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Outlook

Outlook for U.S. Agricultural Trade: August 2022

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U.S. Agricultural Exports in Fiscal Year 2023 Forecast at \$193.5 Billion, Imports at \$197.0 Billion

U.S. agricultural exports in fiscal year (FY) 2023 are projected at \$193.5 billion, down \$2.5 billion from the revised forecast for FY 2022. This decrease is primarily driven by lower exports of cotton, beef, and sorghum that are partially offset by higher exports of soybeans and horticultural products. Cotton exports are forecast down \$1.8 billion due to drought-slashed exportable volumes. Beef exports are forecast down \$1.1 billion due to tight U.S. supplies. Overall livestock, poultry, and dairy exports are projected at \$41.1 billion, down \$1.5 billion. Sorghum exports are forecast at \$2.0 billion, down \$700 million, on sharply lower exportable supplies. Total grain and feed exports are forecast down \$1.3 billion to \$46.5 billion; in addition to sorghum, wheat exports are forecast down \$300 million on lower unit values. Soybean exports are forecast up \$2.2 billion to a record \$35.2 billion on higher prices. Horticulture exports are raised \$400 million to \$39.5 billion as higher exports of fresh and processed fruits and vegetables more than offset a decline in tree nut exports. Ethanol exports are unchanged at \$4.2 billion. Agricultural exports to China are forecast at \$36.0 billion, unchanged from FY 2022, as higher soybean exports offset lower cotton and sorghum prospects. Agricultural exports to Canada and Mexico are forecast at \$28.5 billion each, also unchanged from FY 2022.

Economic Outlook

Rising Global Macroeconomic Uncertainty

The global economic outlook for 2022 and 2023 is growing more uncertain due to the continued materialization of downside risks. Previous growth projections are moderated due to ongoing trade disruptions, above-target inflation rates, and rising energy prices. World real gross domestic product (GDP) is projected to increase by 3.2 percent in 2022, a downward revision from the prior forecast of 3.6 percent. Global GDP is projected to increase by 2.9 percent in 2023. The Russian invasion of Ukraine is ongoing and continues to impose far-reaching economic disruptions. The disruptions have thus far led to elevated energy prices that continue to disproportionately affect the European market. Supply chain complications have slowly abated, but spot shipping rates remain elevated compared with their pre-pandemic levels. Central banks around the world, including the Federal Reserve, have begun monetary tightening cycles to combat rising inflation rates. The tightening of monetary policy counters inflation but also typically presents short-term barriers to economic growth.

Projected growth for the United States' real GDP in 2022 is lowered to 2.3 percent from the previous estimate of 3.7 percent. The forecast for 2023 real U.S. GDP growth is 1 percent, partially due to persistently high inflation. The July 2022 Consumer Price Index (CPI) showed prices had increased by 8.5 percent over the past 12 months, down from the higher year-over-year mark of 9.1 percent in June. The Federal Reserve has reaffirmed its intention to continue its scheduled interest rate hikes given above-target inflation and the low unemployment rate, which was last measured at 3.5 percent in July 2022 by the U.S. Department of Labor, Bureau of Labor Statistics.

Real GDP in North America is expected to grow by a projected 2.4 percent in 2022, revised downward from 3.6 percent previously. The real GDP forecast for Canada in 2022 is revised downward to 3.4 from 3.9 percent. Pandemic-related disruptions have dissipated, and real GDP forecast for Mexico is raised to 2.4 percent from 2.0 percent. Mexico's economy has continued to recover from the pandemic downturn in the first half of 2022, but its recession risks are closely tied to the United States due to the large trade flows between the two countries.

The Eurozone economic growth projection is lowered from 2.8 to 2.6 percent for 2022. Though tourism has rebounded, the manufacturing sector has been especially hit hard by rising energy prices and elevated supply chain costs. The annual producer price index (PPI) in the Eurozone

was 35.8 percent in June 2022, down from 36.2 percent in May. As natural gas prices remain at elevated levels, heavy industrial producers face especially tough input price challenges. The Eurozone consumer price index (CPI) reached a new high of 8.9 percent in July, up from 8.6 percent in June. Inflation in the United Kingdom also reached a new high of 10.1 percent in July.

South America's real GDP is projected to grow by 2.6 percent in 2022, raised from the previous forecast of 2.3 percent. The rise is due mainly to the improved outlook for Brazil, which is expected to grow 1.7 percent in 2022, raised from 0.8 percent previously. Brazilian growth prospects have marginally improved but growth headwinds of inflation and political uncertainty remain. Argentina is expected to grow by 4.0 percent in 2022, unchanged from the previous forecast. While Argentina's growth prospects remain cautiously optimistic and the most recent deal with the International Monetary Fund signed in March 2022 averts default in the one-year outlook, significant financial risks remain as notable downside growth risks.

China's real GDP is expected to grow by 3.3 percent in 2022, lowered from 4.4 percent previously. China has continued its strict containment and lockdown policies. Covid-19 outbreaks have continued to cause economic disruptions, lowering growth prospects. Japan's real GDP growth for 2022 is revised down to 1.7 percent from 2.4 percent previously. The Japanese yen has been under sustained downward pressure over the first half of 2022, and high energy and transportation costs remain substantial barriers to growth prospects. South Korea's real GDP growth in 2022 is unchanged at 2.5 percent, with continued labor market resilience maintaining the unemployment rate near 4 percent.

Crude oil prices have continued to fall over the past 2 months. Natural gas prices have temporarily plateaued but remain elevated significantly above their 10-year averages. The Henry Hub natural gas spot price average for July was down 10.5 percent from May 2022, but still up 89.5 percent from July 2021. Germany has embarked on a rapid plan to add additional liquified natural gas (LNG) terminals to receive LNG shipments, as gas flows from Russia remain lower and more unreliable. Reduced flows from Russia have led to concerns of gas shortages and even higher prices when gas demand rises in the upcoming winter months. The consideration of natural gas prices as inputs to nitrogen fertilizer remains a concern for elevated fertilizer cost projections.

Table 2—Macroeconomic variables affecting U.S. agricultural exports 1/

Region/Country	Exchange rate 2/		Real GDP per capita growth rate			Share of world		Share of U.S.
	2022	2023	2022	2023	2022 Previous forecast	GDP	Population	agricultural exports
	Percent change					2019–21 average		
World 3/	3.2	0.6	3.2	2.9	3.6			
North America	-1.1	0.4	2.4	1.1	3.6	26.3	6.3	28.4
United States 4/	--	--	2.3	1.0	3.7	24.3	4.2	--
Canada	-1.9	-0.9	3.4	1.8	3.9	2.0	0.5	14.9
Mexico	-0.1	1.9	2.4	1.2	2.0	1.4	1.6	13.5
Emerging markets 5/	2.7	1.3	3.6	3.9	3.8	25.6	44.1	19.4
Brazil	0.9	-0.1	1.7	1.1	0.8	1.8	2.7	0.7
Russia	14.4	14.4	-6.0	-3.5	-8.5	1.9	1.9	0.1
India	3.7	2.9	7.4	6.1	8.2	3.2	17.8	1.2
Indonesia	1.3	6.2	5.3	5.2	5.4	1.3	3.5	1.8
China	2.8	0.6	3.3	4.6	4.4	17.4	18.2	15.6
Europe and Central Asia	4.7	0.7	1.6	2.1	1.9	26.1	7.4	7.9
Eurozone	10.1	-0.9	2.6	1.2	2.8	15.2	5.7	6.9
Ukraine	13.6	-6.4	-44.4	26.4	-35.0	0.2	0.6	0.1
Turkey	69.5	14.2	4.0	3.5	2.7	0.9	1.1	0.9
Asia and Oceania	4.4	0.1	3.2	2.9	3.5	39.1	54.3	45.9
Japan	17.3	2.5	1.7	1.7	2.4	5.6	1.6	8.1
South Korea	6.8	-4.4	2.5	2.1	2.5	1.9	0.7	5.3
Australia	4.6	7.0	3.8	2.2	4.2	1.6	0.3	1.0
Other Southeast Asia 6/	3.4	-0.1	5.1	5.0	5.1	1.8	4.0	6.2
South America	2.8	0.9	2.6	1.4	2.3	3.4	5.6	4.7
Argentina	43.4	56.4	4.0	3.0	4.0	0.5	0.6	0.1
Other South America 7/	1.7	-0.3	3.4	1.3	3.4	2.9	5.0	4.6
Middle East and North Africa	6.0	1.4	4.9	3.4	4.8	3.8	6.0	5.4
Sub-Saharan Africa	5.9	4.8	3.8	4.0	3.8	2.0	14.6	1.3

1/ Gross Domestic Product (GDP) is the total value of finished goods and services produced in a country in a given period. 2/ Exchange rate is the nominal annual change in percentage terms. Local currency per U.S. dollar. A negative growth rate indicates a depreciation of the dollar. 3/ World real exchange rate is a U.S. agricultural exports-weighted index. 4/ "--" indicates that percentage change or share does not apply. 5/ Countries listed under "emerging markets" are also included under other listed regions. 6/ Includes Malaysia, Philippines, Thailand, and Vietnam. 7/ Includes Chile, Colombia, Peru, Bolivia, Paraguay, and Uruguay.

