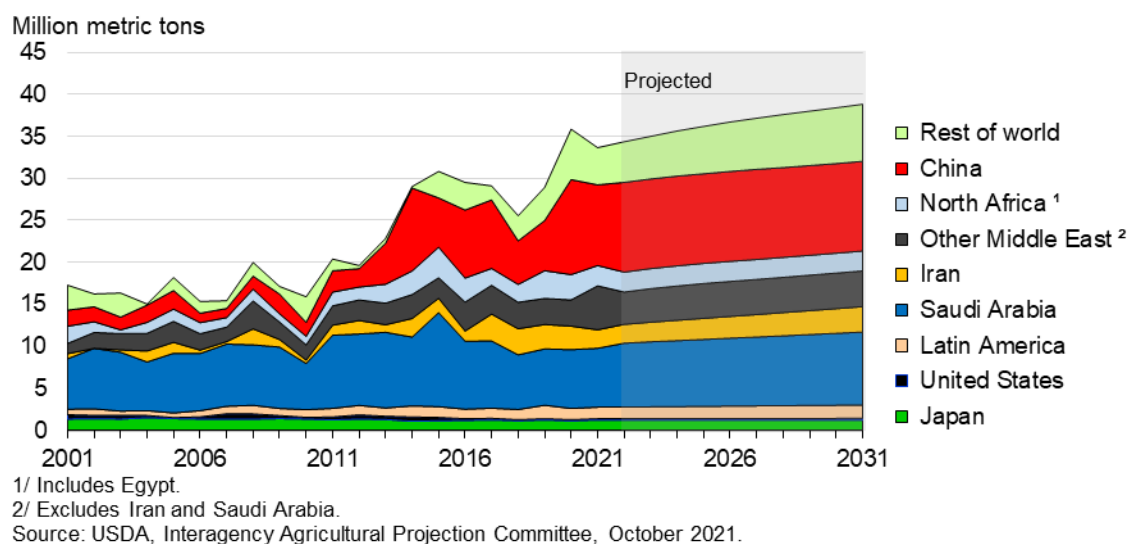
Figure 34. Global sorghum imports, 2001–31



World sorghum trade is projected to expand 2.1 percent between 2022/23 and 2031/32, reaching 11.8 million tons by the end of the projections. China accounts for most projected sorghum imports. Since China removed tariffs on U.S. sorghum imports in 2020, shipments increased substantially. 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 85 percent of global sorghum trade, with imports rising from 9.9 million tons in 2022/23 to 10.2 million tons in 2031/32. While corn imports in China are subject to a quota, there are no quotas on imports of sorghum and barley. China's imports for sorghum and barley supplement corn imports to meet demand for animal feed.
- U.S. sorghum exports grow about 1.6 percent to 8.3 million tons by 2031/32, continuing to account for 70 percent of global sorghum exports throughout the projection period.
- Argentina became the world's second-largest sorghum exporter in 2020/21 at 2.1 million tons, displacing Australia. Argentina's exports increase by 7.8 percent from 2022/23 reaching 2.4 million tons by 2031/32. China became the main Argentine sorghum export market with virtually all sorghum exports bound for China. Australia's sorghum exports are expected to remain steady at 650,000 tons, also primarily to China.
- Japan is expected to remain the world's second-largest individual sorghum importer, with imports projected to decrease from 316,000 tons to 205,000 tons over the next decade.
- Mexico's sorghum imports are expected to remain steady at about 95,000 tons over the projection period. Mexico's sorghum imports declined sharply since China became a substantial importer as relative prices made alternative feed grains, primarily corn, more affordable feed for the Mexican livestock sector.

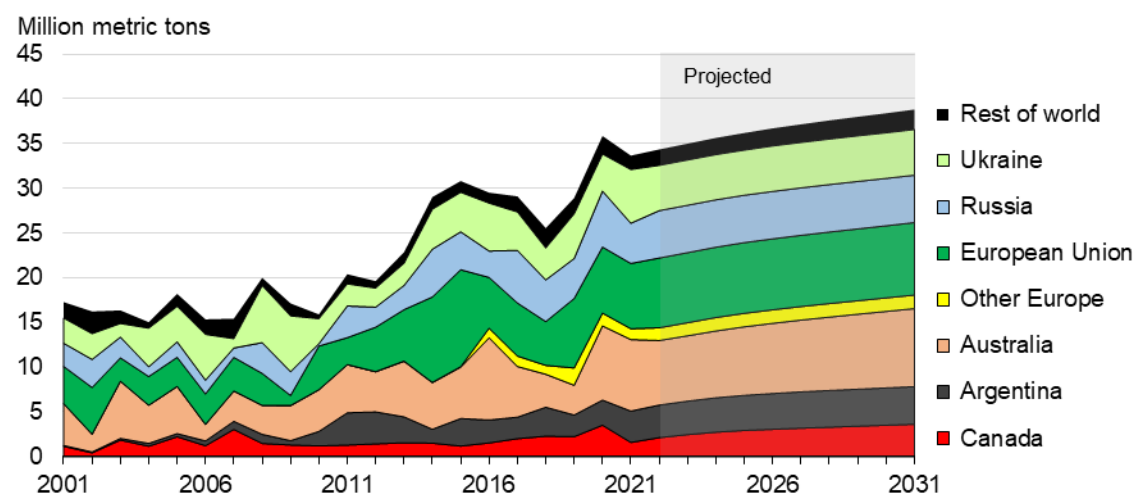
Figure 35. Global barley imports, 2001–31



Strong demand for feed barley—led by China, Middle Eastern countries, Saudi Arabia, and Iran—is projected to drive growth in barley trade to 38.8 million tons by 2031/32, an increase of 13 percent over the projection period.

- China is projected to remain the world's largest barley importer at a steady 10.7 million tons per year from 2022/23 through 2031/32, slightly below the peak reached in 2020/21. Feed demand is a major driver of imports during the projection period, but China is also a large importer of malting barley, mainly for beer production. The imposition of a prohibitive import tariff on Australian barley in 2020 shifted China's barley purchases to Canada, Argentina, and the EU. China's 31.1 percent global barley import share declines to 27.5 percent by 2030/2031.
- Saudi Arabia is the world's second largest importer of barley, and its imports are projected to increase nearly 14.2 percent to 8.7 million tons by 2031/32, accounting for about 22.4 percent of global barley import demand. Saudi Arabian barley imports are used primarily as feed for sheep, goats, and camels.
- Iran's barley imports are projected to expand by more than 35 percent to 3 million tons by 2031/32. 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 grow about 10.2 percent to 3.4 million tons by the end of the projection period.
- Japan and Europe have stable demand with steady projected imports at 1.2 million tons and 1.5 million tons, respectively. In addition to imports of feed barley, Japan imports large quantities of malting barley for beer brewing. About 70 percent of barley is for animal feed consumption. Barley for human consumption is used in a variety of foods and beverages. In the EU three-quarters of barley is used for feed purposes, with barley imports consisting mostly of feed barley coming from the United Kingdom. Imports for the other Asia and Oceania region are projected to increase 19.9 percent by 2031, reaching 2.8 million tons, and are used mainly for feed purpose.

Figure 36. Global barley exports, 2001–31

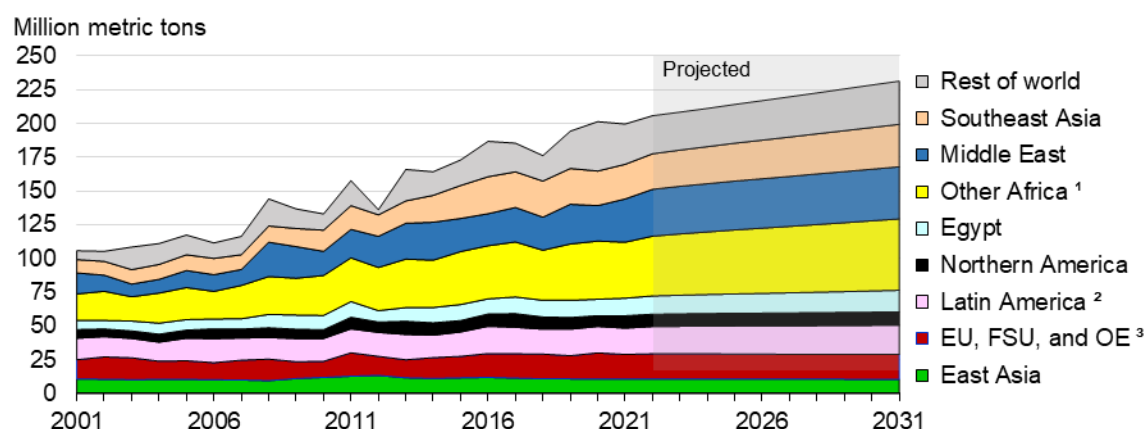


Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Australia, the European Union, and Russia are the three largest barley exporters, followed by Ukraine, Argentina, and Canada. Global barley exports are projected to expand nearly 13 percent to 38.8 million tons between 2022/23 and 2031/32. Barley exports by all major exporters, except for Russia and Ukraine, are projected to increase. Australia (the world's largest exporting country), Canada, and Kazakhstan are expected to increase their market share, primarily at the expense of the European Union, Russia, and Ukraine.

- Australia's barley exports are projected to increase during the coming decade from 7.2 million tons in 2022/23 to 8.7 million tons by 2031/32, with its global export market share increasing from 21 percent to 22.5 percent over the period. Recent reshuffling of Australian barley export destinations away from China – with its prohibitive import tariff – to Saudi Arabia (feed barley) and to Vietnam and South America (malting barley) boosts its barley trade.
- Barley exports by countries in the former Soviet Union region are projected to increase from 11.7 million tons in 2022/23 to 12.3 million tons in 2031/32. Both Russia's and Ukraine's exports are projected to be flat at 5.3 and 5.1 million tons, respectively. Exports from other former Soviet Union countries increase by 49 percent to 1.9 million tons by 2031/31, 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 7.8 million tons in 2022/23 to 8.1 million tons by 2031/32, although its market share of global trade is projected to decrease from 23 to 21 percent. This relative reduction happens in part due to the European Union losing its market share to Australia in Saudi Arabia's market.
- Argentina's barley exports are projected to increase nearly 15.7 percent to 4.2 million tons by 2031/32, with China being by far its major market, getting about 90 percent of Argentine exports of feed barley.
- Canada is projected to expand barley exports by 70 percent with an increase from 2.1 to 3.6 million tons, exporting both feed and malting barley mainly to China.

Figure 37. Global wheat imports, 2001–31



1/ Africa excluding Egypt.

2/ Excludes Mexico which is included in Northern America.

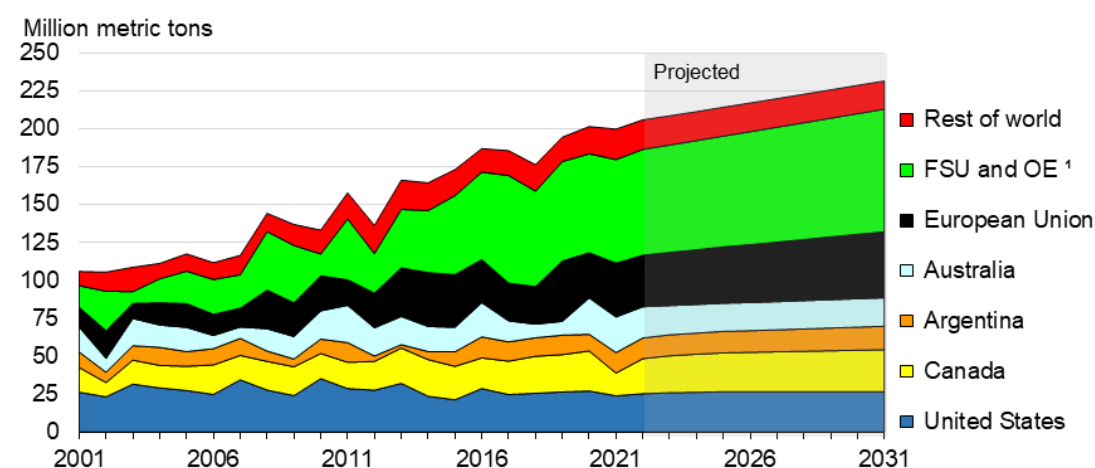
3/ European Union, Former Soviet Union, and Other Europe.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

World wheat trade (including flour) is projected to expand by nearly 25.6 million tons (12.5 percent), reaching 231.3 million by 2031/32. Growth in wheat imports is concentrated in developing countries where income growth, urbanization, westernization of diets, and population gains drive increases in demand. Sub-Saharan Africa, Southeast Asia, the Middle East, and Egypt combined account for 76 percent of the global projected increase in imports.

- The inability to economically produce wheat and the rising use of wheat in feed rations all support wheat import expansion, particularly for several developing countries. Further, rising incomes in Indonesia, Vietnam, and other Asian countries, raise demand for wheat-based products, including instant noodles and bakery products.
- Egypt and Indonesia are projected remaining the world's leading wheat importers, with annual imports rising to 16 million tons and 12.1 million, respectively, by 2031/32. Indonesian imports are growing rapidly due to population growth and increased consumption of non-traditional instant noodles. Turkey, China, and Bangladesh are the third-, fourth-, and fifth-largest wheat-importing countries in the projections, increasing to 11.5 million, 9.5 million, and 8.6 million tons by 2031/32, respectively.
- By 2031/32, countries in Africa and the Middle East are projected increasing wheat imports by 11 million and 3.9 million tons, respectively, accounting for 71 percent of the total increase in world wheat trade. Saudi Arabia imports are projected increasing by 0.8 million tons to 4 million by 2031/32, as mostly unchanged production is insufficient to meet growing demand.
- Despite holding nearly half of global wheat stocks, China's import demand is projected remaining strong due to high domestic prices and a deficit of higher quality milling wheat suitable for use in bakery and specialty products. China's wheat imports are projected to be stable at 9.5 million tons throughout the projections. Imports by Japan are expected to decrease slightly to 5.2 million tons by 2031/32 due to a declining and aging population, while imports by South Korea are steady at 3.9 million tons. Taiwan wheat imports are projected to grow modestly over the 10-year projection period to 1.5 million tons. Imports for the four East Asian countries are collectively expected be nearly unchanged at 20.6 million tons by 2031/32 and account for almost 9 percent of world imports.

