United States Department of Agriculture

Economic Research Service | Situation and Outlook Report

OCS-25b | February 13, 2025

Next release is March 13, 2025

Oil Crops Outlook: February 2025

Maria Bukowski, coordinator

Bryn Swearingen, contributor

Todd Hubbs, contributor

In this report:

Global Soybean Stocks Declined on Lower Production and Higher Crush in South America

Global soybean stocks in marketing year (MY) 2024/25 are forecast down 4.0 million metric tons to 124.3 million metric tons on lower production. Soybean production is lowered to 420.8 million metric tons with decreased production in both Argentina and Paraguay. Soybean yields were cut due to unfavorable weather conditions in the major soybean growing regions during January. Brazil's soybean production forecast is unchanged and stands at 169.0 million metric tons.

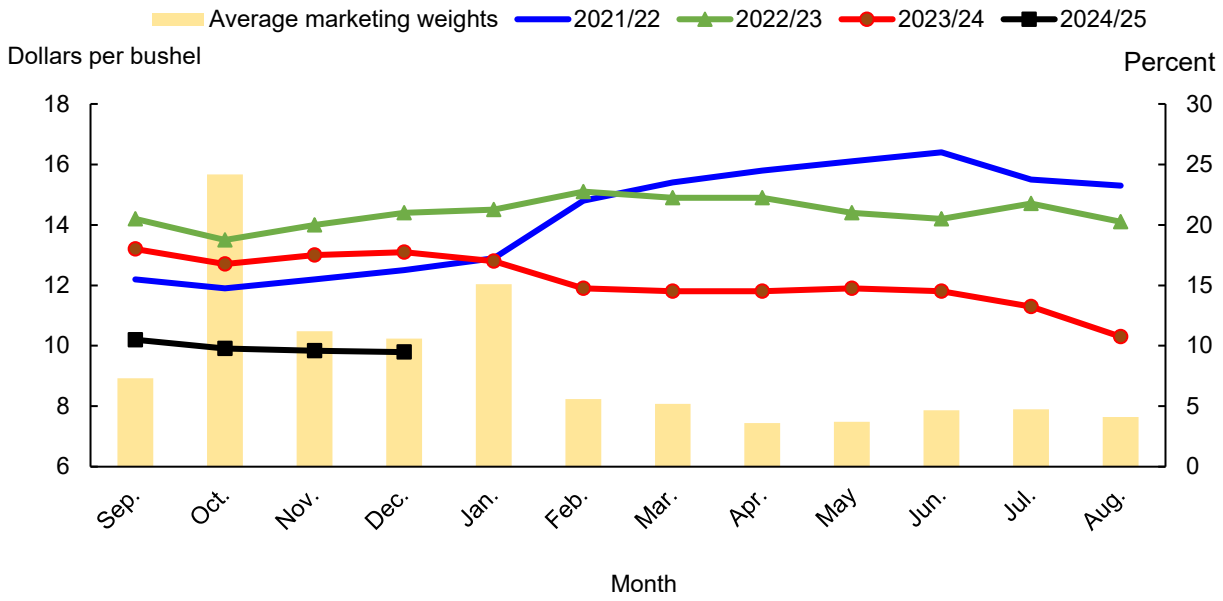
Global soybean crush is forecast higher at 349.9 million metric tons as higher crush in Brazil more than offset lower crush in Paraguay. Brazil's crush is raised 1.0 million metric tons to 56.0 million metric tons on strong demand especially for soybean oil from the domestic biodiesel industry. With stronger crush, global soybean meal exports are forecast up 0.7 million metric tons with stronger imports from Iran.

Domestic Outlook

U.S. Soybean Supply and Demand Overview

The U.S. soybean supply and demand projections are unchanged this month. Ending stocks for MY 2024/25 are at 380.0 million bushels. Despite no change in stocks, the U.S. soybean season-average price received by farmers is forecast down to $10.10 per bushel. In December, soybean prices received by famers averaged $9.79 per bushel as reported by USDA, National Agricultural Statistics Service (NASS) in the monthly *Agricultural Prices* report (figure 1). Based on the 5-year average, 53 percent of soybeans are typically marketed from September through December. This puts the average price received so far for the marketing year at $9.94 per bushel.

Figure 1
Soybean season average price recieved by farmers, MY 2021/22–2024/25



MY=Marketing year.
Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, *Agricultural Prices* report.