Sources: Calculations and compilation by USDA, Economic Research Service using data and forecasts from Reuters; S&P Global Market Intelligence; the International Monetary Fund; and Oxford Economics.

Export Products

FY 2023 U.S. grain and feed exports are forecast at \$46.5 billion, down \$1.3 billion from FY 2022 on lower sorghum, wheat, and corn exports, despite higher rice exports. Corn exports are forecast at \$19.1 billion, down just \$100 million from FY 2022 on slightly lower volumes. Even with expectations of larger world market supplies as a result of the Ukraine grain corridor, prices are expected to remain historically high and global demand is forecast to remain strong. If South America's production and exports are realized as currently forecast for next year's crop, competition with U.S. corn will be strong again. Sorghum exports are forecast at \$2.0 billion, down \$700 million from the FY 2022 estimate on sharply lower exportable supplies. Feeds and fodders exports are forecast at \$10.5 billion, unchanged from the FY 2022 estimate, on the expectation of unit prices remaining elevated for distiller's dried grains with solubles (DDGS), hay, and dog and cat food. Wheat exports are forecast at \$7.8 billion, down \$300 million from FY 2022, reflecting larger export volumes but lower unit values on higher available exportable supplies. Rice exports are forecast at \$2.2 billion, up \$200 million from the FY 2022 estimate, due to higher prices. However, volumes are down as lower production will result in reduced exportable supplies.

FY 2022 estimates for U.S. grain and feed exports are \$47.8 billion, up \$1.1 billion from the May forecast, as higher corn and feed and fodder exports more than offset lower wheat exports. Corn exports are forecast at \$19.2 billion, up \$100 million from the May forecast, as higher unit values more than offset lower volumes as competition from South America is expected to be strong in the final quarter of FY 2022. Sorghum exports are forecast at \$2.7 billion, also up \$100 million from the May forecast, as lower volumes more than offset higher unit values. Feed and fodder exports are forecast at \$10.5 billion, up \$800 million, on higher unit values for DDGS and hay. Wheat exports are forecast at \$8.1 billion, down \$300 million from the previous quarter, as lower unit values offset higher export volumes. Global wheat prices have fallen over the last quarter, reflecting the ongoing winter wheat harvests as the new-crop wheat supply situation becomes more favorable. Rice exports are forecast unchanged at \$2.0 billion, as higher prices offset lower exports to the Western Hemisphere.

FY 2023 oilseeds and products exports are forecast at a record \$46.6 billion, up \$1.3 billion from FY 2022, mostly on higher unit values for soybeans. Soybean export values are projected to reach a record \$35.2 billion despite a marginal drop in volumes from the previous year. U.S. soybean export volumes are expected to be lower than FY 2022 due to a combination of factors including higher soybean prices, strong domestic crush, and increased competition from Brazil.

Soybean meal exports are forecast at \$5.7 billion, down \$400 million from FY 2022, on lower unit values more than offsetting higher volumes. Soybean oil exports are forecast at \$1.0 billion, down \$200 million from 2022, as strong domestic demand renders U.S. exports uncompetitive.

FY 2022 estimates for oilseeds and products exports are forecast at \$45.3 billion, up \$1.0 billion from the May forecast. Soybeans are forecast at \$33.0 billion, up \$700 million, on higher unit values and volumes. High global prices for all major oilseeds and reduced competition from South America have supported soybean export values despite slowing demand from China. Soybean meal exports are up \$100 million to a record \$6.1 billion on higher unit values partially offset by lower volumes.

FY 2023 cotton exports are forecast to plunge by \$1.8 billion to \$7.0 billion from FY 2022, due to significantly lower volumes. Production is projected to fall over 20 percent compared with the previous year as over one-half of the U.S. crop is in areas experiencing drought. Unit values are unchanged from the previous year.

FY 2022 estimates for U.S. cotton exports are forecast at a record-tying \$8.8 billion, down \$200 million from May's record forecast due to lower unit values despite slightly higher volumes. Spot prices last month were down by one-third compared with May's levels but have since rebounded.

FY 2023 livestock, poultry, and dairy exports are forecast down \$1.5 billion to \$41.1 billion on declines in most product groups. Beef exports are forecast down \$1.1 billion to \$9.8 billion as higher prices fail to offset lower volumes driven by tight U.S. supplies. Dairy products are forecast \$500 million lower to \$9.0 billion. Beef and pork variety meats are forecast \$100 million lower to \$2.1 billion on a reduction in beef variety meat volume and slightly lower pork unit values. Poultry and products are forecast \$100 million lower to \$6.9 billion on a decline in broiler and turkey meat volumes as well as broiler meat values. Hides, skins, and furs are forecast \$100 million lower to \$1.1 billion as slower global economic growth weakens leather demand. Pork exports are forecast up \$200 million to \$6.5 billion as higher volumes more than offset lower unit values.

FY 2022 estimates for livestock, poultry, and dairy exports are forecast up \$2.2 billion to \$42.6 billion from the May forecast on increases in dairy, beef, and poultry. Dairy is forecast \$1.1 billion higher to \$9.5 billion on robust shipments of a number of products to top markets in Mexico, South Korea, and Japan. Beef is forecast up \$700 million to \$10.9 billion on rising volumes and values. Poultry and poultry products are forecast \$200 million higher to \$7.0 billion on strong shipments of chicken paws to China and an improved outlook for turkey meat exports

as highly pathogenic avian influenza restrictions subside for key markets. Pork is forecast \$100 million higher to \$6.3 billion on higher prices. Hides, skins, and furs are unchanged.

FY 2023 forecast for horticultural products is a record \$39.5 billion, up \$400 million from FY 2022. Fresh fruit and vegetables are forecast \$200 million higher to \$7.1 billion and processed fruit and vegetables are forecast \$100 million higher to \$7.3 billion on rising exports to Canada and Mexico. Whole and processed tree nuts are forecast \$300 million lower to \$9.5 billion on slightly weaker shipments to Europe and Asia. “Other horticultural products” are forecast up \$400 million to \$15.6 billion on higher miscellaneous products (e.g., other food preparations, beer, and mixed seasonings) to Canada, Mexico, and Europe.

FY 2022 estimates for horticultural products are raised \$600 million to \$39.1 billion. Fresh fruit and vegetables are lowered by \$400 million to \$6.9 billion on lower-than-expected shipments to Canada and Mexico. Processed fruit and vegetables are raised by \$100 million to \$7.2 billion on higher shipments to Europe. Whole and processed tree nuts are up \$400 million to \$9.8 billion on higher almond and pistachio shipments to Europe and India. “Other horticultural products” are raised by \$500 million to \$15.2 billion on higher miscellaneous products (e.g., other food preparations, beer, and mixed seasonings) to Canada, Mexico, and Europe.

FY 2023 U.S. ethanol exports are forecast at \$4.2 billion, equal to the revised FY 2022 forecast. Compared with the previous year, export unit value moderates somewhat while volume climbs moderately higher, leaving export value unchanged. Although U.S. corn feedstock cost is expected to remain elevated, lower cost of natural gas helps maintain ethanol plant profitability if ethanol prices retreat in line with expected softening in oil prices. Canada remains the top market by a wide margin for U.S. ethanol exports. Brazil’s demand for U.S. ethanol strengthens as tax policy continues to keep anhydrous ethanol demand elevated and U.S. domestic supply remains tight due to past drought and continued elevated sugar prices. Competitive pricing keeps U.S. ethanol sales strong to other top markets, most importantly South Korea, Europe, and Mexico.

FY 2022 U.S. ethanol exports are forecast at a record \$4.2 billion, up \$1.8 billion from the previous year and \$400 million higher than the May forecast. Near-record export volume and export unit value combine to propel export value to \$1.4 billion above 2012 record. Average export unit value jumps to \$2.60 per gallon, or 30 percent above the previous year’s elevated level. Sales to Canada, valued at \$1.4 billion and one-third of total exports, outpace all others and are nearly 3 times more than South Korea, the second largest market. U.S. suppliers cover 40–50 percent of Canada’s ethanol use, and Canada’s gasoline demand is rising with the

relaxation of pandemic-related restrictions. U.S. ethanol sales for industrial use reach record volumes to South Korea and Mexico and some sales recovery to India is expected. Export volume to the United Kingdom is up fourfold following its move to 10-percent blending. Sales to Brazil see modest recovery with drought-impacted sugarcane harvest and more crush diverted to sugar.