Figure 38. Global wheat exports, 2001–31

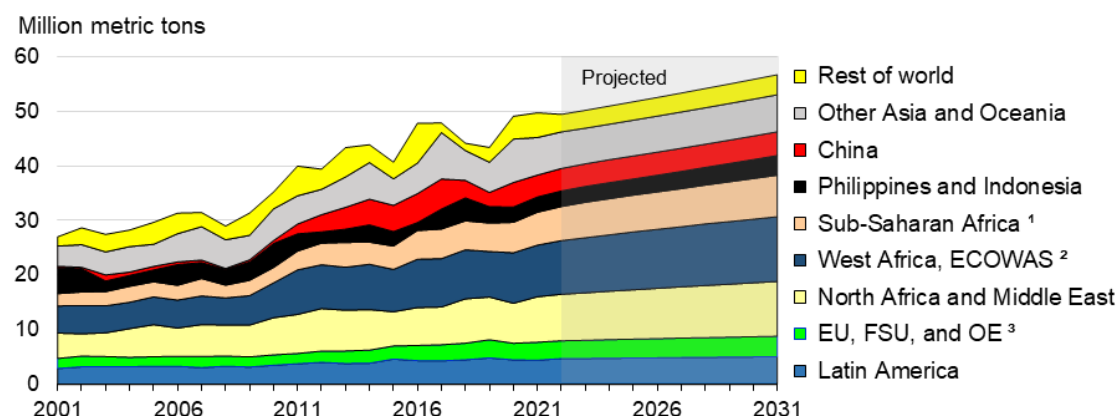


Source: USDA, Interagency Agricultural Projection Committee, October 2021.

The eight largest wheat exporters—Russia, the EU, Canada, the United States, Ukraine, Australia, Argentina, and Kazakhstan—are projected accounting for 91 percent of world trade in 2031/32. The EU and Ukraine exhibit the largest increases in export share by 2031/32, with EU rising from 16.5 percent to 18.8 percent, while Ukraine’s grows from 10 percent to 11 percent.

- U.S. wheat exports are projected stabilizing around 26.5 million tons over the projections. Despite rising global trade, the U.S. share of world exports decreases from 12.2 percent in 2022/23 to 11.5 percent by 2031/32.
- Russia exports are expected to grow strongly, rising 5.2 million tons to 43.7 million in 2031/32. Under the assumption of normal or average weather, Ukraine’s exportable wheat supplies and exports continue a pattern of strong growth, climbing from 20.7 million tons in 2022/23 to 25.5 million in 2031/32. Combined exports from these two Black Sea countries account for about 39 percent of the projected increase in global wheat exports. Continued improvement in farm-level productivity and yields are expected to generate growth in domestic surpluses available for export.
- The EU is projected as the second largest exporter. By 2031/32 the European Union is expected to export 43.5 million tons, with exports growing 2.8 percent annually over the projection period. Rising EU exports are supported by increased production with higher area and yields.
- Canada’s wheat exports are projected increasing from 23.1 million tons in 2022/23 to 27.7 million in 2031/32. Higher domestic production contributes to greater exportable supplies. Production gains are due to yield growth more than offsetting a slight decline in wheat area.
- While Australia’s wheat production has recently experienced record output, yields are expected to revert to a more normal levels over the projection period, resulting in slightly smaller crops. Australia’s wheat exports are projected to decrease by 8.8 percent to 18.8 million tons by 2031/32. Australia is a major exporter to Southeast Asia and the Middle East, both of which exhibit the world’s strongest growth in wheat demand and imports.
- Argentina’s wheat exports are expected rising from 13.7 million tons in 2022/23 to 15.5 million in 2031/32 with an increasing share going to its Mercosur (Southern Common Market) partner Brazil, which usually absorbs about half of Argentinean wheat exports. Most of the remaining increasing exports are expected to go to Southeast Asia and African countries.

Figure 39. Global rice imports, 2001–31



1/ Excludes ECOWAS.

2/ ECOWAS is 15 member countries in Economic Community of West African States.

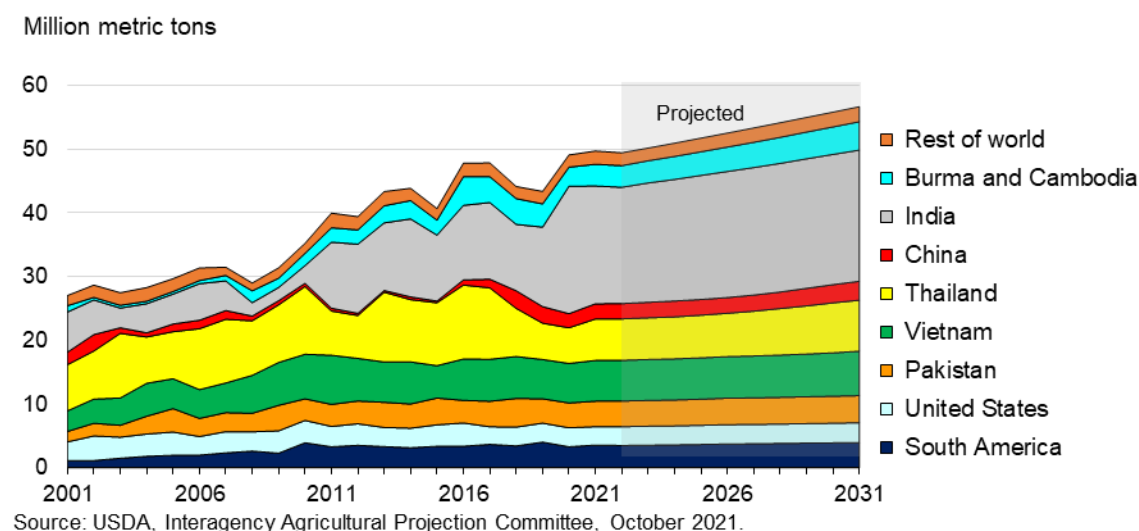
3/ European Union, Former Soviet Union, and Other Europe.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Global rice trade is projected declining 0.6 percent in 2022/23 and then slowing to an annual growth rate of 1.5 percent through 2031/32, reaching a record 56.7 million tons in 2031/32. 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 9.7 percent in 2021/22 and is projected to exceed 10 percent by 2031/32.

- China, the Philippines, Nigeria, and the European Union are projected to be the largest rice importing countries. China, also an exporter, is projected to be the largest rice-importing country, with imports rising almost 6 percent to 4.4 million tons by 2031/32. 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 35 percent over the next decade and reaching 3.1 million tons by 2031/32. Despite expected 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 19.5 million tons by 2031/32, accounting for 47 percent of total import expansion. The strong growth is due to population growth and rising per capita consumption. Nigeria's imports are expected to rise almost 38 percent to nearly 3 million tons by 2031/32. Nigeria is projected to remain the third-largest rice-importing country over the projection period.
- The EU is projected to be the fourth-largest importer over the next decade, with imports rising 16 percent to a record 2.4 million tons. 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 19 percent over the next decade to 8.7 million tons, due primarily to population growth. Major individual importing countries are Saudi Arabia, Iraq, and Iran, with imports ranging 1.5 - 1.7 million tons a year by 2031/32.
- Indonesia—once a top importer—is projected to import just 500,000-550,000 tons annually over the next decade, due to lower consumption.

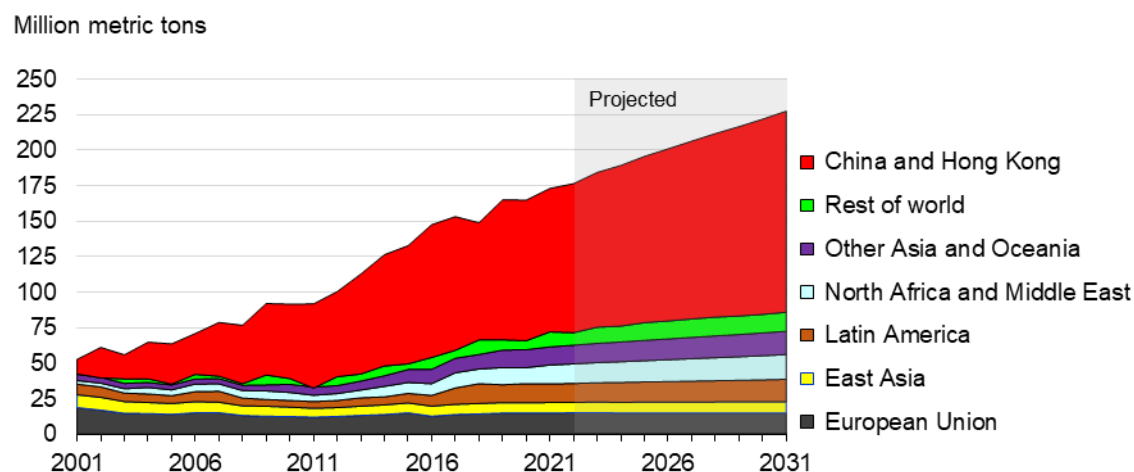
Figure 40. Global rice exports, 2001–31



Asia continues to supply most of the world's rice exports throughout the projections. India remains the world's largest rice-exporting country, accounting for 37 percent of world rice exports, followed by Thailand at 13.4 percent and Vietnam at 12.5 percent.

- India is projected to remain the largest rice exporter with exports increasing by almost 13 percent and reaching a record 20.6 million tons by 2031/32. India exports mostly non-aromatic milled rice as well as smaller quantities of its premium basmati rice.
- In Thailand, rising yields and a gradual decline in consumption contribute to a 23 percent increase in exports to 8 million tons by 2031/32, still well below the 2016/17 record of 11.6 million tons.
- Vietnam's exports expand 9.1 percent to nearly 7 million tons by 2031/32, 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.
- Pakistan exports increase to 4.3 million tons by 2031/22. Rising demand and small production growth limit projected export growth to 5.7 percent through 2031/32, keeping Pakistan as the fourth-largest world exporter.
- The United States is projected to be the world's fifth-largest exporter by 2031/32 at 3.1 million tons with exports expanding 4.8 percent from 2022/23 to 2031/32. But 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 declines from 6 percent to 5.5 percent by 2031/32.
- China's exports are expected to increase over the next decade, reaching a near-record 3 million tons by 2031/32, driven by competitive export prices and large reserves.
- Burma is projected to expand exports almost 30 percent by 2031/32, reaching nearly 2.6 million tons. Burma is expected to continue to supply imports to China and the EU.
- Exports from South America—primarily Argentina, Brazil, Guyana, Paraguay, and Uruguay—are projected to expand 13.6 percent over the next decade, accounting for 7 percent of global trade.

Figure 41. Global soybean imports, 2001–31

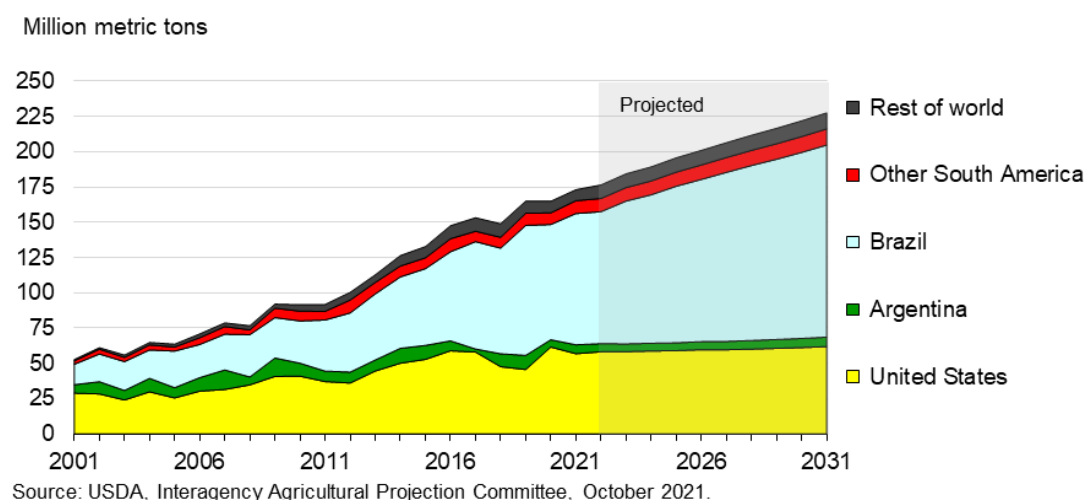


Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Chinese demand will drive continued growth in soybean trade during the next 10 years, as world soybean imports climb 51.1 million tons (29 percent) to 227.5 million tons.