In December, U.S. soybean crush totaled 217.70 million bushels, which implied a new record-high daily crushing rate of 7.02 million bushels, marginally up from the previous month. Record-high monthly crush volumes were observed in December 2024 for three regions including Iowa, North Central, and West Central at 46.96 million bushels, 40.16 million bushels, and 40.11 million bushels, respectively. The North and East region crushed 46.02 million bushels of soybeans, 6 percent below the October 2024 record. The South, West, Pacific region crushed 22.25 million bushels versus the previous record high of 22.85 million bushels in January 2021.

Lastly, Illinois processors crushed 22.20 million bushels in December 2024, 10 percent below the March 2023 record high of 23.87 million bushels (figure 2).

Figure 2
U.S. regional soybean crushing

Note:North and East region = Indiana, Kentucky, Maryland, Ohio, Pennsylvania, and Virginia. North Central region = Michigan, Minnesota, North Dakota, and South Dakota. South, West, and Pacific region = Alabama, Arkansas, California, Georgia, Louisiana, Mississippi, North Carolina, and South Carolina. West Central region = Kansas, Missouri, and Nebraska.

Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service*, Fats and Oils: Oilseed Crushings.*

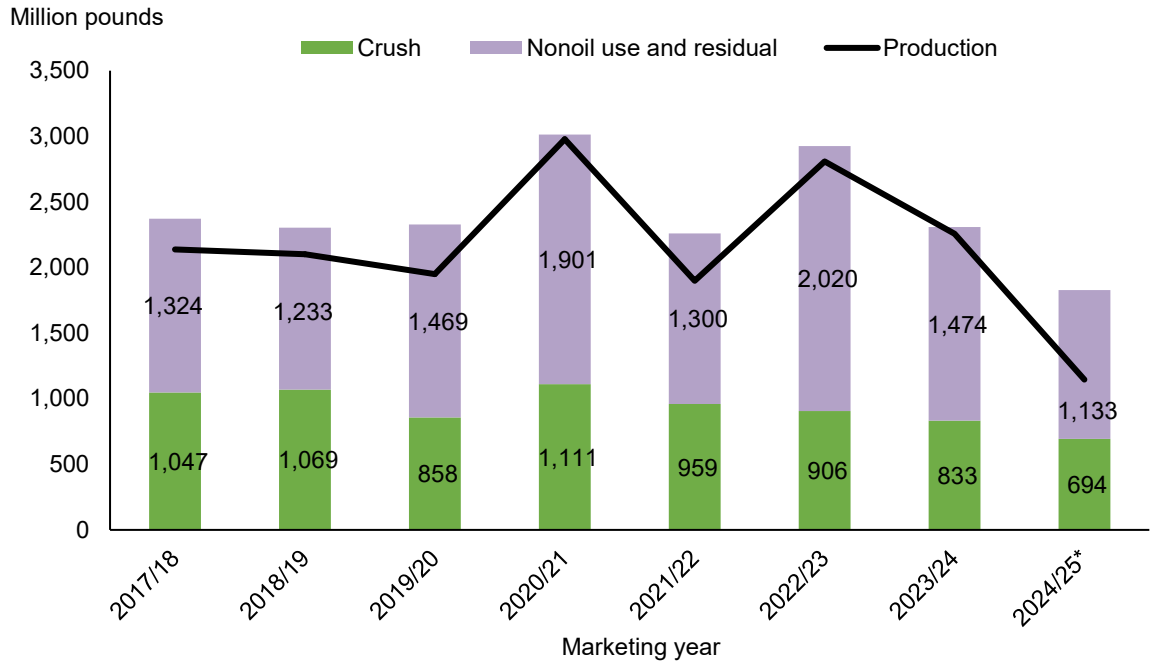
The annual soybean crush volume for MY 2024/25 is forecast at 2.41 billion bushels, unchanged from previous month's forecast as the total soybean meal demand is unchanged this month. The soybean crush is supported by strong export demand for soybean meal driven by lower prices. U.S. soybean meal exports for December totaled 1.71 million short tons, a record-high for the month of December. Combined October–December soybean meal shipments are 11 percent higher than the same period last year. Despite strong shipments in the beginning of the marketing year, U.S. soybean meal exports will face competition from South America's larger soybean meal supplies in April–September 2025. The U.S. soybean meal export forecast for MY 2024/25 is unchanged this month at 17.4 million short tons.