Table 3—U.S. agricultural exports: Value and volume by commodity, fiscal years 2021–23 1/2/

Commodity	October–June		Fiscal year 2021	Forecast Fiscal year 2022		Forecast
	FY2021	FY2022		May	August	Fiscal year 2023 August
VALUE						
<i>–Billion dollars–</i>						
Grains and feeds 3/	32.708	36.777	42.599	46.7	47.8	46.5
Wheat 4/	5.054	5.484	7.251	8.4	8.1	7.8
Rice	1.587	1.449	2.043	2.0	2.0	2.2
Corn	14.124	15.977	17.397	19.1	19.2	19.1
Sorghum	1.668	2.220	1.938	2.6	2.7	2.0
Feeds and fodders	6.606	7.754	9.063	9.7	10.5	10.5
Oilseeds and products	32.984	37.847	37.700	44.3	45.3	46.6
Soybeans	24.056	28.337	26.417	32.3	33.0	35.2
Soybean meal 5/	4.500	4.670	5.619	6.0	6.1	5.7
Soybean oil	0.772	1.069	0.843	1.2	1.2	1.0
Livestock, poultry, and dairy	26.928	31.278	36.925	40.4	42.6	41.1
Livestock products	17.291	19.520	23.667	25.3	26.1	25.2
Beef and veal 6/	6.011	8.202	8.659	10.2	10.9	9.8
Pork 6/	5.433	4.637	7.014	6.2	6.3	6.5
Beef and pork variety meats 6/	1.385	1.620	1.924	2.1	2.2	2.1
Hides, skins, and furs	0.752	0.887	1.072	1.2	1.2	1.1
Poultry and products	4.342	5.121	5.982	6.8	7.0	6.9
Broiler meat 6/ 7/	2.588	3.061	3.562	4.2	4.2	4.2
Dairy products	5.295	6.637	7.276	8.4	9.5	9.0
Tobacco and products	0.776	0.611	1.065	0.8	0.8	0.8
Cotton 8/	5.077	6.829	6.228	9.0	8.8	7.0
Seeds	1.380	1.447	1.658	1.6	1.7	1.7
Horticultural products 9/	28.316	29.877	37.455	38.5	39.1	39.5
Fruits and vegetables, fresh	5.277	5.105	7.146	7.3	6.9	7.1
Fruits and vegetables, processed	5.297	5.451	7.030	7.1	7.2	7.3
Tree nuts, whole and processed	6.984	7.798	8.824	9.4	9.8	9.5
Sugar and tropical products 10/	4.193	4.557	5.686	5.9	5.9	6.0
Ethanol 10/	1.907	3.233	2.424	3.8	4.2	4.2
Total	134.269	152.457	171.740	191.0	196.0	193.5
Major bulk products 12/	52.441	60.957	62.482	74.2	73.8	73.3
<i>– Million metric tons –</i>						
VOLUME						
Wheat 2/	18.429	13.850	25.568	20.3	20.3	22.3
Rice	2.950	2.294	3.753	3.1	3.0	2.9
Corn	57.027	52.390	68.225	63.5	62.0	61.5
Sorghum	6.021	6.519	6.906	7.8	7.6	5.8
Feeds and fodders	16.104	16.350	21.866	21.5	22.0	21.9
Soybeans	52.365	50.982	56.572	58.2	58.8	58.6
Soybean meal 4/	9.818	9.794	12.406	12.7	12.4	12.7
Soybean oil	0.739	0.704	0.800	0.8	0.8	0.6
Beef and veal 5/	0.819	0.876	1.121	1.1	1.2	1.0
Pork 5/	1.945	1.625	2.474	2.2	2.2	2.3
Beef and pork variety meats 5/	0.556	0.525	0.759	0.8	0.7	0.7
Broiler meat 5/ 6/	2.529	2.511	3.362	3.4	3.3	3.3
Cotton 7/	2.900	2.692	3.489	3.3	3.4	2.7
Major bulk products 11/	140.385	129.109	165.436	156.2	155.1	153.8

Note: Totals may not add up due to rounding.

1/ Fiscal year is defined as October 1 of previous year through September 30 of current year. 2/ FY = fiscal year. 3/ Includes barley, oats, rye, corn gluten feed and meal, and processed grain products. 4/ Excludes wheat flour. 5/ Includes soy flours made from protein meals. 6/ Includes chilled, frozen, and processed meats. 7/ Includes only federally inspected products. 8/ Includes linters and waste. 9/ Includes food preparations, essential oils, and wine. 10/ Includes coffee and cocoa. 11/ Non-beverage ethanol. 12/ Includes wheat, rice, coarse grains, soybeans, and cotton.

Sources: Compilation, analysis, and forecasts by USDA, Economic Research Service and USDA, Foreign Agricultural Service; U.S. Department of Commerce, Bureau of the Census data.

Regional Exports

Outlook for Fiscal Year 2023 Exports

Agricultural exports in FY 2023 are forecast at \$193.5 billion, \$2.5 billion lower than the revised FY 2022 estimate. Overall bulk export values are forecast to slide by \$500 million, as reductions in cotton, sorghum, wheat, and corn more than offset higher soybean exports. High-valued product exports are forecast to fall by \$2.0 billion, mainly due to reductions in beef, dairy, and tree nuts. China, Canada, and Mexico are expected to remain the top three U.S. export markets, with export forecasts unchanged from FY 2022.

Asia

The export forecast for China is \$36.0 billion, unchanged from the FY 2022 estimate. Higher projected soybean exports are expected to offset reduced prospects of sorghum and cotton.

For the rest of East Asia, lower projected beef exports are expected to affect all the markets there, with the forecast for Japan trimmed by \$200 million to \$15.2 billion, South Korea down by \$300 million to \$9.5 billion, Taiwan reduced by \$100 million to \$4.2 billion, and Hong Kong down by \$100 million to \$1.5 billion.

Exports to Southeast Asia are forecast down a collective \$400 million to \$14.5 billion. In the Philippines, lower unit values of soybean meal and wheat as well reduced dairy prospects are expected to shave off \$200 million of U.S. exports there. The forecast for Vietnam is down \$100 million due to reduced cotton availability. The forecast for Indonesia is down \$100 million on lower dairy and cotton prospects.

The export forecast for South Asia is down \$300 million to \$4.7 billion on lower cotton exports to India and Pakistan, as well as diminished tree nut exports to India.

Western Hemisphere

The export forecast for Canada is unchanged at \$28.5 billion, as higher prospects for food preps and horticultural products balance out reduced dairy and beef exports. Exports to Mexico are also forecast to be unchanged at \$28.5 billion, with higher soybean export value offsetting lower beef and cotton.

Exports to Central America are forecast down \$100 million to \$7.1 billion, largely on lower wheat prices.

Europe, Africa, the Middle East, and Oceania

Exports to the European Union (EU) are forecast at \$12.2 billion, down \$300 million from FY 2022, on weaker demand for tree nuts.

Exports to the Middle East are projected at \$6.2 billion, \$200 million lower than the FY 2022 estimate, as exports of cotton and tree nuts to Turkey are expected to contract.

Exports to Africa are forecast at \$6.2 billion, down \$300 million from the revised FY 2022 estimate, due to weaker demand for wheat and dairy products in Egypt.

Revised Outlook for Fiscal Year 2022

The FY 2022 estimates for agricultural exports are up \$5.0 billion from May to \$196.0 billion, led by increases in livestock, poultry, and dairy exports.

Asia

Compared with the previous quarter, exports to Japan are up \$400 million to \$15.4 billion, primarily due to strong soybean, corn, and beef exports. Exports to Hong Kong are lowered by \$100 million to \$1.6 billion on continued lackluster sales of beef and fresh fruit. Exports to Taiwan are up \$500 million due to strong beef sales and surging soybean shipments in recent months. Exports to Southeast Asia are up \$600 million, mainly due to stronger-than-expected shipments of vegetable oils to Singapore, which more than offset minor downward adjustments to Indonesia, Thailand, and Vietnam. Exports to India are up \$500 million, driven by particularly strong shipments of tree nuts and cotton during April through June.