- China's soybean imports are expected to grow at an annual rate of 3-4 percent, which is below the rate seen in the 2000s. Vegetable oil consumption remains strong, and soybean meal demand is growing as the hog inventory recovers from a 2019/20 African swine fever epidemic and use in poultry and egg production remains robust. China's soybean imports will grow from 104.9 million tons to 141.6 million tons during 2022/23–2031/32.
- Other countries in East Asia (Japan, South Korea, and Taiwan) will add to the growth, with soybean imports projected to rise from 7.4 million tons in 2022/23 to 8 million by 2031/32. The region is projected to see a modest increase in livestock production that would expand soybean meal use.
- Indonesian soybean imports increase by about 22 percent to 3.3 million tons by 2031/32, with imports almost exclusively used for food consumption. Indonesia imports all its soybean meal feed. In contrast, Thailand crushers are expected to increase soybean imports by about 15 percent to 4.9 million tons by 2031/32 to meet increased feed demand. Expanding crushing capacity is expected to also raise Vietnam's soybean imports to 2.6 million tons by 2031/32, although import growth is initially dampened by lingering problems with African swine fever. Vietnam is also projected to increase imports of soybean meal. Pakistan increases imports by 44 percent to 4 million tons by 2031/32 to support increasing demand for poultry feed.
- Since 2017/18, European Union soybean imports have stabilized near 15 million tons as lower internal European Union grain prices increase grain and rapeseed meal feeding. European Union soybean imports are projected to remain near 15 million tons through the projection period.
- Many countries in North Africa and the Middle East region have minimal soybean production and meet growing feed demand through imports. Soybean imports are expected to increase more than 26 percent to more than 17 million tons by 2031/32. Egypt is projected to increase soybean imports by 1.45 million tons to 6.5 million tons by 2031/32 to crush for feed due to expanding poultry production.
- Mexico's annual soybean imports are projected to increase by 22.6 percent to 7.8 million tons by 2031/32, driven by growth in poultry and pork production, and rising demand for soybean oil.

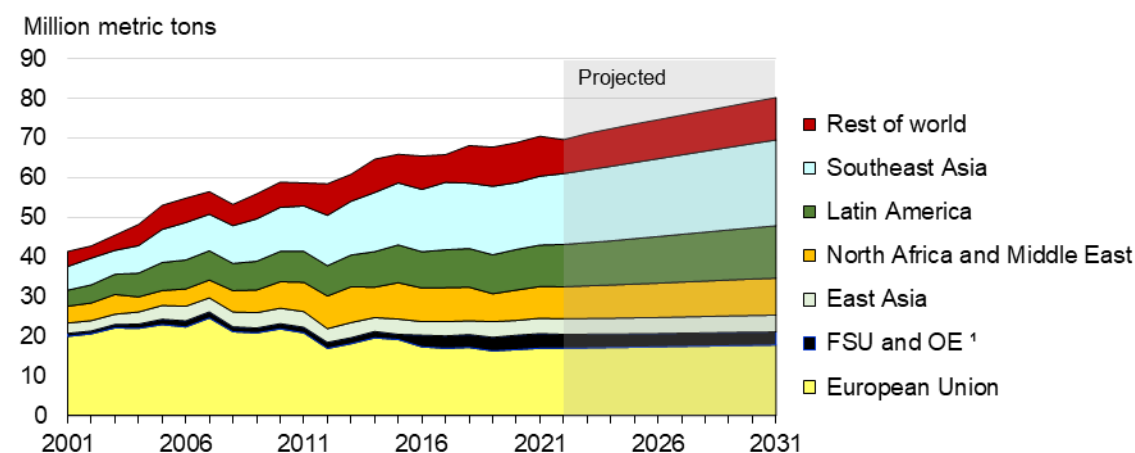
Figure 42. Global soybean exports, 2001–31



The three leading soybean exporters—the United States, Brazil, and Argentina—are projected to account for 90 percent of world soybean trade by 2031/32.

- Brazil's soybean exports are projected to rise 42.6 million tons (45.6 percent) to 136.1 million tons by 2031/32, 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 projected to be greater than 2 percent per year during the coming decade.
- On and off since the 1990s, 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. In response to a weak peso and increasing world crush demand for soybeans, Argentina's soybean exports are projected to increase about 16 percent to 6.7 million tons by 2031/32, mostly to China. Nonetheless, most supplies continue 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 22.7 percent to 11.5 million tons by 2031/32, adding 2.1 million tons to world soybean exports.
- The U.S. share of global soybean exports is about 33 percent in 2022/23 and is projected to decrease to 27.2 percent by 2031/32. U.S. soybean exports are projected to increase from 58.2 million tons in 2022/23 to 61.9 million tons by 2031/32.
- Canada increases soybean exports from 5.7 million tons in 2022/23 to 7.1 million tons in 2031/32. 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 soybean production continues steady growth on higher soybean yield. Ukraine's soybean exports are projected to exhibit little growth from 1.8 million tons in 2022/23 to 1.9 million tons by 2031/32.

Figure 43. Global soybean meal imports, 2001–31



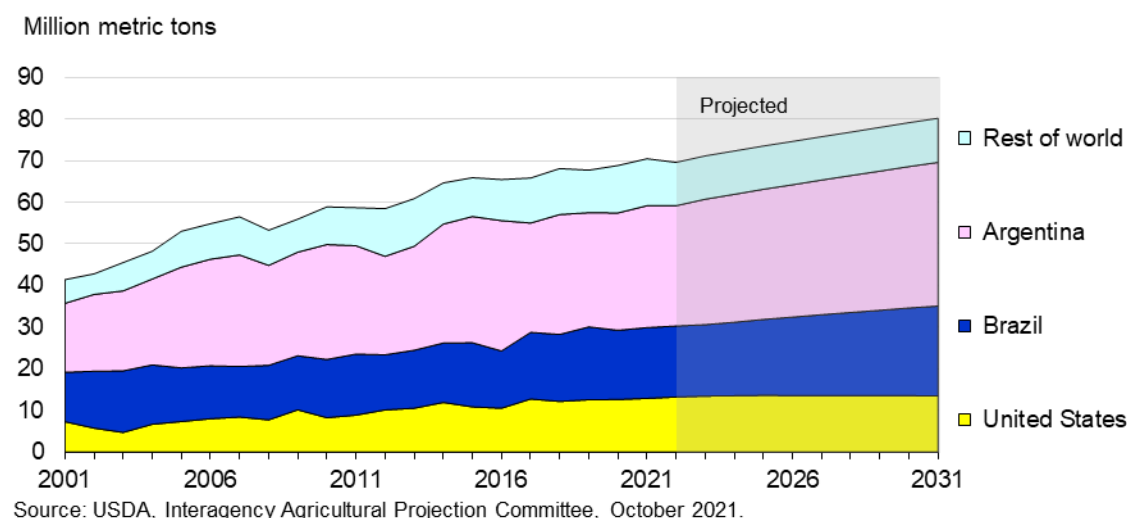
1/ Former Soviet Union and Other Europe.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

World soybean meal trade is projected to climb 15.2 percent to 80.2 million tons by 2031/32, supported by broad-based growth in demand from expanding commercial livestock, and poultry production and adoption of modern feed rations.

- The European Union remains the world's largest soybean meal importer throughout the projection period, with imports increasing 4.9 percent to 17.8 million tons by 2031/32. An abundant supply of low-cost rapeseed meal is expected to be available, a result of European Union biodiesel production. However, nutritional considerations limit the addition of rapeseed meal in some 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. Vietnam is a key example, contributing the largest projected gain in world soybean meal imports, which expands 23 percent from 5.4 million tons in 2022/23 to 6.7 million tons by 2031/32. Imports by Indonesia, the Philippines, Thailand, and Malaysia increase 2.5 million tons to 15 million tons by 2031/32. Southeast Asia accounts for 35.4 percent of the projected increase in world soybean meal trade.
- Imports by countries in North Africa and the Middle East rise by 1.2 million tons, accounting for 12 percent of the increase in world trade by 2031/32. Iran, Egypt, Turkey, and Saudi Arabia are the largest importers in these two regions, accounting for about 51 percent of imports by 2031/32.
- Annual soybean meal imports by South American countries increase by 19.8 percent over the projection period from 6.1 million tons in 2022/23 to 7.3 million tons by 2031/32. Colombia, Peru, Ecuador, and Chile are among the largest importers as their domestic feed demand increases, due to increasing domestic meat consumption. Venezuelan imports decreased from 1.1 million tons to 2014/15 to lower sustained levels averaging 412,000 tons the recent 5 years.
- Mexico's growing demand for protein feed boosts its annual soybean meal imports from 1.9 million to 2.7 million tons by 2031/32. Central America and Caribbean region increase imports from 2.6 million to 3.2 million tons by 2031/32 as projected protein feed demand increases.

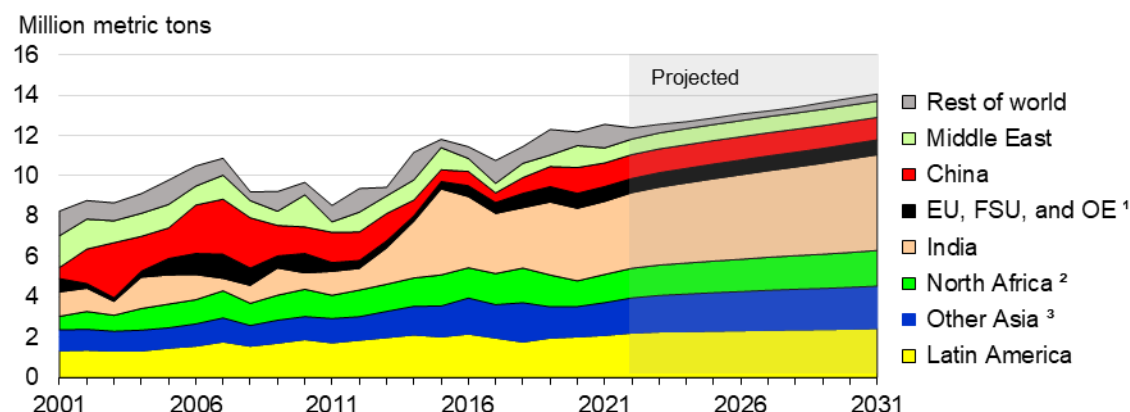
Figure 44. Global soybean meal exports, 2001–31



Argentina, Brazil, and the United States remain the world's three largest exporters of soybean meal, with a combined share of world exports of about 87 percent in 2031/32. By 2031/32, Argentina and Brazil account for about 43 percent and 27 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 again reintroduced in mid-2020 with a 33-percent export tax on soybeans and 31 percent on soybean meal and soybean oil. However, 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 5.6 million tons over the next decade, reaching 34.5 million tons by 2031/32.
- In Brazil, the rapid expansion of poultry and pork production is expected to boost domestic soybean meal demand and limit growth in soybean meal exports. Brazil's soybean crushing capacity is expected to expand at a slower rate due to strong competition from Argentina in the international soybean meal market and robust demand from China for its soybean supply. Brazil's projected exports increase about 26.7 percent to 21.6 million tons by 2031/32, and Brazil's share of the world soybean meal market increases marginally from about 24.5 percent in 2022/23 to about 26.9 percent by 2031/32. Other South American countries projected exports are stable at 4.1 million tons through 2031/32.
- After 2024/25, U.S. soybean meal exports are projected to be stable near 13.5 million tons. The U.S. share of world exports decline from about 19 percent in 2022/23 to about 16.8 percent by 2031/32.
- India's soybean meal projected exports are stable near 877,000 tons, 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 900,000 tons through 2031/32.

Figure 45. Global soybean oil imports, 2001–31



1/ European Union, Former Soviet Union, and Other Europe.

2/ Includes Egypt.

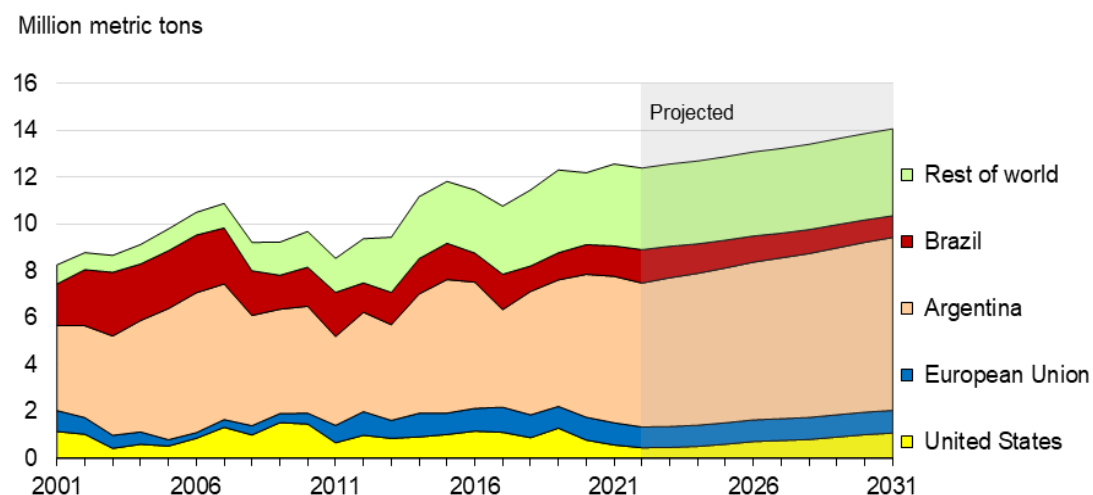
3/ Other Asia excluding China and India.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

World soybean oil imports are projected to climb about 13.6 percent over the projection period, reaching 14.1 million tons by 2031/32, bolstered by rising food and industrial use. Growth in world soybean oil trade is, however, expected to continue to be constrained by competition with palm oil, the leading vegetable oil traded internationally.

- Although palm oil continues to account for the largest share of India's vegetable oil imports, India is also the world's largest importer of soybean oil. India's soybean oil imports are projected to grow about 26.5 percent to 4.8 million tons in 2031/32. 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. Price competition with palm oil will remain a key factor in soybean oil market share. Both Bangladesh and Pakistan are also projected to expand imports of soybean oil imports over the projection period to a combined total of 958,000 tons by 2031/32, despite gains in domestic production.
- China's soybean oil imports are projected to remain at 1.2 million tons through 2027/28 and drop slightly to 1.1 million tons through 2031/32. The Southeast Asia region is projected to increase imports by 114,000 reaching 390,000 tons over the projection period. Vietnam, Malaysia, the Philippines, and Indonesia account for most of the soybean oil imports within Southeast Asia by 2031/32 at 134,000, 130,000, 80,000 and 45,000 tons, respectively. Vietnam expanded its crushing capacity, leading to slower growth in soybean oil imports.
- Income and population growth in North Africa, the Middle East, and Latin America contribute to gains in soybean oil demand and imports. The combined imports of Egypt and Iran are projected to be steady near 660,000 tons over the projection, while imports by the other North Africa region are projected to increase about 22.2 percent to 1.6 million tons by 2031/32.
- South American soybean oil imports are projected to increase slightly 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 280,000 tons by 2031/32, as consumption gains are mostly by domestic crushers of primarily imported soybean.