Soybean meal prices in Central Illinois increased during January and averaged $316.97 per short ton, up 4 percent from the previous month and down 16 percent from the previous year. The MY 2024/25 season-average soybean meal price is unchanged this month and forecast at $310.00 per short ton.

U.S. Sunflowerseed Crush Lowered on Updated Statistics

The MY 2024/25 sunflowerseed crush is forecast down to 694 million pounds, 139 million pounds lower than revised MY 2023/24 crush, based on updated statistics from the National Sunflower Association (figure 3). If realized, this will be the lowest sunflowerseed crush since MY 2004/05 largely driven by low supplies. Other sunflowerseed domestic use is revised up to 1.1 billion pounds. In addition to lower crush, exports are forecast down to 57 million pounds based on pace-to-date. The sunflowerseed exports in the September–December 2024 period totaled 18 million pounds, down 38.5 percent from the same period in MY 2023/24. Sunflowerseed ending stocks are raised slightly to 201 million pounds.

Figure 3
U.S. sunflowerseed production, crush, and residual use



Note: Asterisk (*) denotes forecast.
Source: USDA, Economic Research Service using data from USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates.*

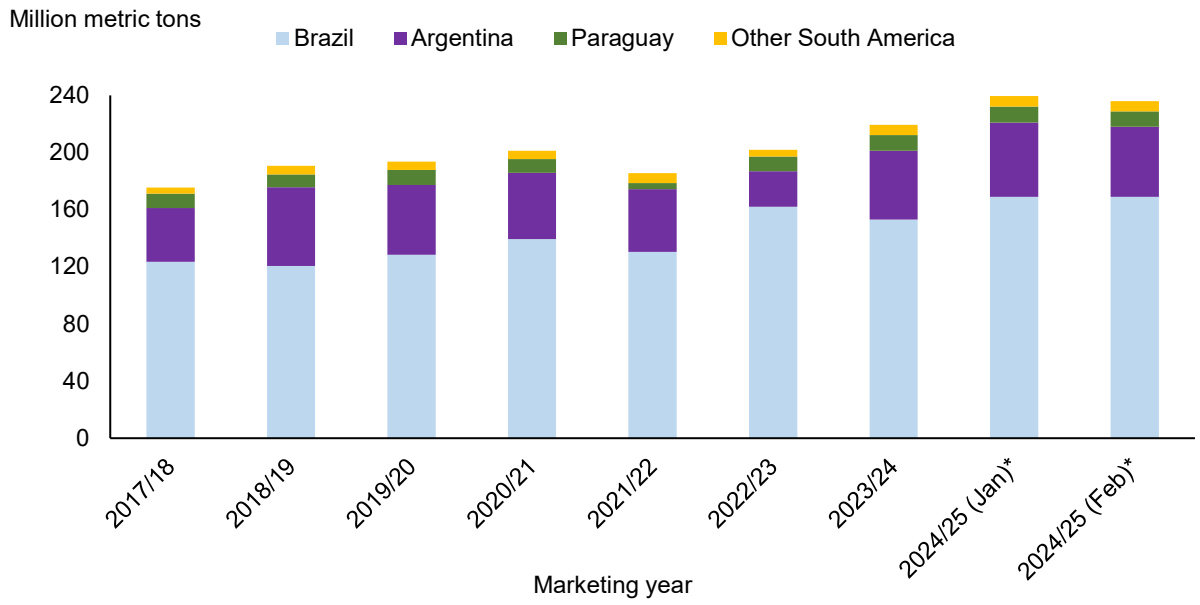
With lower crush, sunflowerseed oil and meal production are forecast to decline to 291 million pounds and 177,000 short tons, respectively. Tighter production of sunflowerseed oil continues to support sunflowerseed oil imports at 370 million pounds, mainly from Ukraine, the European Union (EU), and Argentina. Sunflowerseed meal domestic disappearance is forecast down to 172,000 metric tons driven by lower supplies and ample other meal supplies.

International Outlook

South America's Output Declines on Lower Soybean Crop in Argentina and Paraguay

South America's production is forecast down 3.5 million metric tons to 236.1 million metric tons on lower production in Argentina and Paraguay and unchanged production forecast in Brazil. (figure 4).