Western Hemisphere

Exports to Mexico are cut by \$1.0 billion to \$28.5 billion, which still represents a 19-percent increase over the previous year. With this adjustment, Mexico is now tied with Canada as the second largest U.S. agricultural market.

Exports to the Caribbean are adjusted upward by \$200 million, on higher-than-expected sales of poultry products and corn.

Exports to Central America are raised by \$700 million due to strong shipments of corn, soybean meal, wheat, and dairy products.

Exports to South America are adjusted upward by \$1.1 billion, led by a \$500-million increase to the estimate for Colombia on robust corn and soybean meal exports. Exports to Venezuela are up \$100 million based on corn, wheat, and soybean meal shipments to date.

Europe, Africa, the Middle East, and Oceania

Exports to the EU are estimated at \$12.5 billion, up \$1.0 billion from the May forecast, buoyed by strong soybean, corn, and ethanol shipments.

Exports to the Middle East are up \$400 million from May due to higher-than-expected shipments to Turkey, particularly of cotton, soybeans, and tree nuts.

The estimate for Africa is raised by \$900 million, largely due to a \$1.0-billion increase to Egypt, where soybean and wheat shipments skyrocketed during the April–June quarter.

Table 4—U.S. agricultural exports: Value by region, fiscal years 2021–23

Region and country 1/	October–June		Fiscal year	Share of	Forecast		Forecast
	2021	2022	2021	2021	Fiscal year 2022		Fiscal year 2023
	–Billion dollars–			total	February	May	August
	–Billion dollars–			Percent	–Billion dollars–		
VALUE							
Asia	64.788	69.836	80.099	46.6	85.0	87.0	85.6
East Asia	50.105	54.046	61.387	35.7	66.3	67.1	66.4
Japan	10.410	11.909	13.509	7.9	15.0	15.4	15.2
China	28.286	30.065	33.351	19.4	36.0	36.0	36.0
Hong Kong	1.363	1.204	1.768	1.0	1.7	1.6	1.5
Taiwan	2.941	3.360	3.713	2.2	3.8	4.3	4.2
South Korea	7.096	7.496	9.034	5.3	9.8	9.8	9.5
Southeast Asia	11.275	11.638	14.531	8.5	14.3	14.9	14.5
Indonesia	2.488	2.384	3.068	1.8	3.0	2.9	2.8
Philippines	2.586	2.919	3.575	2.1	4.0	4.0	3.8
Malaysia	0.888	0.919	1.160	0.7	1.2	1.2	1.2
Thailand	1.405	1.389	1.700	1.0	1.8	1.7	1.7
Vietnam	2.837	2.621	3.565	2.1	3.4	3.3	3.2
South Asia	3.408	4.152	4.181	2.4	4.4	5.0	4.7
India	1.248	2.049	1.645	1.0	2.2	2.7	2.5
Western Hemisphere	48.763	58.556	65.480	38.1	77.6	78.6	78.5
North America	35.345	41.864	48.121	28.0	58.0	57.0	57.0
Canada	17.923	21.211	24.263	14.1	28.5	28.5	28.5
Mexico	17.422	20.653	23.858	13.9	29.5	28.5	28.5
Caribbean	3.194	3.915	4.239	2.5	5.0	5.2	5.2
Dominican Republic	1.366	1.543	1.733	1.0	1.9	1.9	1.9
Central America	4.169	5.458	5.500	3.2	6.5	7.2	7.1
South America	6.054	7.319	7.621	4.4	8.1	9.2	9.2
Brazil	0.584	0.730	0.745	0.4	0.9	0.9	0.9
Colombia	2.527	3.465	3.013	1.8	3.6	4.1	4.1
Peru	0.836	0.802	1.022	0.6	1.0	1.0	1.0
Venezuela	0.479	0.552	0.655	0.4	0.6	0.7	0.7
Europe/Eurasia	10.513	12.045	13.374	7.8	14.5	15.2	14.9
European Union-27	8.373	9.867	10.592	6.2	11.5	12.5	12.2
United Kingdom	1.317	1.442	1.729	1.0	2.0	1.9	1.9
FSU-12 2/	0.369	0.340	0.497	0.3	0.5	0.5	0.5
Russia	0.180	0.139	0.237	0.1	0.2	0.2	0.2
Middle East	4.351	4.969	5.524	3.2	6.0	6.4	6.2
Turkey	0.915	1.570	1.202	0.7	1.6	2.0	1.8
Saudi Arabia	1.118	1.116	1.365	0.8	1.3	1.3	1.3
Africa	4.226	5.503	5.119	3.0	5.6	6.5	6.2
North Africa	2.667	3.627	2.905	1.7	3.2	3.9	3.6
Egypt	1.706	2.738	1.845	1.1	2.0	3.0	2.7
Sub-Saharan Africa	1.559	1.876	2.214	1.3	2.4	2.6	2.6
Nigeria	0.437	0.552	0.626	0.4	0.8	0.8	0.8
Oceania	1.628	1.548	2.143	1.2	2.1	2.1	2.1
Total	134.269	152.457	171.740	100.0	191.0	196.0	193.5

Notes: Totals may not add up due to rounding. Fiscal year is defined as October 1 of previous year through September 30 of current year.

1/ Projections are based primarily on trend or recent average growth analysis. 2/ The 15 Republics of the Former Soviet Union (FSU), not including the 3 Baltic Republics: Estonia, Latvia, and Lithuania.

Sources: USDA, Economic Research Service and USDA, Foreign Agricultural Service analysis and forecasts using data from U.S. Department of Commerce, Bureau of the Census.

Import Products

In FY 2023, total agricultural imports are expected to increase \$5.0 billion above the FY 2022 forecast—to \$197.0 billion—due to higher imports of grains and feed products, horticultural products, and sugar and tropical products. Total imports in FY 2022 are expected to be \$11.5 billion more than the May forecast and \$28.7 billion more than FY 2021. If realized, the 18-percent jump in FY 2022 import values would be the largest year-over-year percentage increase since FY 2011. The historically large increase from FY 2021 to FY 2022 is a product of the unwavering upward trend of import volumes in the face of increasing unit values for nearly every agricultural import product group. Similarly, the large increase in the current FY 2022 forecast from the May FY 2022 forecast results from import volumes of nearly all product groups continuing to increase despite increasing unit values of most import products over the first three quarters of FY 2022 with the notable exception of livestock and meat prices which showed a mix of increases and decreases across products in the third quarter.

Horticultural product imports are expected to reach \$99.3 billion in FY 2023. This would be approximately \$2.9 billion above FY 2022 forecasts and \$13.2 billion higher than FY 2021 totals. The new FY 2022 forecast also represents an upward adjustment of \$4.2 billion from the previous forecast.

In FY 2023, values of fresh fruit imports are expected to grow by \$200 million over FY 2022 values to \$18.3 billion. Fresh fruit forecast volumes are adjusted upward from the previous forecast, which—coupled with increasing unit values—are expected to increase over FY 2022 import values to \$18.1 billion. Although fresh fruit imports for commodities such as bananas, avocados, and blueberries continue their upward trend, reduced U.S. production of citrus due to poor weather conditions also contributed to increased reliance on fruit imports in FY 2022. Import values of nuts are expected to decrease by \$700 million in FY 2022 to \$3.1 billion. As the inflationary pressures of the moment begin to ease, unit values are expected to regulate, resulting in a \$2.8-billion decrease in FY 2023.

Processed fruit imports for FY 2022 are expected to be higher than the previous forecast to \$8.1 billion as fruit juice import volumes increased over their previous trend in early 2022. An additional \$100-million increase is expected for FY 2023 for total processed fruit imports of \$8.2 billion due to continuing increases of frozen, prepared, and preserved fruit imports.

Fresh vegetable imports are expected to increase by \$600 million from FY 2021 to FY 2022—to \$11.1 billion—and are expected to further increase to \$11.6 billion in FY 2023 as strong demand

for these goods—led by tomatoes, bell peppers, and asparagus—continues its long-running upward trend. Processed vegetable imports are forecast at \$7.3 billion for FY 2022 and are expected to increase to \$7.7 billion in FY 2023. Largely consisting of frozen, prepared, and preserved vegetables, this is another category of import goods that is expected to continue its upward trend.

The FY 2022 wine forecast is unchanged from the previous forecast of \$7.7 billion. Beer and distilled spirits, however, are forecast to increase by \$200 million and \$800 million, respectively. Increases for each of these commodity imports is expected in FY 2023 with wine increasing to \$8.1 billion, beer growing to \$6.9 billion, and distilled spirits reaching \$12.1 billion.