Figure 46. Global soybean oil exports, 2001–31

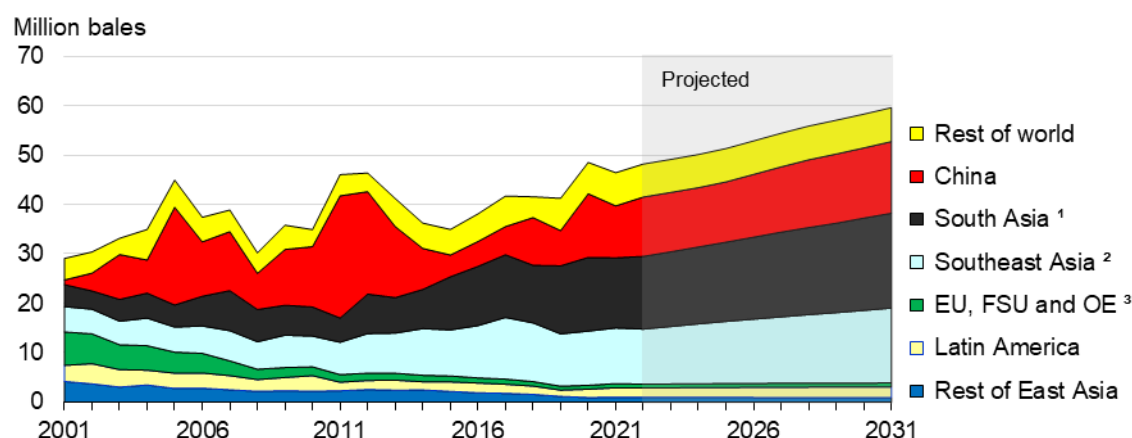


Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Argentina, the United States, the European Union, and Brazil, are the world's four leading soybean oil exporters. Their combined shipments are projected to account for about 74 percent of world soybean oil exports during the coming decade. Argentina, the United States, and the European Union are projected to account for 52, 8, and 7 percent of world soybean oil exports, respectively, by 2031/32.

- Soybean oil exports from Argentina are projected to climb to 7.4 million tons by 2031/32, a 20- percent increase from 2022/23. 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, this growth is slowed as more soybean oil is used to produce domestic 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 million tons in 2031/32. By 2031/32 the United States has 7.7 percent of global trade share. Brazil's soybean oil exports in 2022/23 are 1.4 million tons and decrease to 930,000 tons by 2031/32. 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 slightly increase to 970,000 tons over the projection period, but have a decreasing share of global trade, from 7.1 percent to 6.9 percent, by 2031/32. The former Soviet Union region increases soybean oil exports to 1.2 million tons over the projection period.
- Soybean oil exports by South American countries other than Argentina and Brazil are projected to be steady at 1.1 million tons over the projection period. Paraguay and Bolivia are the largest soybean oil exporters in South America after Argentina and Brazil.

Figure 47. Global cotton imports, 2001–31



1/ Bangladesh, India, and Pakistan.

2/ Malaysia, Indonesia, Philippines, Thailand, and Vietnam.

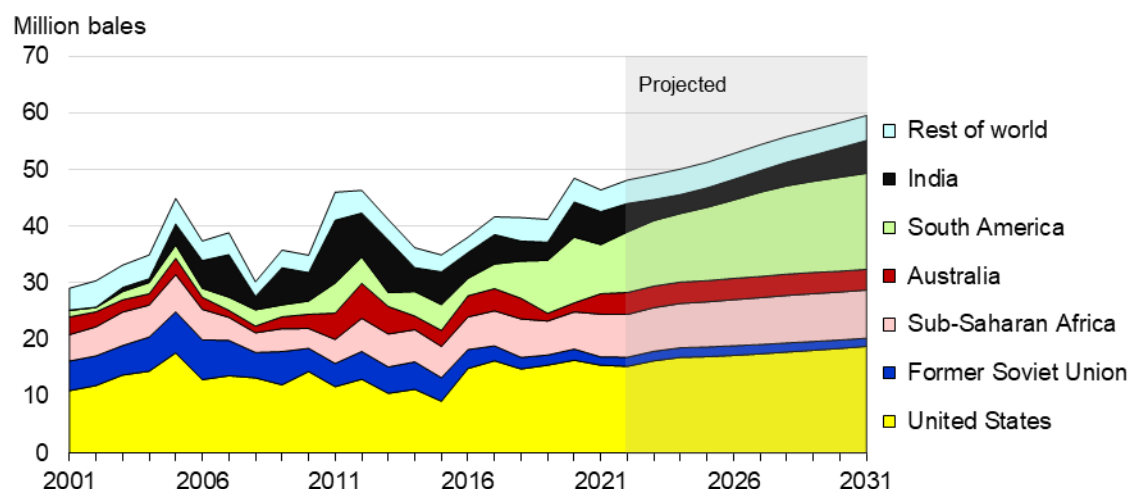
3/ European Union, Former Soviet Union, and Other Europe.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Projected world cotton trade surpasses the 49-million-bale record set in 2020/21 early in the projection period and reaches 59.6 million bales in 2031/32. Imports by countries in Southeast Asia and South Asia and China contribute most of the growth.

- China's cotton imports will grow as its textile industry's demand continues to outpace production. Imports are projected to expand 2.1 percent per year, leading to a 2.5 million-bale increase in imports to 14.5 million bales in 2031/32.
- Bangladesh continues as the second-largest global importer, with imports rising by 36.8 percent to 11.7 million bales by 2031/32. Bangladesh, a low-cost producer of cotton yarn, fabric, and garments, will account for 20 percent of global imports by 2031/32 and 28 percent of the projected increase in global cotton imports over the projection period.
- Southeast Asia cotton imports are projected to increase nearly 36 percent to 15.1 million bales by 2031/32. Vietnam is expected to remain the third-largest global importer as its textile industry grows rapidly; its imports reach 10.3 million bales by 2031/32. Vietnam's cotton imports increased over four-fold over the past 10 years and are projected to account for 27 percent of the projected increase in world imports during the projection period. Indonesia is expected to be the sixth-largest cotton importer in 2031/32, with imports rising 29.2 percent to 3.2 million bales in 2031/32.
- Pakistan and Turkey are expected to be the fourth- and fifth-largest cotton importers by 2031/32. Pakistan imports increase by 19.2 percent reaching 6.1 million bales by 2031/32. Turkey has a slight increase in imports reaching 5.4 million bales by 2031/32.
- Mexico's cotton imports are projected to increase to 1.2 million bales by 2031/22. The former Soviet Union, South Korea, and Thailand imports are steady with combined imports of 1.4 million bales by 2031/32.

Figure 48. Global cotton exports, 2001–31

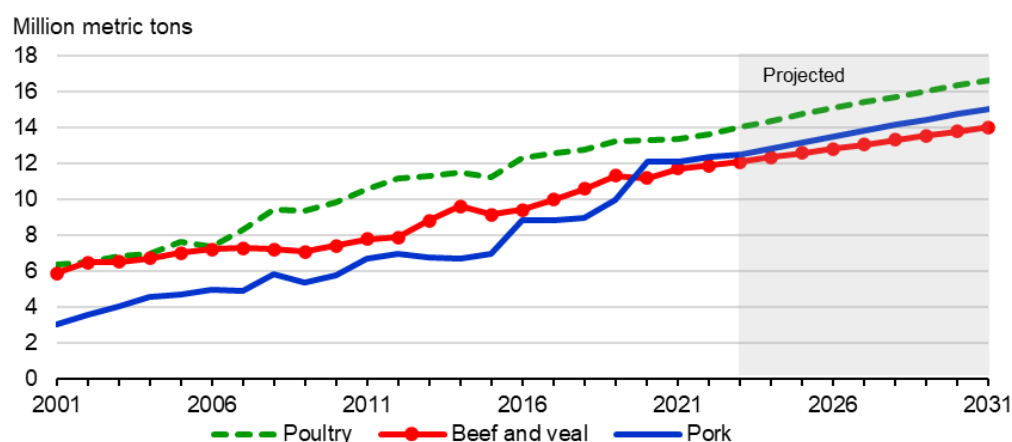


Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Raw cotton production is expected to continue moving to countries with favorable resource endowments and advancing production technologies. Expansion is projected from traditional producers with large amounts of land suitable for cotton production, including Brazil, sub-Saharan Africa, and India. The U.S, Brazil, India, and West Africa remain the largest exporters.

- The U.S. share of world cotton production has averaged approximately 14.5 percent during the previous decade and is projected to continue near that level throughout the projection period. The United States remains the world's leading cotton exporter, increasing exports a total of 23 percent to 18.8 million bales (upland and extra-long staple [ELS] cotton) during the 2022/23–2031/32 projection period. The U.S. share of world trade is expected to slightly decline from 31.8 percent in 2022/23 to 31.6 percent by 2031/32.
- Area planted to cotton in Brazil is projected to increase, with continuing yield growth as well. Brazil's annual cotton exports are projected to increase by 6 million bales by 2031/32, corresponding to a 5.4 percent annual growth rate, the largest projected increase among the world's major exporters. Brazil became the world's second-ranking cotton exporter in 2018/19, surpassing India, and remains second through the projection period, as exchange rates continue to offset low international prices.
- Increased cotton area in India has helped offset yields hampered by bollworm pesticide resistance and weather issues in recent years, leading to projected increases in production and exportable supplies. India's cotton exports increase by 1.6 percent annually, reaching 5.8 million bales in 2031/32, making India the world's third-largest cotton exporter throughout the projections.
- Exports from the 15 countries of the Economic Community of West African States (ECOWAS) are projected to sustain 1.9 percent annual growth in the next decade. Improvements in technical and financial infrastructure will boost production and exports. Sub-Saharan Africa is expected to add 1 million bales to trade and account for about 15 to 14.3 percent of world trade through 2031.
- Government policies in the major cotton-producing countries in Central Asia are promoting investment in textile industries and contributing to exports of textile products rather than 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 2031/32, far below the export peak of 7.3 million bales in 2005/06.

Figure 49. Meat exports, major traders, 2001–31

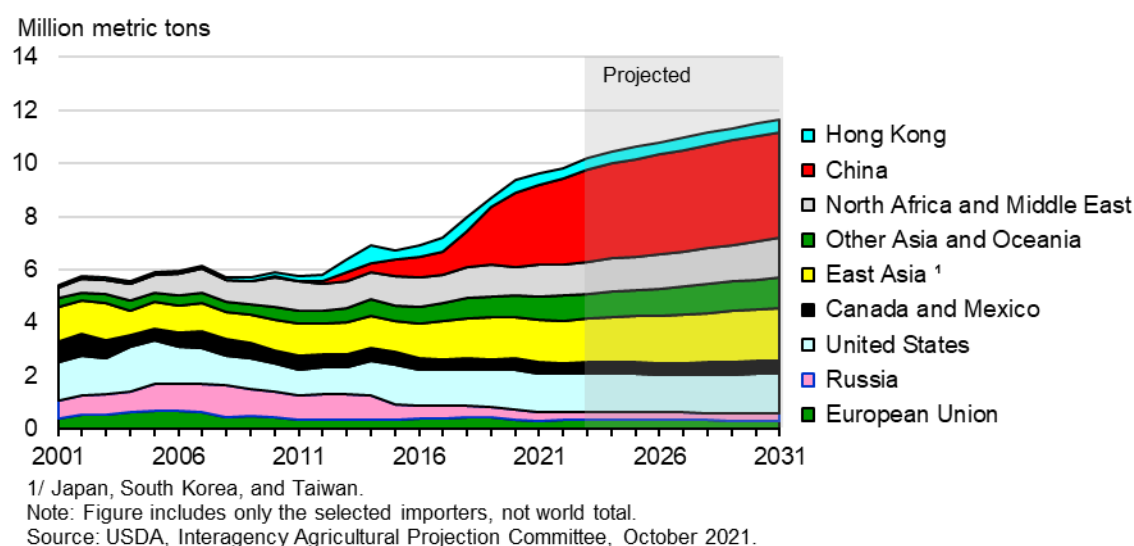


Note: Figure includes major exporters, not world total (see beef, pork and poultry trade tables).
Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Consistent with the recent historical pattern, global expansion of meat trade during 2023–31 is projected to be led by poultry, followed by beef and pork. Poultry exports by major exporters expand by 18.6 percent, supported by strong consumer demand in developing country markets. Pork exports are expected to increase by 13.2 percent, led by demand in Asian countries, while beef shipments are projected to grow 16.1 percent, based largely on demand in Asia and the Middle East.

- Brazil is the largest exporter of poultry meat, followed by the United States, the EU, and Thailand. Brazil is projected to account for 32.5 percent of global export growth, with exports rising 19.6 percent to 5.2 million tons by 2031. U.S. exports are expected to increase nearly 13.9 percent to 4.3 million tons over projection period, while EU exports rise 15.9 percent to almost 2.9 million tons. Thailand's projected poultry exports, aided by proximity to growing markets, are expected to climb 31.7 percent to almost 1.4 million tons by 2031.
- Enhanced biosecurity measures are likely to reduce outbreaks of African swine fever (ASF) in China and several other Asian countries over the projection period. In the absence of an effective vaccine however, ASF remains a significant source of production risk and market disruption. The EU—the world's largest exporter—is projected to account for more than one third of the growth in global pork exports, with shipments rising 11.4 percent to nearly 5.8 million tons by 2031. U.S. pork exports expand nearly 6 percent to 3.6 million tons by 2031, while Brazilian exports are expected to grow about 28.4 percent to 1.8 million tons, and Canada's shipments grow 10.3 percent to 1.7 million tons. The U.S. share among major pork exporters is projected decline from about 26.7 percent in 2023 to 25 percent in 2031.
- Brazil, the world's largest beef exporter, is projected to account for almost half of the projected growth in sales by major exporters, with shipments rising 33.2 percent to almost 3.7 million tons between 2023 and 2031. Growth in Brazil's beef exports is supported by expanding global demand, particularly strong demand by China. Indian beef exports through 2031 are expected to increase 12.2 percent to 1.8 million tons, aided by rising demand from developing countries for India's lower-priced carabeef (from buffalos).
- Despite recent drought-related contraction and the gradual rebuilding of its cattle herd limiting short-term growth in export supplies, Australian beef exports are expected to grow 6.8 percent to almost 1.6 million tons by 2031. U.S. beef exports are projected to rise 9.3 percent to almost 1.6 million tons by 2031, placing the U.S. and Australia in a tie as the third-largest beef exporters.