Imports of cut flowers and nursery stock and essential oils are expected to increase in FY 2022 and FY 2023. Essential oil imports from the EU and India have increased in value leading to a \$600 million upward adjustment of the FY 2022 forecast—to \$5.0 billion—from the previous forecast and another increase to \$5.3 billion for FY 2023. Cut flowers and nursery stock imports from South America also increased in value prompting an increase beyond the previous FY 2022 forecast of \$300 million to \$3.4 billion, and another \$300 million increase to \$3.7 billion in FY 2023.

Record-high domestic prices boost imports of sugar and tropical products as the FY 2022 is raised by \$1.9 billion to \$28.4 billion, and FY 2023 imports are forecast at \$30.2 billion. Sweeteners and products are raised by \$600 million to \$6.5 billion for FY 2022 and forecast at \$7.1 billion for FY 2023. The cocoa and cocoa products forecasts for FY 2022 are increased to \$5.8 billion with the FY 2023 forecast set at \$6.0 billion. Coffee and coffee products forecasts are adjusted upward by \$1.0 billion for FY 2022 to \$9.0 billion on increased import volumes and unit values. Coffee and coffee product imports in FY 2023 are forecast at \$10.0 billion.

The forecast for FY 2022 for livestock, poultry, and dairy imports is raised by \$1.1 billion from the previous forecast to \$26.7 billion on higher dairy, pork, and poultry and product imports. Dairy imports are forecast \$500 million higher to \$4.6 billion on stronger shipments from the EU. Pork imports are forecast \$300 million higher to \$2.8 billion as tight U.S. supplies continue to spur trade at higher prices. Poultry and poultry product imports are forecast \$100 million higher to \$1.3 billion as tight U.S. supplies and elevated prices generate opportunities for foreign suppliers. Live swine and cattle imports are unchanged. Beef imports are forecast down \$500 million to \$9.0 billion.

For FY 2023, the forecast for U.S. imports of livestock, dairy, and poultry products is decreased by \$400 million fiscal year over fiscal year to \$26.3 billion as increases in live cattle imports fail

to offset declines in other products. Beef imports are lowered by \$500 million from the FY 2022 forecast to \$8.5 billion despite higher unit values as tight global supplies limit import quantities. The FY 2023 dairy import forecast is lowered by \$300 million to \$4.3 billion, largely on weaker values. Lower prices push pork imports \$100 million lower to \$2.7 billion. Live swine imports and poultry and products are unchanged. Cattle imports are raised \$400 million to \$2.2 billion as tight U.S. supplies will spur imports from Canada and Mexico at higher prices.

Table 5—U.S. agricultural imports: Value and volume by commodity, fiscal years 2021–23

Commodity	October–March		Fiscal year 2021	Forecast		Forecast
	FY 2021	FY 2022		Fiscal year 2022		Fiscal year 2023
			May	August	August	
VALUE						
<i>–Billion dollars –</i>						
Livestock, dairy, and poultry	14.821	19.719	20.956	25.6	26.7	26.3
Livestock and meats	11.503	15.435	16.352	20.3	20.8	20.7
Cattle and calves	1.212	1.359	1.555	1.8	1.8	2.2
Swine	0.370	0.423	0.532	0.6	0.6	0.6
Beef and veal	5.075	6.858	7.422	9.5	9.0	8.5
Pork	1.381	1.985	1.968	2.5	2.8	2.7
Poultry	0.636	0.957	0.893	1.2	1.3	1.3
Dairy products	2.681	3.327	3.711	4.1	4.6	4.3
Cheese	1.025	1.132	1.430	1.7	1.6	1.6
Grains and feed	11.434	14.225	15.776	17.8	19.1	20.0
Grain products	8.164	9.851	11.194	12.6	13.2	13.4
Oilseeds and products	8.871	12.996	12.638	14.5	17.5	17.3
Vegetable oils	5.167	7.932	7.636	9.9	10.4	10.0
Horticulture products	65.099	74.126	86.144	92.2	96.4	99.3
Fruits, fresh	12.384	14.545	15.512	17.5	18.1	18.3
Fruits, processed	4.800	6.177	6.449	7.5	8.1	8.2
Fruit juices	1.603	2.245	2.141	2.4	2.8	2.7
Nuts, whole and processed	2.026	2.358	2.856	2.9	3.1	2.8
Vegetables, fresh	8.252	8.657	10.511	10.7	11.1	11.6
Vegetables, processed	4.886	5.603	6.504	7.0	7.3	7.7
Wine	5.324	5.749	7.481	7.7	7.7	8.1
Malt beer	4.675	4.898	6.376	6.4	6.6	6.9
Distilled spirits	6.974	8.732	9.794	10.7	11.5	12.1
Essential oils	3.322	3.760	4.416	4.4	5.0	5.3
Cut flowers and nursery stock	2.220	2.656	2.822	3.1	3.4	3.7
Sugar and tropical products	17.631	21.390	23.925	26.5	28.4	30.2
Sweeteners and products	3.899	4.882	5.378	5.9	6.5	7.1
Confections	1.579	1.967	2.213	2.5	2.6	2.6
Cocoa and products	4.067	4.367	5.355	5.5	5.8	6.0
Coffee and products	4.758	6.991	6.729	8.0	9.0	10.0
Other imports 1/	2.948	2.978	3.902	3.9	3.9	3.9
Total agricultural imports	120.803	145.433	163.341	180.5	192.0	197.0
VOLUME						
<i>–Million metric tons –</i>						
Cattle and calves 2/	1.468	1.373	1.824	1.8	1.8	1.9
Swine 2/	4.743	4.953	6.515	6.6	6.6	6.7
Beef and veal	0.762	0.914	1.073	1.2	1.2	1.1
Pork	0.325	0.471	0.457	0.6	0.6	0.7
Fruits, fresh	9.909	10.401	12.926	13.3	13.4	13.4
Fruits, processed	1.555	1.721	2.060	2.2	2.3	2.3
Fruit juices 3/	3.375	4.398	4.495	5.0	5.3	5.0
Vegetables, fresh	7.103	7.213	8.908	8.9	9.1	9.6
Vegetables, processed	3.592	3.979	4.752	5.0	5.3	5.8
Vegetable oils 3/	3.593	4.183	5.191	5.4	5.6	5.6
Wine 3/	1.257	1.224	1.726	1.7	1.7	1.7
Malt beer 3/	3.434	3.499	4.657	4.7	4.8	4.8
Distilled spirits 4/	0.692	0.740	0.931	1.0	1.0	1.0
Cocoa and products	1.165	1.138	1.489	1.4	1.5	1.6
Coffee and products	1.201	1.267	1.631	1.6	1.7	1.7

Notes: Totals may not add due to rounding. Fiscal year is defined as October 1 of previous year through September 30 of current year.

1/Largely unmanufactured tobacco, planting seeds, mineral and aerated waters, and ethanol. 2/ Million head. 3/ Billion liters. 4/ Proof gallon equivalent liters.

Sources: USDA, Economic Research Service and USDA, Foreign Agricultural Service analysis and forecasts using data from U.S. Department of Commerce, Bureau of the Census.

Regional Imports

Outlook for Fiscal Year 2022 and 2023 Imports

Western Hemisphere

Regional imports from the Western Hemisphere are forecast to increase by \$5.2 billion from the previous forecast to \$111.3 billion in FY 2022. At \$44.4 billion, Mexico is expected to remain the largest foreign supplier of agricultural goods to the United States, while Canada remains second largest with \$36.6 billion. Mexico's FY 2022 sales are adjusted up by \$1.5 billion from the previous forecast largely on increases in grain products, fresh fruit, processed fruit, fresh vegetables, beer, and distilled spirits. The forecast value of Canadian agricultural products sold to the United States is enhanced by \$1.8 billion on upward adjustments to U.S. imports of pork, grains and feed, and sweeteners and sweetener products.

In FY 2023, the United States is projected to import \$46.9 billion from Mexico, with increased imports of cattle, grain products, fresh vegetables, and sweeteners and sweetener products. Imports from Canada are projected down \$400 million at \$36.2 billion with decreased beef, dairy, and vegetable oil imports surpassing gains in oilseeds, beer, distilled spirits, and coffee and coffee products.

Imports from South America in FY 2022 are projected to rise by \$900 million from the previous forecast to \$21.0 billion. Imports from Chile are expected to increase by \$300 million from the previous forecast, to \$3.7 billion, due to increases in imports of poultry and fresh fruits. Imports from Peru are expected to increase by \$200 million to \$3.8 billion to due to imports of fresh fruits as well as coffee and coffee products. Imports from Argentina and Columbia are each adjusted upward by \$100 million on oilseeds and coffee and coffee products, respectively.

In FY 2023, imports from South America are forecast at \$22.2 billion, \$1.2 billion higher than FY 2022. The forecast for Brazil is increased \$400 million over the FY 2022 forecast to \$6.3 billion on fresh fruits and coffee and coffee products. Imports from Peru in FY 2023 are forecast to be \$200 million higher than the forecast for FY 2022 on expected increases in fresh and processed fruit imports.

Europe

The \$1.8-billion increase in projected FY 2022 imports—bringing them to \$34.8 billion over the previous forecast from the EU—is mainly due to expected increases distilled spirit and dairy

product imports. The \$1.2-billion increase in projected FY 2023 imports over the FY 2022—to \$36.0 billion—forecast from the EU is mainly due to expected increases wine, beer, distilled spirits, and essential oil imports. Imports from the United Kingdom (UK) are unchanged from the previous FY 2022 forecast through the FY 2023 forecast.

Asia

The forecast for imports from Asia is increased by \$3.2 billion to \$30.6 billion in FY 2022, from expected increases of processed fruits and vegetable imports from China, vegetable oils from Indonesia, and oilseeds and oilseed products and essential oils from the Philippines and Singapore (included in the Other Southeast Asia category). Though the forecast for Asia was unchanged, the \$200-million decrease in the forecast for imports from China in FY 2023 resulting from short-lived increases in oilseed byproducts which are expected to return to previous levels after FY 2022 are offset by an increase in the forecast of imports of distilled spirits from other East Asian nations.

Oceania

The forecast for imports from Oceania is raised by \$600 million from the previous forecast to \$6.9 billion in FY 2022 because of expected increases in the imports of livestock and meats from Australia and New Zealand. The FY 2023 forecast is \$100 million less than the FY 2022 forecast at \$6.8 billion on expected normalizing of livestock and meat prices by that time.

Africa and Middle East

Imports from Africa in FY 2022 are adjusted upward by \$200 million, to \$3.9 billion, due to expected increases in imports of oilseeds and oilseed products. The FY 2023 forecast is raised by \$200 million to \$4.1 billion on expected increases in cocoa and cocoa product imports. Imports from the Middle East in FY 2022 are forecast \$400 million higher than the previous forecast at \$2.3 billion due to expected increases in imports of vegetable oils and fruit juices from Turkey. FY 2023 imports are expected to remain unchanged from the FY 2022 forecast.

Table 6—U.S. agricultural imports: Value by region, fiscal years 2021–23

Region and country	October–June		Fiscal year 2021	Forecast Fiscal year 2022		Forecast
	FY 2021	FY 2022		May	August	Fiscal year 2023 August
	VALUE					
<i>---Billion dollars---</i>						
Western Hemisphere	68.285	82.728	91.534	106.1	111.3	115.0
Canada	21.092	26.201	29.530	34.8	36.6	36.2
Mexico	28.213	33.183	36.468	42.9	44.4	46.9
Central America	4.714	5.685	6.497	6.9	7.5	7.9
Costa Rica	1.277	1.368	1.707	1.7	1.7	1.7
Guatemala	1.721	2.123	2.353	2.6	2.8	3.0
Other Central America	1.716	2.193	2.437	2.7	3.1	3.3
Caribbean	1.401	1.403	1.880	1.8	1.8	1.8
South America	12.864	16.255	17.159	20.1	21.0	22.2
Argentina	1.056	1.327	1.533	1.6	1.7	1.7
Brazil	3.353	4.414	4.529	6.0	5.9	6.3
Chile	2.289	2.770	2.958	3.4	3.7	3.6
Colombia	2.360	3.131	3.140	3.8	3.9	3.9
Peru	2.191	2.809	2.922	3.6	3.8	4.0
Other South America	1.615	1.805	2.076	1.7	2.0	2.7
Europe and Eurasia	24.189	27.435	33.161	35.1	37.0	38.2
European Union-27	22.675	25.712	31.143	33.0	34.8	36.0
United Kingdom	1.514	1.723	2.019	2.1	2.1	2.1
Asia	17.976	22.193	24.406	27.4	30.6	30.6
East Asia	5.155	6.133	6.986	7.1	7.8	7.9
China	2.965	3.681	3.992	4.0	4.5	4.3
Other East Asia	2.190	2.452	2.994	3.1	3.3	3.6
Southeast Asia	10.269	13.254	13.968	16.7	19.0	18.8
Indonesia	2.071	3.702	3.054	5.2	6.0	6.0
Malaysia	0.701	0.764	0.949	1.0	1.1	1.1
Thailand	2.053	2.594	2.745	3.0	3.3	3.4
Vietnam	1.578	1.939	2.349	2.3	2.6	2.5
Other Southeast Asia	3.867	4.254	4.871	5.2	6.0	5.8
South Asia	2.553	2.806	3.452	3.6	3.8	3.9
India	2.250	2.457	3.044	3.1	3.3	3.4
Oceania	4.405	5.902	6.327	6.3	6.9	6.8
Australia	2.278	3.116	3.284	3.2	3.6	3.5
New Zealand	1.946	2.584	2.805	3.1	3.3	3.3
Africa	2.755	3.016	3.597	3.7	3.9	4.1
Sub-Saharan Africa	2.194	2.292	2.860	2.8	3.0	3.2
Côte d'Ivoire	0.892	0.681	1.037	1.0	1.0	1.2
Middle East	1.394	1.840	1.870	1.9	2.3	2.3
Turkey	0.895	1.317	1.211	1.3	1.7	1.7
World total	120.803	145.433	163.341	180.5	192.0	197.0

Notes: Totals may not add due to rounding. Fiscal year is defined as October 1 of previous year through September 30 of current year.

Sources: USDA, Economic Research Service and USDA, Foreign Agricultural Service analysis and forecasts using data from U.S. Department of Commerce, Bureau of the Census.

Reliability Tables

Table 7--Reliability of quarterly U.S. export projections, by commodity and quarter 1/

Commodity	Root mean squared error (RMSE) 2/ Fiscal years 2017–2021					Forecast errors Fiscal year 2021				
	Aug.	Nov.	Feb.	May	Aug.	Aug.	Nov.	Feb.	May	Aug.
Export value	<i>RMSE</i>					<i>Percent</i>				
Grains and feeds	5.6	3.8	3.1	1.2	0.4	-27	-17	-11	-3	1
Wheat	1.0	1.0	0.7	0.4	0.3	-17	-14	-5	-5	-2
Rice	0.1	0.2	0.2	0.1	0.0	-7	-7	-2	-2	-2
Corn	4.2	2.6	2.2	0.8	0.3	-48	-24	-20	-2	4
Sorghum 3/	NA	NA	NA	NA	NA	NA	NA	NA	21	11
Feeds and fodder	0.6	0.5	0.7	0.6	0.2	-11	-11	-11	-11	-4
Oilseeds and products	4.6	1.6	1.1	1.6	1.4	-23	-4	1	7	6
Soybeans	3.7	1.7	1.0	1.4	1.4	-23	-1	3	9	9
Soybean meal	0.9	0.6	0.5	0.3	0.1	-28	-12	1	6	4
Soybean oil	0.2	0.2	0.2	0.2	0.0	8	20	43	43	-4
Livestock, poultry, and dairy	2.6	2.4	2.1	1.3	0.4	-13	-13	-12	-8	-2
Livestock products	1.8	1.8	1.4	1.0	0.3	-13	-13	-12	-8	-2
Beef and veal	1.2	1.0	0.8	0.6	0.2	-20	-18	-15	-12	-3
Pork	0.4	0.3	0.2	0.2	0.2	0	-3	-3	3	3
Beef and pork variety meats	0.2	0.2	0.2	0.1	0.1	-13	-17	-17	-7	-7
Hides, skins, and furs	0.3	0.3	0.2	0.2	0.1	-7	-17	-17	-26	-17
Poultry and products	0.4	0.4	0.4	0.3	0.1	-15	-13	-12	-8	-3
Broiler meat	0.3	0.2	0.3	0.3	0.1	-13	-11	-11	-11	-5
Dairy products	0.6	0.5	0.4	0.2	0.1	-10	-10	-11	-4	0
Tobacco, unmanufactured	0.2	0.2	0.2	0.2	0.1	-34	-34	-44	-34	-15
Cotton 4/	1.4	1.1	0.7	0.4	0.2	-19	-15	-5	-2	1
Planting seeds	0.2	0.2	0.2	0.1	0.1	2	2	2	-4	-4
Horticultural products 4/	1.1	1.2	1.2	1.4	0.5	-4	-6	-6	-7	-1
Fruits and vegetables, fresh	0.3	0.3	0.3	0.3	0.2	-3	-3	-3	-3	1
Fruits & veget., processed	0.4	0.4	0.4	0.4	0.1	-8	-8	-8	-8	0
Tree nuts, whole/processed	0.5	0.5	0.5	0.3	0.2	2	2	2	-3	-3
Sugar and tropical products	0.3	0.3	0.3	0.3	0.2	1	1	1	1	1
Ethanol 3/	NA	NA	NA	NA	NA	NA	NA	NA	NA	-8
Total agricultural exports 4/	13.2	8.2	6.2	2.3	0.9	-16	-9	-6	-2	1
Major bulk products 4/	10.7	6.6	5.6	3.6	2.6	-29	-12	-6	3	3
Export volume										
Wheat	2.4	3.2	2.3	1.3	1.3	2	3	3	0	-2
Rice	0.5	0.4	0.4	0.3	0.1	-4	-4	-4	-4	-1
Corn	10.8	9.0	8.1	6.6	2.1	-18	-4	-5	14	6
Sorghum 3/	NA	NA	NA	NA	NA	NA	NA	NA	NA	7
Feeds and fodder	0.5	0.6	0.7	0.7	0.7	-1	-1	-1	-6	-3
Soybeans	5.3	3.6	3.1	3.6	3.2	2	6	8	10	9
Soybean meal	1.1	1.1	1.1	1.0	0.4	-2	-2	3	3	2
Soybean oil	0.3	0.3	0.3	0.1	0.0	53	53	53	28	2
Beef and veal	0.1	0.1	0.1	0.0	0.0	-11	-11	-11	-2	-2
Pork	0.1	0.1	0.1	0.1	0.0	5	1	1	1	1
Beef and pork variety meats	0.1	0.1	0.1	0.1	0.0	-8	-8	-8	-8	-8
Broiler meat	0.1	0.1	0.1	0.0	0.0	-7	-4	-1	-1	-1
Cotton	0.4	0.4	0.3	0.2	0.1	-3	-8	-3	0	0
Major bulk products 4/	12.1	10.0	9.6	6.8	5.6	-5	2	3	7	5