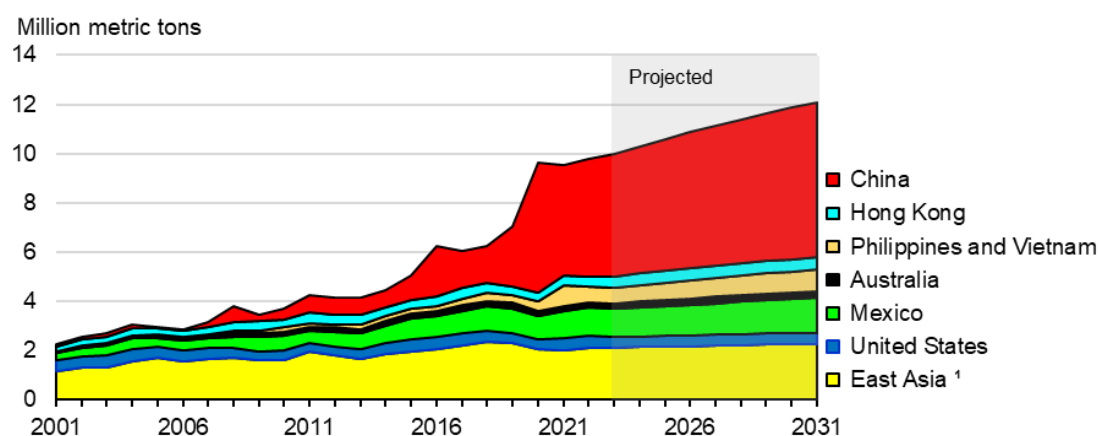
Figure 50. Beef imports, major traders, 2001–31



Between 2023 and 2031, major beef-importing countries are projected to increase annual imports by 1.6 million tons, reaching 13.2 million tons in 2031. Demand by Asian markets will fuel much of the increase.

- Beef imports by China and Hong Kong account for the largest share of world trade and are projected to increase 14.3 percent to 4.5 million tons between 2023 and 2031, as demand outpaces domestic production growth.
- U.S. beef imports of primarily grass-fed, lean beef for use in ground beef and processed products gradually rise throughout the projection period. Imports are expected to increase 0.7 percent over the projection period to almost 1.5 million tons in 2031, as the United States remains the world's second-largest beef importer.
- Japan and South Korea are the world's third- and fourth-largest beef importers. Japan's beef imports are expected increase to 946,000 tons by 2031, while South Korea is projected to be one of the world's fastest growing markets, with imports rising 35.6 percent to 816,000 tons by 2031.
- The Middle East and North Africa region (including Egypt), is projected to increase beef imports from 1.2 million tons in 2023 to almost 1.5 million by 2031, driven by population and income growth.
- Mexico also is projected to be one of the world's fastest growing beef importers, with imports expanding 32.3 percent to 267,000 tons over the projection period. Mexican imports consist largely of higher valued, grain-fed beef from the United States.
- The Philippines, Indonesia, and Malaysia combined are projected, from 2023 to 2031, to increase beef imports by about 21.1 percent to 865,000 tons by 2031, as strong growth in per capita incomes continues to strengthen demand. Other Asia and Oceania (excluding Southeast and East Asia) increases imports by 22.9 percent to 277,000 tons by 2031.
- Russian beef imports are projected to decline 1.4 percent to 291,000 tons by 2031 due to weak demand and policies supporting domestic beef production.

Figure 51. Pork imports, major traders, 2001–31



1/ Japan, South Korea, and Taiwan.

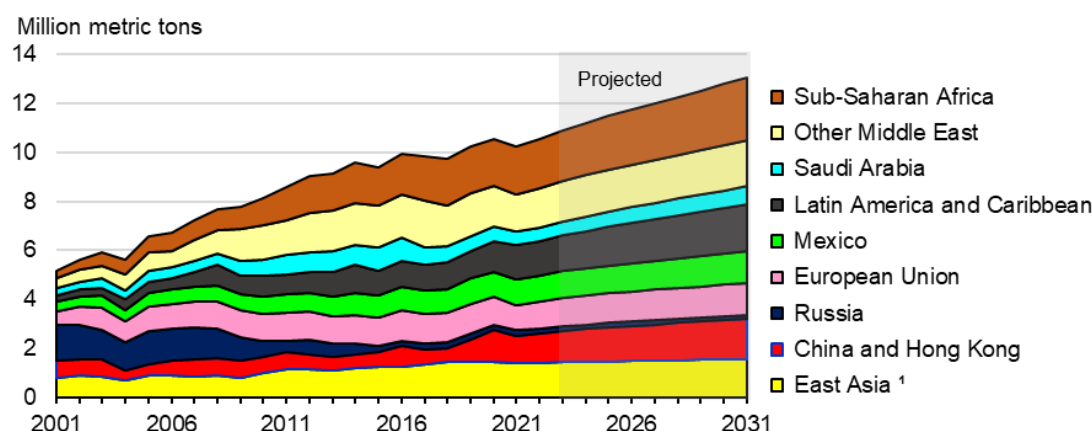
Note: Figure includes only the selected importers, not world total.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Imports by major pork-importing countries are projected to rise 2.4 percent annually from 2023, increasing by almost 2.5 million tons to about 14.1 million tons in 2031, a total increase of 21.2 percent. China and Hong Kong, Mexico, Vietnam, the Philippines, and South Korea exhibit the largest increases in import demand over the projection period, accounting for almost 80 percent of the total projected increase in world pork imports by 2031.

- 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. China remains the largest pork importer over the projection period, despite recovery of swine numbers. Consumption is likely to outpace production as farms contend with persistent disease risk, high feed costs, and expenses for biosecurity and waste treatment. China/Hong Kong pork imports increase to more than 6.8 million tons by 2031, almost 26 percent higher than 2023, and account for 57 percent of world's growth in pork imports. By 2031, China accounts for 49 percent of the world's import share.
- Japan is projected to remain the second-largest pork importer, with imports expected to increase 3.6 percent over the projection period and reach about 1.5 million tons by 2031. Projected rising imports are due to flat pork production and slight consumption growth.
- Mexico is the world's third-largest pork importer. Projected imports climb by almost 21 percent to about 1.4 million tons by 2031, driven primarily by growth in income, urbanization, and population, and an increasing preference toward pork away from beef. Mexico accounts for 9.6 percent of the projected increase in world pork imports among major importers.
- Vietnam, South Korea, and the Philippines pork imports have also grown as their herds declined due to the impact of African swine fever. Vietnam imports increase by 42.4 percent reaching 381,000 tons by 2031. South Korean imports, also supported by demand for selected cuts, are expected to increase, with imports rising 15.7 percent to 715,000 tons over the projection period. For the Philippines, projected growth of 29 percent pushes imports to 480,000 tons by 2031.
- 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 18,000 tons in 2023 to 25,000 tons in 2031. Increasing incomes drive strong demand for imported pork in Central America and the Caribbean. Projected imports rise 25 percent from 2023 to 2031, reaching 444,000 tons in 2031.

Figure 52. Poultry imports, major traders, 2001–31



1/ Japan, South Korea, and Taiwan.

Note: Figure includes only the selected importers, not world total.

Source: USDA, Interagency Agricultural Projection Committee, October 2021.

Annual poultry meat imports by the major importing countries are projected to increase by 2.6 million tons (20.3 percent), reaching 15.8 million tons by 2031. Broad-based growth is expected across emerging markets in Asia, Latin America, North and sub-Saharan Africa, and the Middle East. Little-to-slower import growth is projected for Russia, Ukraine, the European Union, Taiwan, and Canada.

- Poultry meat imports in Africa and the Middle East regions are projected to grow by 22.3 percent and 16.8 percent, respectively, from 2023 through 2031. By 2031, these regions combined increase their poultry meat imports by 1 million tons. Projected gains are the result of income-driven diet diversification, low prices for poultry relative to other meats, and production limitations in a number of these importing countries.
- Projected rising incomes and urbanization leads to increased poultry import demand in Mexico and in the Central America and the Caribbean region, where imported poultry products remain less expensive than beef or pork. Mexico's poultry production grows during the projection period, but at a slower rate than consumption. As a result, Mexico's poultry meats imports rise by about 17.6 percent to almost 1.3 million tons between 2023 and 2031. Poultry imports by the Central American and Caribbean region rise 26.6 percent to 1.1 million tons by 2031.
- Russia's imports decrease by 23 percent to 155,000 tons over the projection period, as policies continue to support domestic production and limit imports.
- China is projected to be a larger net poultry importer as consumption outpaces growth in domestic production. China's poultry imports are projected to increase 30.9 percent, reaching over 1.2 million tons by 2031. With China's poultry exports projected to increase 23.4 percent to 571,000 tons by 2031, net imports increase nearly 40 percent by 218,000 tons over the projection period.
- 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 most poultry exports from Thailand. Thailand's poultry meat exports to the European Union, Japan, and South Korea are expected to rise because of the reopening of those markets to importing uncooked chicken from Thailand. Thai poultry exports are projected to increase by 31.7 percent from 2023 to 2031, reaching almost 1.4 million tons.

Table 27. Coarse grains trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
Former Soviet Union ¹	0.8	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3
Other Europe	3.8	3.2	3.5	3.6	3.7	3.7	3.7	3.8	3.8	3.8	3.9	3.9
European Union ²	15.6	16.4	18.4	19.4	20.2	21.0	21.8	22.5	23.3	24.1	24.9	25.7
Egypt	9.6	10.0	10.9	11.7	12.3	12.9	13.5	14.1	14.6	15.1	15.6	16.1
Iran	9.4	8.2	11.2	11.6	12.1	12.5	12.9	13.4	13.8	14.2	14.6	15.0
Saudi Arabia	10.4	10.5	11.6	12.0	12.3	12.7	13.0	13.3	13.7	14.0	14.3	14.6
Turkey	2.5	5.9	4.2	4.4	4.5	4.6	4.6	4.7	4.8	4.8	4.9	4.9
Other Middle East	9.0	9.4	9.9	10.3	10.6	10.9	11.1	11.3	11.6	11.8	12.0	12.2
Morocco	3.5	3.1	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.0	4.1	4.2
Other North Africa	8.8	8.6	8.8	9.0	9.3	9.5	9.8	10.0	10.3	10.5	10.8	11.0
West Africa (ECOWAS) ³	1.1	0.8	1.0	1.1	1.1	1.2	1.3	1.3	1.4	1.4	1.5	1.5
Sub-Saharan Africa ⁴	3.0	2.7	3.1	3.2	3.2	3.3	3.3	3.3	3.4	3.4	3.4	3.5
South Africa	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Japan	16.9	17.2	17.6	17.6	17.5	17.5	17.5	17.4	17.4	17.4	17.3	17.3
South Korea	11.6	11.6	11.9	12.1	12.1	12.2	12.2	12.3	12.3	12.3	12.4	12.4
Taiwan	4.7	4.6	4.7	4.7	4.8	4.8	4.9	4.9	5.0	5.0	5.0	5.1
China	48.2	45.7	44.9	45.1	45.2	45.4	45.5	45.7	45.8	46.0	46.1	46.3
Indonesia	0.9	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3
Malaysia	4.0	4.0	4.2	4.2	4.3	4.4	4.5	4.5	4.6	4.6	4.7	4.8
Philippines	0.7	0.5	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.7
Thailand	1.9	1.6	1.9	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Vietnam	13.5	10.0	12.5	13.1	13.8	14.4	15.1	15.7	16.4	17.0	17.7	18.3
Bangladesh	2.4	2.5	2.6	2.7	2.7	2.8	2.8	2.9	2.9	2.9	2.9	3.0
India	0.2	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Other Asia and Oceania	3.0	3.1	3.1	3.2	3.3	3.3	3.4	3.4	3.5	3.6	3.6	3.7
Canada	1.9	3.1	2.6	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Mexico	17.2	17.6	18.0	18.5	19.0	19.6	20.4	21.3	22.2	22.9	23.8	24.6
Central America and Caribbean	7.4	7.9	8.2	8.5	8.8	9.1	9.4	9.7	10.0	10.3	10.7	11.0
Brazil	4.0	2.2	2.0	2.0	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1
Other South America	15.0	15.4	16.4	17.3	18.2	19.0	19.7	20.5	21.3	22.0	22.7	23.5
Other foreign ⁵	-5.3	19.0	5.6	5.5	6.0	6.9	7.5	8.1	8.8	9.8	10.4	11.0
United States	2.5	2.1	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Total imports	228.3	250.0	248.3	255.1	261.8	268.4	275.0	281.5	288.0	294.6	301.0	307.5
<i>Exports, million metric tons</i>												
Exporters												
European Union ²	11.1	11.7	12.4	12.6	12.7	12.7	12.8	12.8	12.9	12.9	13.0	13.0
Other Europe	4.9	3.4	4.5	4.6	4.6	4.6	4.6	4.6	4.6	4.7	4.7	4.7
Russia	10.3	9.2	9.0	8.9	8.9	8.9	8.8	8.8	8.7	8.7	8.6	8.6
Ukraine	28.1	37.6	36.7	38.0	39.3	40.6	41.9	43.2	44.5	45.8	47.1	48.4
Other Former Soviet Union ⁶	1.4	1.6	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.6	2.6	2.7
Canada	7.2	3.9	5.2	5.6	5.9	6.1	6.3	6.4	6.5	6.7	6.8	6.9
Argentina	42.4	43.8	45.2	45.7	46.3	46.8	47.3	47.8	48.3	48.7	49.2	49.6
Brazil	20.0	43.0	43.7	46.1	48.5	50.8	53.2	55.6	58.0	60.3	62.7	65.0
Other South America	2.4	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.0	3.0	3.0
Australia	9.8	9.2	8.6	8.7	8.9	9.1	9.3	9.5	9.7	9.9	10.1	10.2
Other Asia and Oceania	7.0	5.6	3.6	3.6	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
South Africa	3.2	3.2	2.3	2.4	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5
Other Africa ⁷	1.2	1.2	1.1	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Other foreign	1.8	1.5	1.7	1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7
United States	77.5	71.9	69.3	71.2	73.1	75.0	76.9	78.8	80.7	82.7	84.6	86.6
Total exports	228.3	250.0	248.3	255.1	261.8	268.4	275.0	281.5	288.0	294.6	301.0	307.5
<i>Percent</i>												
U.S. trade share	33.9	28.8	27.9	27.9	27.9	27.9	28.0	28.0	28.0	28.1	28.1	28.1

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 2021.