1/ Fiscal year is defined as October 1 of previous year through September 30 of current year. 2/ Root mean squared error (RMSE) is the squared root of the average squared difference between the forecast and actual values. 3/ "NA" indicates that statistics were not able to be calculated because forecasts were not made for these commodities prior to the March 2021 change to USDA's definition of "Agricultural Products" for the purposes of international trade—the first forecast using this definition was made in August 2021. 4/ Due to the change in agricultural trade product definition adopted by USDA in March of 2021, the RMSEs and percent forecast errors for these categories combine errors of forecasts and actual trade values and volumes using both definitions.

Source: USDA, Economic Research Service and USDA, Foreign Agricultural Service.

Table 8—Reliability of quarterly U.S. export projections, by country and quarter 1/

Region and country	Root mean squared error (RMSE) 2/ Fiscal years 2017–2021					Forecast errors Fiscal year 2021				
	Aug.	Nov.	Feb.	May	Aug.	Aug.	Nov.	Feb.	May	Aug.
Export value	<i>RMSE</i>					<i>Percent</i>				
Asia	5.7	4.9	2.9	1.6	2.2	-11	-11	-5	0	4
East Asia	4.8	4.1	2.2	2.1	2.2	-13	-13	-6	0	6
Japan	1.1	1.1	0.9	0.7	0.4	-9	-9	-9	-9	-2
China	6.0	4.9	2.9	3.5	2.8	-19	-19	-6	5	11
Hong Kong	0.9	0.9	0.6	0.3	0.2	41	41	24	24	7
Taiwan	0.4	0.3	0.3	0.3	0.2	-2	-2	-2	0	0
South Korea	0.9	0.9	0.8	0.6	0.3	-10	-10	-10	-7	0
Southeast Asia	1.7	1.6	1.4	1.0	0.4	-6	-6	-6	-3	0
Indonesia	0.4	0.4	0.3	0.2	0.1	-3	-3	-3	0	7
Philippines	0.2	0.2	0.2	0.2	0.1	-8	-8	-8	-5	4
Malaysia	0.2	0.1	0.1	0.1	0.1	-5	-5	-5	-5	-5
Thailand	0.4	0.4	0.3	0.2	0.1	12	12	12	12	6
Vietnam	0.8	0.6	0.6	0.5	0.2	-2	-2	-2	6	6
South Asia	0.7	0.7	0.7	0.5	0.1	5	5	5	0	0
India	0.2	0.2	0.2	0.3	0.2	-9	-9	-9	-21	-3
Western Hemisphere	4.5	4.5	4.4	3.8	1.4	-15	-15	-15	-12	-4
North America	3.6	3.6	3.6	3.3	1.3	-16	-16	-16	-14	-5
Canada	1.5	1.5	1.5	1.2	0.5	-13	-13	-13	-10	-2
Mexico	2.1	2.1	2.1	2.1	1.0	-18	-18	-18	-18	-8
Caribbean	0.3	0.3	0.3	0.2	0.2	-13	-13	-13	-11	-6
Dominican Republic	0.2	0.2	0.2	0.1	0.0	-20	-20	-20	-14	-3
Central America	0.5	0.5	0.5	0.4	0.2	-18	-18	-18	-13	-5
South America	0.5	0.5	0.5	0.5	0.3	-11	-11	-8	-2	0
Brazil	0.2	0.2	0.1	0.1	0.1	-6	-6	-6	7	7
Colombia	0.2	0.2	0.2	0.2	0.1	2	2	2	2	5
Peru	0.2	0.2	0.2	0.2	0.1	-2	-2	-2	18	8
Venezuela	0.2	0.2	0.1	0.1	0.0	-54	-54	-39	-8	-8
Europe and Eurasia	1.4	1.3	0.9	0.6	0.4	-7	-7	-7	-6	1
European Union-27 3/	1.2	1.1	0.7	0.5	0.4	1	1	1	1	3
United Kingdom 4/	NA	NA	NA	NA	NA	NA	NA	NA	NA	-1
FSU-12 5/	0.1	0.1	0.1	0.0	0.0	1	1	1	1	1
Russia	0.1	0.1	0.1	0.1	0.0	-15	-15	-15	-15	27
Middle East	0.5	0.5	0.5	0.3	0.1	3	3	3	0	0
Turkey	0.2	0.2	0.2	0.2	0.2	8	8	8	-9	-9
Saudi Arabia	0.2	0.2	0.2	0.1	0.1	-2	-2	-2	-2	-2
Africa	0.8	0.8	0.7	0.6	0.2	-14	-14	-10	9	3
North Africa	0.8	0.8	0.8	0.7	0.3	-7	-7	0	31	14
Egypt	0.5	0.6	0.6	0.6	0.1	-2	-2	9	37	9
Sub-Saharan Africa	0.3	0.3	0.3	0.3	0.1	-24	-24	-24	-19	-10
Nigeria	0.2	0.2	0.2	0.2	0.1	-36	-36	-36	-36	-20
Oceania	0.1	0.1	0.1	0.1	0.0	-2	-2	-2	-2	2

1/ Fiscal year is defined as October 1 of previous year through September 30 of current year. 2/ Root mean squared error (RMSE) is the squared root of the average squared difference between the forecast and actual values. 3/ Due to the change in agricultural trade product definition adopted by USDA in March of 2021, the RMSEs and percent forecast errors for these categories combine errors of forecasts and actual trade values and volumes using both definitions. 4/ "NA" indicates that statistics were not able to be calculated because forecasts were not made for these trade partners/groups prior to the United Kingdom separating from the European Union in 2021—the first forecast using this definition was made in August 2021. 5/ The 15 Republics of the Former Soviet Union (FSU) minus the 3 Baltic Republics: Latvia, Estonia, and Lithuania.

Source: USDA, Economic Research Service and USDA, Foreign Agricultural Service.