USDA Long-term Projections, February 2022

Table 28. Corn trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
European Union ¹	14.2	15.0	17.0	17.9	18.7	19.5	20.3	21.1	21.9	22.7	23.5	24.3
Former Soviet Union ²	0.3	0.7	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Egypt	9.6	10.0	10.8	11.6	12.3	12.9	13.5	14.1	14.6	15.1	15.5	16.1
Morocco	3.0	2.8	3.0	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.6	3.7
Other North Africa	6.3	6.5	6.8	7.1	7.3	7.6	7.9	8.1	8.4	8.7	8.9	9.2
Iran	6.6	6.0	9.0	9.3	9.7	10.0	10.3	10.7	11.0	11.3	11.7	12.0
Saudi Arabia	3.4	3.5	4.0	4.2	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9
Turkey	1.8	3.6	3.6	3.7	3.8	3.9	4.0	4.0	4.1	4.1	4.2	4.2
Other Middle East	6.5	6.4	6.7	6.9	7.1	7.4	7.6	7.8	8.0	8.2	8.4	8.7
Japan	15.4	15.6	16.0	16.0	16.0	15.9	15.9	15.9	15.9	15.8	15.8	15.8
South Korea	11.5	11.5	11.8	12.0	12.0	12.0	12.1	12.1	12.2	12.2	12.2	12.3
Taiwan	4.6	4.5	4.6	4.6	4.7	4.7	4.8	4.8	4.9	4.9	5.0	5.0
China	28.0	26.0	24.0	24.1	24.2	24.3	24.5	24.6	24.7	24.8	24.9	25.0
Indonesia	0.9	1.2	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.3
Malaysia	4.0	4.0	4.2	4.2	4.3	4.4	4.5	4.5	4.6	4.6	4.7	4.8
Philippines	0.6	0.5	0.4	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Thailand	1.9	1.6	1.9	2.1	2.2	2.3	2.3	2.3	2.3	2.3	2.3	2.3
Vietnam	13.5	10.0	12.5	13.1	13.8	14.4	15.1	15.7	16.4	17.0	17.7	18.3
Other Asia and Oceania	1.2	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4
Canada	1.6	3.0	2.5	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Mexico	16.5	17.0	17.5	17.9	18.5	19.0	19.8	20.7	21.6	22.3	23.2	24.0
Central America and Caribbean	7.4	7.9	8.2	8.5	8.8	9.1	9.4	9.7	10.0	10.4	10.7	11.0
Brazil	3.5	1.7	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Other South America	14.2	14.7	15.6	16.5	17.4	18.1	18.8	19.5	20.3	21.0	21.7	22.5
South Africa	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
West Africa (ECOWAS) ³	1.1	0.8	0.9	1.0	1.1	1.2	1.2	1.3	1.4	1.4	1.5	1.5
Sub-Saharan Africa ⁴	2.3	2.0	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5
Other foreign ⁵	-2.5	23.5	9.9	9.7	10.0	10.7	11.3	11.8	12.4	13.3	14.0	14.5
United States	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Total imports	178.0	201.9	198.6	204.5	210.4	216.4	222.4	228.4	234.4	240.4	246.4	252.4
<i>Exports, million metric tons</i>												
Exporters												
European Union ¹	3.4	4.1	4.1	4.1	4.1	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Argentina	37.5	38.0	39.3	39.7	40.1	40.5	40.9	41.4	41.8	42.2	42.6	43.0
Brazil	20.0	43.0	43.7	46.1	48.4	50.8	53.2	55.5	57.9	60.3	62.7	65.0
Other South America	2.1	2.8	2.8	0.0	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
South Africa	3.2	3.2	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.5	2.5	2.5
Other Africa	0.9	0.9	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other Europe	3.5	2.1	3.0	3.0	3.0	3.0	3.0	3.0	3.1	3.1	3.1	3.1
Ukraine	23.8	31.5	31.5	32.8	34.0	35.3	36.6	37.9	39.2	40.4	41.7	43.0
Former Soviet Union ²	4.1	5.3	4.2	4.1	4.1	4.0	4.0	3.9	3.9	3.8	3.8	3.8
Asia and Oceania	6.8	5.3	3.3	3.3	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Other foreign	2.9	2.3	2.7	5.5	2.7	2.8	2.8	2.8	2.9	2.9	3.0	3.0
United States	69.9	63.5	61.0	62.9	64.8	66.7	68.6	70.5	72.4	74.3	76.2	78.1
Total exports	178.0	201.9	198.6	204.5	210.4	216.4	222.4	228.4	234.4	240.4	246.4	252.4
<i>Percent</i>												
U.S. trade share	39.3	31.5	30.7	30.7	30.8	30.8	30.8	30.86	30.88	30.90	30.92	30.95

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 2021.

Table 29. Sorghum trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
Japan	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Mexico	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 America	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Sub-Saharan Africa ¹	0.7	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0
China	8.6	9.8	9.9	9.9	10.0	10.0	10.0	10.0	10.0	10.1	10.1	10.2
Other ²	1.0	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.3	0.3	0.2
Total imports	10.8	11.5	11.6	11.6	11.6	11.6	11.6	11.6	11.7	11.8	11.8	11.8
<i>Exports, million metric tons</i>												
Exporters												
Argentina	2.1	2.3	2.2	2.3	2.3	2.3	2.4	2.4	2.4	2.4	2.4	2.4
Australia	1.0	0.5	0.6	0.7	0.6	0.6	0.6	0.7	0.6	0.7	0.6	0.7
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 foreign	0.2	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
United States	7.2	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.1	8.3	8.3	8.3
Total exports	10.8	11.5	11.6	11.6	11.6	11.6	11.6	11.6	11.7	11.8	11.8	11.8
<i>Percent</i>												
U.S. trade share	66.6	70.9	70.3	70.2	70.1	69.9	69.9	69.8	69.7	70.0	70.0	70.0

1/ Includes South Africa.

2/ Includes unaccounted.

Source: USDA, Interagency Agricultural Projections Committee, October 2021.

Table 30. Barley trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
Former Soviet Union ¹	0.5	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.6	0.6
Europe	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Japan	1.2	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
China	11.3	9.6	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7	10.7
Other Asia and Oceania	2.1	2.3	2.4	2.5	2.5	2.6	2.6	2.7	2.7	2.8	2.8	2.8
Brazil	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.6
Latin America ²	0.8	0.9	0.8	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0
Saudi Arabia	7.0	7.0	7.6	7.7	7.9	8.0	8.1	8.2	8.3	8.4	8.6	8.7
Iran	2.8	2.2	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	2.9	3.0
Turkey	0.7	2.3	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other Middle East	2.3	2.8	3.0	3.2	3.2	3.3	3.3	3.3	3.3	3.3	3.3	3.4
Morocco	0.5	0.3	0.3	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Other North Africa ³	2.5	2.1	2.0	2.0	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8
Other foreign ⁴	2.2	0.4	0.8	0.9	1.2	1.3	1.5	1.7	1.8	1.9	2.0	2.1
United States	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total imports	35.9	33.7	34.4	35.0	35.6	36.2	36.7	37.2	37.6	38.0	38.4	38.8
<i>Exports, million metric tons</i>												
Exporters												
European Union ⁵	7.4	7.3	7.8	7.8	7.9	7.9	7.9	8.0	8.0	8.0	8.1	8.1
Argentina	2.8	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.1	4.1	4.2	4.2
Australia	8.3	8.0	7.2	7.3	7.5	7.7	7.8	8.0	8.2	8.4	8.5	8.7
Canada	3.5	1.6	2.1	2.5	2.7	2.9	3.1	3.2	3.3	3.4	3.5	3.6
Russia	6.3	4.5	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Ukraine	4.1	6.0	5.1	5.1	5.0	5.0	5.1	5.1	5.1	5.1	5.1	5.1
Other Former Soviet Union ⁶	1.1	0.9	1.3	1.4	1.5	1.5	1.6	1.7	1.7	1.8	1.9	1.9
Other Europe	1.4	1.2	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Other foreign	0.6	0.4	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
United States	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Total exports	35.9	33.7	34.4	35.0	35.6	36.2	36.7	37.2	37.6	38.0	38.4	38.8
<i>Percent</i>												
U.S. trade share	0.8	0.7	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4

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 2021.

Table 31. Wheat trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
Iran	2.0	4.5	5.3	5.4	5.4	5.4	5.5	5.5	5.5	5.6	5.6	5.6
Iraq	2.2	2.6	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4
Turkey	8.1	10.0	11.3	11.4	11.4	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Saudi Arabia	2.8	3.0	3.2	3.3	3.4	3.5	3.5	3.6	3.7	3.8	3.9	4.0
Other Middle East	11.2	11.9	12.4	12.6	12.8	13.0	13.2	13.4	13.6	13.7	13.9	14.1
Morocco	5.4	4.5	5.0	5.1	5.1	5.1	5.2	5.2	5.2	5.2	5.2	5.2
Egypt	12.1	13.0	13.5	13.8	14.1	14.3	14.6	14.9	15.2	15.4	15.7	16.0
Other North Africa	10.9	10.3	11.2	11.3	11.4	11.5	11.5	11.6	11.6	11.6	11.6	11.7
Nigeria	6.6	5.8	6.4	6.6	6.7	6.8	6.9	7.1	7.2	7.3	7.4	7.6
Other West Africa (ECOWAS) ¹	4.6	4.7	5.0	5.2	5.4	5.7	5.9	6.1	6.3	6.5	6.8	7.0
South Africa	1.9	1.9	1.9	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2	2.3
Other Sub-Saharan Africa ²	13.6	14.3	14.7	15.2	15.7	16.2	16.7	17.1	17.6	18.1	18.6	19.1
Mexico	4.7	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.7	5.8	5.9	6.0
Central America and Caribbean	4.2	4.4	4.5	4.6	4.6	4.7	4.7	4.8	4.8	4.9	4.9	5.0
Brazil	6.5	6.5	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Other South America	8.9	8.5	8.7	8.8	9.0	9.1	9.2	9.3	9.5	9.6	9.7	9.8
European Union ³	5.4	5.3	5.3	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.4	5.5
Other Europe	4.8	3.8	4.2	4.1	4.0	4.0	3.9	3.8	3.8	3.7	3.7	3.6
Former Soviet Union ⁴	9.2	9.1	9.2	9.2	9.2	9.2	9.2	9.2	9.2	9.3	9.3	9.3
China	10.6	10.0	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5	9.5
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	5.5	5.6	5.5	5.5	5.4	5.4	5.4	5.3	5.3	5.2	5.2	5.2
South Korea	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Taiwan	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.5	1.5	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	3.6	2.5	0.7	0.7	0.6	0.6	0.5	0.5	0.4	0.4	0.3	0.3
Bangladesh	7.2	7.4	7.5	7.7	7.8	7.9	8.0	8.1	8.3	8.4	8.5	8.6
Philippines	6.1	6.4	6.7	6.8	7.0	7.1	7.3	7.4	7.6	7.7	7.9	8.0
Indonesia	10.5	10.4	10.5	10.6	10.8	11.0	11.2	11.3	11.5	11.7	11.9	12.1
Malaysia	1.9	1.9	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2
Thailand	3.3	3.3	3.4	3.5	3.5	3.6	3.6	3.7	3.7	3.7	3.8	3.8
Vietnam	3.9	3.7	3.8	4.0	4.2	4.3	4.5	4.7	4.8	5.0	5.2	5.3
Other Asia and Oceania	7.4	7.9	8.1	8.3	8.4	8.5	8.6	8.8	8.9	9.0	9.2	9.3
Other foreign ⁵	7.8	2.3	2.5	2.1	2.0	2.2	2.6	3.0	3.3	3.7	4.0	4.3
United States	2.7	3.4	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Total imports	201.3	199.6	205.7	208.4	211.1	214.1	216.9	219.7	222.6	225.5	228.5	231.3
<i>Exports, million metric tons</i>												
Exporters												
European Union ³	29.7	35.5	34.0	35.0	36.1	37.1	38.2	39.3	40.3	41.4	42.4	43.5
Canada	26.4	15.0	23.1	24.4	25.1	25.6	26.0	26.3	26.6	27.0	27.3	27.7
Australia	24.0	23.5	20.6	19.3	18.9	18.6	18.5	18.6	18.7	18.7	18.7	18.8
Argentina	11.0	13.5	13.7	13.8	14.0	14.2	14.3	14.5	14.8	15.0	15.2	15.5
Russia	38.5	35.0	38.5	39.1	39.7	40.2	40.8	41.4	42.0	42.5	43.1	43.7
Ukraine	16.9	23.5	20.7	21.1	21.5	22.0	22.7	23.2	23.7	24.3	24.9	25.5
Other Former Soviet Union ⁶	8.4	8.0	8.7	8.8	8.8	8.9	9.1	9.2	9.4	9.5	9.7	9.7
Other Europe	1.5	1.8	1.9	1.9	1.9	1.9	1.9	1.9	1.9	1.9	2.0	2.0
India	2.5	4.0	3.8	3.6	3.4	3.2	3.0	2.8	2.6	2.4	2.2	2.0
China	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Turkey	6.5	6.0	6.0	6.0	6.1	6.2	6.2	6.3	6.3	6.3	6.4	6.5
Other foreign	8.2	9.0	8.6	8.6	8.6	8.7	8.7	8.8	8.8	8.9	9.0	9.0
United States	27.0	23.8	25.2	25.9	26.1	26.5	26.5	26.5	26.5	26.5	26.5	26.5
Total exports	201.3	199.6	205.7	208.4	211.1	214.1	216.9	219.7	222.6	225.5	228.5	231.3
<i>Percent</i>												
U.S. trade share	13.4	11.9	12.2	12.4	12.4	12.4	12.2	12.1	11.9	11.8	11.6	11.5

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 2021.

Table 32. Rice trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
Canada	0.43	0.45	0.45	0.45	0.46	0.46	0.46	0.47	0.47	0.47	0.48	0.48
Mexico	0.80	0.80	0.79	0.79	0.79	0.80	0.81	0.81	0.82	0.83	0.84	0.85
Central America and Caribbean	1.74	1.89	1.89	1.90	1.91	1.92	1.93	1.94	1.95	1.96	1.97	1.98
Brazil	0.70	0.65	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99
Other South America	1.26	1.10	1.14	1.15	1.17	1.18	1.20	1.23	1.23	1.24	1.25	1.26
European Union ¹	1.78	2.00	2.06	2.11	2.17	2.20	2.23	2.26	2.29	2.33	2.36	2.39
Former Soviet Union ²	0.51	0.50	0.50	0.51	0.52	0.52	0.52	0.52	0.52	0.53	0.53	0.53
Other Europe	0.76	0.78	0.70	0.71	0.72	0.74	0.75	0.76	0.78	0.79	0.80	0.82
Bangladesh	1.37	1.10	0.80	0.77	0.70	0.70	0.67	0.67	0.65	0.65	0.62	0.60
China	4.50	4.00	4.12	4.16	4.20	4.21	4.23	4.25	4.25	4.28	4.31	4.35
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	0.45	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41	0.41
Indonesia	0.60	0.60	0.55	0.55	0.55	0.53	0.52	0.52	0.50	0.50	0.50	0.50
Malaysia	1.10	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20
Philippines	2.20	2.20	2.29	2.34	2.38	2.43	2.53	2.63	2.73	2.84	2.97	3.09
Other Asia and Oceania	4.34	3.59	3.69	3.54	3.58	3.62	3.67	3.71	3.75	3.79	3.84	3.89
Iraq	1.10	1.20	1.25	1.29	1.32	1.35	1.38	1.42	1.45	1.48	1.52	1.55
Iran	0.90	1.30	1.33	1.36	1.37	1.39	1.41	1.43	1.45	1.47	1.49	1.50
Saudi Arabia	1.50	1.40	1.41	1.45	1.48	1.51	1.54	1.57	1.60	1.63	1.66	1.68
Other Middle East	3.13	3.24	3.30	3.37	3.44	3.53	3.60	3.68	3.75	3.82	3.89	3.96
North Africa	0.69	1.21	1.22	1.23	1.24	1.26	1.27	1.28	1.29	1.31	1.32	1.33
Nigeria	1.90	2.00	2.15	2.24	2.33	2.42	2.51	2.60	2.69	2.78	2.87	2.96
Other West Africa (ECOWAS) ³	7.36	7.44	7.66	7.84	8.00	8.18	8.29	8.40	8.59	8.67	8.77	8.89
Other Sub-Saharan Africa ⁴	4.52	5.03	5.22	5.46	5.57	5.67	5.78	5.90	6.04	6.20	6.35	6.50
South Africa	1.05	1.00	1.03	1.04	1.05	1.06	1.07	1.08	1.08	1.09	1.10	1.11
Other foreign ⁵	2.67	2.93	1.60	1.62	1.64	1.66	1.68	1.70	1.72	1.74	1.76	1.78
United States	1.08	1.14	1.17	1.19	1.22	1.24	1.27	1.30	1.33	1.35	1.37	1.40
Total imports	49.09	49.72	49.43	50.18	50.95	51.74	52.53	53.34	54.16	54.99	55.82	56.67
<i>Exports, million metric tons</i>												
Exporters												
Australia	0.11	0.26	0.26	0.20	0.26	0.26	0.26	0.26	0.26	0.26	0.26	0.26
Argentina	0.35	0.35	0.35	0.37	0.38	0.39	0.39	0.40	0.41	0.41	0.42	0.44
Other South America	2.93	3.20	3.12	3.16	3.20	3.25	3.33	3.36	3.40	3.44	3.47	3.51
European Union ¹	0.45	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55
China	2.22	2.40	2.40	2.44	2.49	2.46	2.48	2.53	2.59	2.75	2.86	2.98
India	20.00	18.50	18.27	18.74	19.10	19.49	19.79	20.03	20.20	20.33	20.45	20.60
Pakistan	3.90	4.00	4.02	4.04	4.06	4.10	4.16	4.17	4.20	4.22	4.24	4.25
Thailand	5.60	6.50	6.50	6.55	6.60	6.70	6.80	7.03	7.31	7.56	7.85	8.00
Vietnam	6.20	6.40	6.40	6.43	6.45	6.49	6.52	6.58	6.63	6.70	6.81	6.98
Burma	1.70	2.00	2.00	2.08	2.13	2.17	2.25	2.32	2.39	2.45	2.51	2.59
Cambodia	1.30	1.40	1.40	1.40	1.49	1.54	1.59	1.64	1.70	1.75	1.80	1.86
Egypt	0.01	0.01	0.01	0.00	0.01	0.01	0.00	0.01	0.01	0.01	0.01	0.01
Other foreign	1.35	1.27	1.19	1.24	1.26	1.32	1.37	1.44	1.47	1.48	1.51	1.54
United States	2.98	2.89	2.97	2.98	2.98	3.02	3.03	3.03	3.03	3.06	3.08	3.11
Total exports	49.09	49.72	49.43	50.18	50.95	51.74	52.53	53.34	54.16	54.99	55.82	56.67
<i>Percent</i>												
U.S. trade share	6.1	5.8	6.0	5.9	5.9	5.8	5.8	5.7	5.6	5.6	5.5	5.5

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 2021.

Table 33. Soybean trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
European Union ¹	15.0	15.0	15.2	15.2	15.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Former Soviet Union ²	2.6	2.7	2.8	2.8	2.8	2.8	2.8	2.7	2.7	2.6	2.6	2.5
Mexico	6.0	6.2	6.4	6.5	6.7	6.8	7.0	7.1	7.3	7.4	7.6	7.8
Argentina	5.0	4.7	4.6	4.6	4.7	4.7	4.8	4.8	4.9	5.0	5.0	5.1
Other South America ³	2.1	1.8	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.3	2.3	2.3
Central America, Caribbean	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Egypt	4.0	4.8	5.0	5.2	5.4	5.5	5.7	5.8	6.0	6.1	6.3	6.5
Iran	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.6	2.6
Saudi Arabia	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.9
Turkey	2.7	3.2	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.8	3.9	4.0
Other Middle East	0.3	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.7	0.7
Africa	1.6	2.1	2.2	2.2	2.3	2.4	2.5	2.5	2.6	2.7	2.7	2.8
Pakistan	2.6	2.6	2.8	2.9	3.0	3.2	3.3	3.4	3.6	3.7	3.8	4.0
China	99.0	101.0	104.9	109.0	113.1	117.1	121.2	125.2	129.2	133.3	137.5	141.6
Japan	3.1	3.3	3.3	3.3	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.4
South Korea	1.3	1.4	1.3	1.4	1.4	1.4	1.4	1.4	1.5	1.5	1.5	1.5
Taiwan	2.7	2.7	2.7	2.7	2.7	2.8	2.8	2.9	2.9	3.0	3.0	3.1
Malaysia	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0
Indonesia	2.7	2.7	2.7	2.8	2.8	2.9	3.0	3.1	3.1	3.2	3.3	3.3
Vietnam	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.6	2.6
Thailand	4.0	4.1	4.2	4.4	4.4	4.5	4.6	4.6	4.7	4.7	4.8	4.9
Other	4.3	8.3	6.5	9.1	8.9	10.2	10.4	10.8	11.1	11.0	11.0	11.4
Total imports	164.9	173.1	176.5	184.5	189.3	195.7	201.0	206.4	211.7	216.6	221.9	227.5
<i>Exports, million metric tons</i>												
Exporters												
Argentina	5.2	6.4	5.8	5.6	5.5	5.6	5.7	5.9	6.1	6.3	6.5	6.7
Brazil	81.7	93.0	93.5	101.2	105.2	110.9	114.9	119.8	124.0	127.7	131.8	136.1
Other South America ⁴	8.3	9.1	9.3	9.6	9.8	10.0	10.2	10.5	10.7	11.0	11.2	11.5
Ukraine	1.5	1.7	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9	1.9
Canada	4.5	4.0	5.7	5.8	6.0	6.2	6.4	6.5	6.7	6.8	7.0	7.1
Other foreign	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.2	2.3	2.3
United States	61.7	56.9	58.2	58.4	58.8	59.1	59.7	59.7	60.1	60.7	61.2	61.9
Total exports	164.9	173.1	176.5	184.5	189.3	195.7	201.0	206.4	211.7	216.6	221.9	227.5
<i>Percent</i>												
U.S. trade share	37.4	32.9	33.0	31.6	31.1	30.2	29.7	28.9	28.4	28.0	27.6	27.2

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 2021.

Table 34. Soybean meal trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million metric tons</i>												
Importers												
European Union ¹	16.7	17.0	17.0	17.1	17.2	17.3	17.4	17.4	17.5	17.6	17.7	17.8
Russia	0.4	0.4	0.3	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1
Other Former Soviet Union ²	0.6	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Other Europe	2.6	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.5	2.5	2.5	2.5
Canada	1.3	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Japan	1.9	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.9	1.9	1.9
South Korea	1.8	2.0	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.2	2.3
Indonesia	5.1	5.2	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	6.1
Malaysia	1.4	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.7	1.7
Philippines	2.6	2.8	2.9	3.1	3.2	3.2	3.3	3.4	3.5	3.5	3.6	3.7
Thailand	2.6	2.7	2.8	2.9	2.9	3.0	3.1	3.2	3.3	3.3	3.4	3.5
Vietnam	5.2	5.3	5.4	5.6	5.7	5.8	6.0	6.1	6.3	6.4	6.5	6.7
Australia	0.9	1.1	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.3	1.3
Other Asia and Oceania	1.2	1.7	1.1	1.1	1.2	1.2	1.3	1.3	1.4	1.4	1.5	1.5
Mexico	1.9	1.9	1.9	2.0	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7
Central America, Caribbean	2.5	2.6	2.6	2.7	2.7	2.8	2.9	3.0	3.0	3.1	3.2	3.2
South America	5.8	5.9	6.1	6.2	6.4	6.5	6.7	6.8	6.9	7.0	7.2	7.3
Egypt	0.2	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
Iran	2.0	2.0	1.9	2.0	2.0	2.0	2.1	2.1	2.1	2.2	2.2	2.2
Saudi Arabia	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1
Turkey	0.8	1.1	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.3
Other Middle East ³	2.5	2.3	2.4	2.5	2.5	2.5	2.6	2.6	2.6	2.6	2.6	2.7
South Africa	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 North Africa ⁴	1.4	1.4	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7
Other	6.3	5.7	4.9	5.5	5.7	5.9	5.9	6.0	6.1	6.3	6.3	6.4
Total imports	68.8	70.4	69.6	71.1	72.3	73.5	74.6	75.7	76.9	78.0	79.1	80.2
<i>Exports, million metric tons</i>												
Exporters												
Argentina	28.2	29.3	28.9	30.1	30.7	31.3	31.8	32.4	32.9	33.4	34.0	34.5
Brazil	16.6	17.0	17.1	17.2	17.7	18.2	18.8	19.4	20.0	20.5	21.1	21.6
Other South America	3.8	4.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
China	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
India	2.2	1.7	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9	0.9	0.9
Other Asia and Oceania	0.5	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Former Soviet Union ⁵	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6
European Union ¹	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9
Canada	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
Other foreign	1.2	1.5	1.3	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4
United States	12.6	12.9	13.2	13.4	13.5	13.6	13.6	13.5	13.5	13.5	13.5	13.4
Total exports	68.8	70.4	69.6	71.1	72.3	73.5	74.6	75.7	76.9	78.0	79.1	80.2
<i>Percent</i>												
U.S. trade share	18.3	18.3	19.0	18.9	18.7	18.5	18.2	17.9	17.6	17.4	17.1	16.8

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 2021.