Table 9—Reliability of quarterly U.S. import projections, by commodity and quarter 1/

Commodity	Root mean squared error (RMSE) 2/ Fiscal years 2017–2021					Forecast errors Fiscal year 2021				
	Aug.	Nov.	Feb.	May	Aug.	Aug.	Nov.	Feb.	May	Aug.
Import value	<i>RMSE</i>					<i>Percent</i>				
Livestock, dairy, and poultry	1.8	1.6	1.4	1.2	0.8	-16	-15	-13	-11	-8
Livestock and meats	1.7	1.5	1.3	1.2	0.6	-19	-17	-16	-14	-7
Cattle and calves	0.2	0.1	0.0	0.1	0.1	3	9	3	9	3
Swine	0.1	0.1	0.1	0.0	0.0	-43	-43	-43	-6	-6
Beef and veal	0.8	0.8	0.7	0.7	0.2	-15	-14	-14	-14	-3
Pork	0.2	0.2	0.2	0.2	0.1	-24	-19	-19	-14	-9
Poultry 3/	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
Dairy products	0.2	0.2	0.2	0.2	0.2	-3	-3	-1	-1	-11
Cheese	0.2	0.2	0.1	0.1	0.1	-9	-16	-9	-9	-2
Grains and feed	1.2	1.0	0.8	0.6	0.4	-7	-7	-7	-3	-3
Grain products	1.0	0.8	0.7	0.5	0.3	-11	-11	-11	-4	-4
Oilseeds and products	1.8	1.6	1.5	1.4	0.4	-28	-25	-25	-23	-6
Vegetable oils	1.1	1.0	0.9	0.9	0.4	-22	-21	-21	-22	-11
Horticulture products 4/	5.0	4.7	4.2	3.1	2.2	-7	-7	-7	-3	-3
Fruits, fresh	0.9	0.9	0.8	0.6	0.4	-5	-3	-3	-3	-2
Fruits, preserved	0.4	0.4	0.4	0.3	0.2	-9	-10	-10	-5	-5
Fruit juices	0.3	0.3	0.2	0.1	0.1	-11	-16	-16	-7	-7
Nuts, whole and processed	0.4	0.4	0.3	0.3	0.2	9	9	2	-2	-9
Vegetables, fresh	0.8	0.8	0.7	0.8	0.5	-7	-5	-3	-3	-2
Vegetables, processed	0.3	0.3	0.3	0.2	0.1	-8	-8	-5	-5	-2
Wine	0.7	0.7	0.7	0.5	0.3	-19	-19	-19	-13	-9
Malt beer	0.4	0.4	0.4	0.3	0.2	-11	-11	-11	-6	-1
Distilled spirits 3/	NA	NA	NA	NA	NA	NA	NA	NA	NA	-6
Essential oils	0.4	0.4	0.3	0.2	0.1	-7	-7	-7	0	0
Cut flowers and nursery stock	0.3	0.3	0.3	0.2	0.1	-26	-26	-26	-15	-4
Sugar and tropical products 4/	1.2	1.2	1.2	0.9	0.2	-10	-9	-9	-7	1
Sweeteners and products	0.4	0.4	0.3	0.2	0.2	-12	-12	-9	-7	-5
Confections	0.2	0.2	0.2	0.1	0.1	-14	-14	-14	-10	-10
Cocoa and products	0.5	0.4	0.3	0.2	0.1	-12	-10	-10	-7	-3
Coffee beans and products	0.4	0.4	0.4	0.4	0.3	-9	-9	-9	-9	-8
Other imports	0.2	0.2	0.1	0.1	0.2	13	13	7	-7	-10
Total agricultural imports	9.4	8.6	7.7	5.6	3.4	-10	-9	-9	-6	-4
Import volume										
Cattle and calves	0.1	0.1	0.1	0.1	0.1	10	15	15	10	10
Swine	0.8	0.7	0.4	0.3	0.4	-26	-22	-13	-8	-13
Beef and veal	0.1	0.1	0.1	0.1	0.0	-7	2	-7	-7	2
Pork	0.1	0.0	0.0	0.0	0.0	-13	-13	-13	-13	-13
Fruits, fresh	0.2	0.4	0.3	0.2	0.3	0	0	0	-1	-4
Fruits, processed	0.1	0.1	0.1	0.1	0.1	-3	-8	-8	-3	7
Fruit juices	0.6	0.6	0.6	0.3	0.3	5	1	1	-4	-16
Vegetables, fresh	0.3	0.3	0.2	0.2	0.1	-5	-3	-3	-2	-2
Vegetables, processed	0.2	0.2	0.2	0.1	0.1	-5	-5	-5	-3	1
Vegetable oils	0.7	0.6	0.6	0.6	0.5	-7	-6	-6	-11	-7
Wine	0.2	0.2	0.2	0.1	0.1	-25	-25	-25	-13	-7
Malt beer	0.3	0.3	0.2	0.2	0.2	-10	-10	-10	-6	-6
Distilled spirits 3/	NA	NA	NA	NA	NA	NA	NA	NA	NA	9
Cocoa and products	0.1	0.1	0.1	0.1	0.1	-6	-6	-6	-4	1
Coffee and products	0.1	0.1	0.1	0.1	0.1	4	4	4	-1	-2

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Source: USDA, Economic Research Service and USDA, Foreign Agricultural Service.

Table 10—Reliability of quarterly U.S. import projections, by country and quarter 1/

Region and country	Root mean squared error (RMSE) 2/ Fiscal years 2017–2021					Forecast errors Fiscal year 2021				
	Aug.	Nov.	Feb.	May	Aug.	Aug.	Nov.	Feb.	May	Aug.
Import value	<i>RMSE</i>					<i>Percent</i>				
Western Hemisphere	8.1	7.6	7.2	6.0	2.4	-18	-17	-17	-14	-5
Canada	2.5	2.3	2.2	1.9	0.7	-18	-17	-16	-14	-4
Mexico	3.8	3.6	3.5	2.7	0.9	-20	-19	-19	-14	-3
Central America	0.3	0.3	0.3	0.4	0.4	-8	-8	-8	-12	-12
Costa Rica	0.1	0.1	0.1	0.1	0.1	-12	-12	-12	0	0
Guatemala	0.2	0.2	0.2	0.1	0.1	15	15	15	-7	-7
Other Central America	1.8	1.8	1.8	1.8	1.8	-26	-26	-26	-26	-26
Caribbean	0.5	0.5	0.5	0.5	0.4	-63	-63	-63	-63	-52
South America	1.2	1.1	1.0	0.8	0.4	-15	-14	-13	-10	-3
Argentina	0.1	0.1	0.1	0.1	0.1	-9	-9	-9	-15	-15
Brazil	0.6	0.6	0.5	0.4	0.1	-27	-29	-25	-20	0
Chile	0.1	0.2	0.2	0.2	0.1	-2	1	1	-5	-2
Colombia	0.3	0.3	0.3	0.2	0.1	-17	-17	-17	-8	-5
Peru	0.3	0.3	0.2	0.2	0.1	-8	-1	-1	3	3
Other South America	0.2	0.2	0.2	0.1	0.1	-18	-18	-18	-4	-9
Europe and Eurasia	3.3	3.4	3.2	2.5	0.9	-20	-21	-20	-16	5
European Union-27 3/	1.9	2.0	1.8	1.1	0.5	-12	-12	-12	-6	1
United Kingdom 4/	NA	NA	NA	NA	NA	NA	NA	NA	NA	63
Asia	2.1	2.1	1.9	1.5	0.7	-1	-1	-1	-2	0
East Asia	0.5	0.6	0.5	0.4	0.3	-12	-12	-11	-9	-8
China	0.5	0.5	0.5	0.4	0.2	4	4	6	-4	-1
Other East Asia	0.5	0.5	0.5	0.3	0.3	-33	-33	-33	-17	-17
Southeast Asia	1.6	1.6	1.4	1.0	0.6	7	8	7	3	5
Indonesia	0.6	0.5	0.5	0.4	0.2	8	11	8	-5	8
Malaysia	0.1	0.1	0.1	0.0	0.0	5	5	5	5	5
Thailand	0.4	0.3	0.3	0.2	0.2	17	17	17	13	13
Vietnam	0.5	0.4	0.4	0.2	0.2	32	32	32	-11	-15
Other Southeast Asia	1.3	1.3	1.3	0.9	0.4	-10	-10	-10	8	8
South Asia	0.4	0.4	0.4	0.3	0.1	-13	-13	-13	-2	-2
India	0.4	0.4	0.4	0.3	0.1	-11	-11	-11	-5	-5
Oceania	0.6	0.4	0.3	0.2	0.2	0	1	3	-7	-5
Australia	0.5	0.4	0.4	0.1	0.1	13	16	19	-3	-3
New Zealand	0.2	0.2	0.2	0.1	0.2	-7	-7	-7	-11	-11
Africa	0.4	0.4	0.4	0.3	0.3	-19	-17	-17	-3	3
Sub-Saharan Africa	0.3	0.3	0.3	0.3	0.2	-9	-9	-9	-6	1
Côte d'Ivoire	0.3	0.2	0.1	0.1	0.1	-23	-13	-13	-4	16
Middle East	0.1	0.1	0.1	0.1	0.1	-14	-14	-14	-14	-14
Turkey	0.1	0.1	0.1	0.1	0.1	-17	-17	-17	-17	-17

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