Table 35. Soybean oil trade long-term projections to 2031

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
Importers	Imports, million metric tons											
China	1.3	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.1	1.1	1.1	1.1
India	3.6	3.6	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.8
Bangladesh	0.6	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Pakistan	0.0	0.0	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	0.4	0.4	0.4	0.4	0.4
Other Asia and Oceania	0.5	0.6	0.6	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8
Mexico	0.1	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	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
South America	1.5	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.6
Iran	0.6	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Egypt	0.4	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Other North Africa ¹	1.1	1.2	1.3	1.3	1.4	1.4	1.4	1.5	1.5	1.5	1.6	1.6
European Union ²	0.5	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Other	1.3	1.7	1.2	1.0	1.0	1.0	1.0	0.9	0.9	1.0	1.0	1.0
Total imports	12.2	12.6	12.4	12.6	12.7	12.9	13.1	13.2	13.4	13.6	13.9	14.1
Exporters	Exports, million metric tons											
Argentina	6.1	6.3	6.1	6.3	6.5	6.6	6.7	6.9	7.0	7.1	7.2	7.4
Brazil	1.3	1.3	1.4	1.3	1.3	1.2	1.1	1.1	1.0	1.0	1.0	0.9
Other South America	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
European Union ²	1.0	1.0	0.9	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0
Former Soviet Union -12	0.8	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.1	1.2	1.2	1.2
Other foreign	1.2	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
United States	0.8	0.6	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.1
Total exports	12.2	12.6	12.4	12.6	12.7	12.9	13.1	13.2	13.4	13.6	13.9	14.1
U.S. trade share	6.4	4.5	3.7	3.7	4.0	4.7	5.5	5.7	6.0	6.7	7.3	7.7
	Percent											

1/ Excludes Egypt.

2/ Excludes intra-European Union trade.

Source: USDA, Interagency Agricultural Projections Committee, October 2021.

Table 36. All Cotton trade baseline projections to 2031—bales

	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32
<i>Imports, million bales</i>												
Importers												
European Union ¹	0.6	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Former Soviet Union ²	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.3
Mexico	0.9	1.0	1.0	1.0	1.0	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	0.1	0.1	0.1	0.1	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	12.9	10.5	12.0	12.0	12.0	12.2	12.7	13.2	13.7	14.0	14.2	14.5
Indonesia	2.3	2.5	2.4	2.5	2.6	2.7	2.8	2.8	2.9	3.0	3.1	3.2
Vietnam	7.3	7.3	7.3	7.6	8.0	8.4	8.7	9.0	9.3	9.6	10.0	10.3
Thailand	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Pakistan	5.3	5.0	5.2	5.2	5.2	5.3	5.4	5.6	5.7	5.8	6.0	6.1
India	0.8	1.0	1.0	1.0	1.1	1.1	1.2	1.2	1.2	1.3	1.3	1.3
Bangladesh	8.8	8.2	8.6	8.9	9.3	9.6	10.0	10.4	10.7	11.0	11.4	11.7
Taiwan	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2
Other Asia and Oceania	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.1	1.1	1.1
Turkey	5.3	5.2	5.2	5.3	5.3	5.3	5.3	5.4	5.4	5.4	5.4	5.4
Other	1.7	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.4	2.4	2.4
Total imports	48.5	46.4	48.2	49.1	50.1	51.3	52.9	54.4	55.9	57.0	58.3	59.6
<i>Exports, million bales</i>												
Exporters												
Former Soviet Union ²	2.0	1.5	1.6	1.7	1.7	1.7	1.7	1.7	1.6	1.6	1.5	1.4
Australia	1.6	3.6	3.9	3.8	3.8	3.7	3.8	3.8	3.8	3.7	3.7	3.7
Argentina	0.6	0.7	0.7	0.8	0.8	0.9	0.9	0.9	0.9	1.0	1.0	1.0
Brazil	11.0	8.0	9.9	10.8	11.3	12.1	12.9	13.9	14.6	15.1	15.6	16.0
Other Latin America	0.5	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5
Pakistan	0.0	0.1	0.1	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.2	0.2
India	6.2	5.8	5.0	3.7	3.3	3.4	3.6	3.8	4.2	4.6	5.2	5.8
Egypt	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
West Africa (ECOWAS) ³	4.3	5.1	4.9	5.1	5.2	5.3	5.5	5.6	5.7	5.7	5.8	5.8
Other Sub-Saharan Africa ⁴	2.2	2.5	2.6	2.6	2.6	2.6	2.7	2.7	2.7	2.7	2.7	2.7
Other foreign	3.3	3.1	3.3	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
United States	16.4	15.5	15.3	16.3	16.9	17.0	17.2	17.5	17.8	18.1	18.5	18.8
Total exports	48.5	46.4	48.2	49.1	50.1	51.3	52.9	54.4	55.8	57.0	58.3	59.6
<i>Percent</i>												
U.S. trade share	33.8	33.4	31.8	33.1	33.7	33.1	32.6	32.2	31.9	31.8	31.7	31.6

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 2021.

Table 37. Beef trade long-term projections to 2031

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<i>Imports, thousand metric tons, carcass weight</i>												
Importers												
Japan	832	815	835	856	869	880	891	901	912	924	935	946
South Korea	549	595	575	602	628	656	683	711	738	766	792	816
Taiwan	190	180	180	186	191	197	203	208	214	219	225	230
Indonesia	197	212	227	239	248	257	266	275	284	293	302	311
Malaysia	206	240	250	256	261	267	273	280	286	293	299	304
Philippines	190	225	230	219	220	223	227	230	234	239	244	250
China	2,782	3,000	3,250	3,484	3,592	3,682	3,757	3,822	3,879	3,932	3,982	4,001
Hong Kong	513	460	400	434	441	448	454	459	464	469	474	479
Other Asia and Oceania	213	223	222	226	230	236	242	248	255	261	269	277
European Union ¹	351	320	340	337	334	331	328	325	322	319	316	313
Other Europe	517	499	502	503	512	521	529	534	539	543	546	551
Russia	363	320	300	295	302	300	297	288	287	288	290	291
Saudi Arabia	148	155	160	165	170	176	183	188	194	200	206	213
Other Middle East ²	657	707	730	742	756	766	777	786	799	812	825	841
Egypt	230	300	270	280	288	298	308	318	328	339	349	362
Other Africa ³	94	49	51	56	60	64	67	71	74	76	79	82
Other Latin America ⁴	763	815	828	847	861	878	897	916	931	948	965	983
Mexico	162	200	200	202	207	215	221	230	236	247	255	267
Canada	250	225	220	229	229	229	229	229	229	229	229	229
United States	1,516	1,445	1,436	1,456	1,462	1,435	1,412	1,423	1,434	1,445	1,456	1,467
Major importers	10,723	10,985	11,206	11,613	11,862	12,057	12,242	12,443	12,641	12,842	13,042	13,216
<i>Exports, thousand metric tons, carcass weight</i>												
Exporters												
Australia	1,473	1,290	1,420	1,471	1,512	1,531	1,540	1,549	1,556	1,562	1,569	1,571
New Zealand	638	650	616	627	630	631	637	643	649	653	658	663
Former Soviet Union ⁵	264	278	277	281	286	291	297	302	308	314	320	325
India	1,284	1,550	1,600	1,619	1,648	1,672	1,696	1,720	1,744	1,768	1,792	1,816
Other Asia	204	227	245	248	252	256	261	264	269	273	277	281
European Union ¹	713	685	700	717	724	726	734	741	746	748	751	757
Argentina	819	720	680	662	667	676	691	707	725	745	765	785
Brazil	2,539	2,575	2,655	2,769	2,885	3,000	3,114	3,230	3,344	3,460	3,574	3,690
Other Latin America ⁶	1,079	1,288	1,262	1,273	1,298	1,325	1,354	1,382	1,410	1,437	1,466	1,492
Mexico	343	330	370	386	399	412	422	433	445	457	468	479
Canada	513	595	600	600	599	598	599	601	603	606	608	608
United States	1,339	1,549	1,483	1,452	1,457	1,474	1,492	1,511	1,530	1,549	1,568	1,586
Major exporters	11,208	11,737	11,908	12,106	12,358	12,592	12,838	13,083	13,329	13,571	13,816	14,054

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 2021.

Table 38. Pork trade long-term projections to 2031

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<i>Imports, thousand metric tons, carcass weight</i>												
Importers												
Japan	1,412	1,400	1,425	1,425	1,428	1,431	1,435	1,443	1,452	1,460	1,468	1,476
China	5,281	4,500	4,750	4,952	5,140	5,329	5,510	5,686	5,852	6,006	6,158	6,295
Hong Kong	378	400	435	462	478	488	495	502	509	513	518	522
South Korea	554	550	600	618	635	648	665	677	687	697	704	715
Philippines	167	500	375	372	390	406	419	432	443	455	466	480
Vietnam	225	300	250	268	287	301	316	331	344	357	370	381
Australia	201	205	210	218	229	239	249	259	268	277	283	291
Other Asia and Oceania	362	367	384	398	408	416	424	430	437	443	449	456
Russia	13	13	10	18	18	20	20	21	22	23	24	25
Other Former Soviet Union ¹	211	240	219	224	227	230	234	238	241	244	247	250
Other South America ²	339	410	423	435	453	471	489	507	525	543	561	579
Mexico	945	1,100	1,125	1,143	1,177	1,208	1,239	1,270	1,299	1,327	1,353	1,378
Central America, Caribbean	272	311	344	355	365	376	386	398	410	422	434	444
Canada	273	260	270	275	280	285	290	295	298	302	306	310
United States	410	502	519	433	435	437	439	442	444	446	448	451
Major importers	11,043	11,058	11,339	11,595	11,951	12,285	12,611	12,930	13,230	13,515	13,789	14,051
<i>Exports, thousand metric tons, carcass weight</i>												
Exporters												
Brazil	1,178	1,295	1,380	1,436	1,487	1,538	1,589	1,640	1,691	1,742	1,793	1,844
Other South America ²	329	321	302	305	310	317	327	337	347	359	371	382
Canada	1,544	1,550	1,565	1,584	1,608	1,623	1,643	1,660	1,678	1,698	1,722	1,746
Mexico	344	375	390	401	413	425	437	449	462	474	487	500
European Union ³	5,167	5,000	5,100	5,183	5,257	5,331	5,405	5,479	5,554	5,628	5,702	5,776
Former Soviet Union ⁴	168	201	185	198	211	226	240	253	268	281	293	306
China	100	100	90	93	94	95	95	95	95	96	96	98
United States	3,302	3,265	3,359	3,357	3,368	3,401	3,427	3,452	3,478	3,504	3,531	3,556
Major exporters	12,132	12,107	12,371	12,556	12,748	12,955	13,163	13,366	13,572	13,782	13,995	14,208

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 2021.

Table 39. Poultry trade long-term projections to 2031¹

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
<i>Imports, thousand metric tons, ready to cook</i>												
Importers												
Russia	231	232	207	201	194	187	182	176	171	165	160	155
Ukraine	111	133.00	138	139	140	141	141	143	143	144	146	146
Other Former Soviet Union ²	457	427	439	450	460	471	483	494	504	515	526	538
European Union ³	1,136	1,028	1,105	1,152	1,174	1,196	1,219	1,241	1,262	1,284	1,305	1,327
Canada	191	192	197	201	205	206	208	210	211	213	215	217
Mexico	997	1,045	1,065	1,094	1,118	1,142	1,166	1,190	1,215	1,239	1,263	1,287
Central America, Caribbean	784	882	876	906	936	966	996	1,026	1,057	1,087	1,117	1,147
South America	464	515	530	557	586	615	641	667	692	717	742	767
Japan	1,007	1,027	1,037	1,047	1,057	1,067	1,077	1,087	1,097	1,107	1,118	1,127
South Korea	170	175	180	184	189	194	199	204	210	215	220	225
Taiwan	252	185	195	198	200	202	204	207	209	211	213	216
Hong Kong	298	250	269	307	315	322	329	335	342	347	353	358
China	1,010	885	908	960	1,022	1,069	1,109	1,142	1,171	1,201	1,230	1,257
Vietnam	213	173	188	224	232	241	251	260	271	280	290	301
Philippines	338	533	543	567	590	614	638	662	684	706	728	750
Other Asia and Oceania	496	516	549	571	590	609	628	647	666	685	705	724
Saudi Arabia	645	547	567	589	608	624	643	663	683	702	722	741
Iraq	469	381	381	380	379	378	378	378	377	377	377	377
Other Middle East	1,122	1,091	1,164	1,213	1,243	1,271	1,298	1,325	1,352	1,378	1,404	1,430
Egypt	68	40	50	51	54	56	59	62	65	69	73	78
Other North Africa	103	108	115	114	116	118	120	122	124	126	129	131
West Africa (ECOWAS) ⁴	590	668	704	740	768	797	826	854	883	912	940	968
South Africa	463	424	414	408	402	403	402	402	405	407	410	412
Other Sub-Saharan Africa	852	872	884	918	951	986	1,018	1,044	1,074	1,099	1,131	1,162
Major importers	12,467	12,329	12,705	13,172	13,527	13,877	14,215	14,539	14,867	15,188	15,515	15,842
<i>Exports, thousand metric tons, ready to cook</i>												
Exporters												
European Union ³	2,610	2,355	2,408	2,466	2,524	2,588	2,644	2,697	2,739	2,782	2,822	2,858
Russia	218	217	217	219	223	228	233	237	241	245	249	254
Ukraine	428	430	440	449	461	472	483	495	507	519	531	543
Other Former Soviet Union ²	208	200	205	203	205	208	210	214	216	219	221	223
Brazil	3,942	4,121	4,244	4,352	4,460	4,566	4,673	4,779	4,885	4,991	5,098	5,204
Argentina	158	150	180	203	221	236	245	254	262	270	277	281
Other South America	183	175	189	200	207	215	226	235	246	257	268	280
Canada	152	154	159	159	159	159	159	159	159	160	160	161
China	388	425	440	463	475	499	513	528	539	556	562	571
Thailand	943	992	1,012	1,052	1,091	1,136	1,185	1,223	1,263	1,306	1,346	1,385
Turkey	451	482	528	542	555	567	579	592	605	619	633	647
United States	3,635	3,674	3,641	3,746	3,817	3,892	3,954	4,016	4,077	4,137	4,198	4,268
Major exporters	13,316	13,375	13,663	14,054	14,397	14,765	15,104	15,429	15,740	16,061	16,366	16,674

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 2021.