Figure 4
South America's soybean production, MY 2017/18–2024/25



MY = Marketing year. Other South America = Bolivia, Colombia, Ecuador, Peru, Uruguay, and Venezuela.
Note: Asterisk (*) denotes forecasts.
Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, *Production, Supply and Distribution* database.

Argentina's soybean production is reduced this month by 3.0 million metric tons to 49.0 million metric tons on lower soybean yield driven by unfavorable weather during January in the major soybean growing regions. The soybean yield is forecast at 2.83 tons per hectare, down 6 percent from last's month yield and 4 percent below last year's yield. In January 2025, the major soybean producing provinces experienced below normal precipitation. The region received some rain toward the beginning of February that could stabilize the crop. The degree of yield loss in this region will depend on the distribution of rainfall and temperatures throughout February and March 2025. With Argentina's soybean production forecast lower, soybean ending stocks for MY 2024/25 are reduced this month by 3.0 million metric tons. The soybean crush

and export forecast are unchanged this month and stand at 41.0 million metric tons and 4.5 million metric tons, respectively.

Paraguay's soybean production forecast for MY 2024/25 is lowered this month by 0.5 million metric tons to 10.7 million metric tons on lower yields. Yields are reduced this month from 2.91 tons per hectare to 2.78 tons per hectare on declining growing conditions in January. The high temperature and dry weather impacted the yield while the crop was in the finishing stage. With lower soybean production, Paraguay's soybean crush forecast is reduced this month.

Brazil's production is unchanged and stands at 169 million metric tons. The Center-West and Northern regions of Brazil continue to experience regular precipitation and favorable crop development. In contrast, the southern region of Brazil—especially southern Mato Grosso Do Sul—portions of Paraná and Rio Grande Do Sul had unfavorable precipitation during January. However, they received the beneficial rainfall more recently which has alleviated some crop stress. Yield prospects for those States remain favorable, although the potential will depend on February's rainfall.

Brazil's soybean crush for MY 2024/25 is increased this month by 1.0 million metric tons to 56.0 million metric tons on higher soybean products demand. This increase is partially offset by lower crush forecasts for Paraguay. With larger exportable supplies of soybean meal, Brazil's soybean meal export forecast for MY 2024/25 is raised to 22.0 million metric tons. Soybean oil domestic consumption is raised by 0.2 million metric tons to a record-high 9.9 million metric tons.

Bolivia's soybean production forecast for MY 2024/25 is unchanged at 4.1 million metric tons but is 0.3 million metric tons higher than the estimate for MY 2023/24 soybean production.

Special Article: Estimating Biomass-Based Diesel Feedstock Availability in Marketing Years 2018/19–2023/24

Maria Bukowski, Bryn Swearingen, and Todd Hubbs

The U.S. Renewable Fuel Standard (RFS) program and State-level polices, mainly California's Low Carbon Fuel Standard (LCFS), have spurred significant growth in biomass-based diesel capacity and production. The annual biomass-based diesel capacity reached 6.6 billion gallons in marketing year (MY) 2023/24 (October–September). Biomass-based diesel encompasses both biodiesel and renewable diesel, with the main feedstocks including vegetable oils, animal fats and used cooking oil. Feedstock demand for biomass-based diesel production increased by 19 percent in MY 2023/24 and reached a record-high level of 37.2 billion pounds.

Understanding biomass-based diesel feedstock availability in the United States is critical for domestic producers and for analyzing vegetable oil markets. Biomass-based diesel capacity grew substantially over the last several years and underlying policies (e.g., California's LCFS) strongly influence producer preferences for various feedstocks. The demand for feedstocks is not limited to domestic markets as foreign feedstock supply competes with U.S. products and create important implications for domestic and international vegetable oil markets.

This study assesses the domestic and foreign feedstock supply available to the U.S. market through the MY 2018/19–2023/24 period and is divided into two parts. Part 1 covers U.S. domestic feedstock supply and demand and part 2 provides an overview of foreign available supply to the United States by major exporters.

For this study, USDA, Economic Research Service (ERS) mainly used data published by USDA. When there are no available data, particularly in the case of used cooking oil, USDA, ERS estimates are provided along with detailed explanations of the underlying methodology used to determine these figures. The major data sources used are from the USDA, National Agricultural Statistics Service's (NASS) *Fats and Oils: Oilseed Crushings, Production, Consumption, and Stocks* (*CAIR*) report. U.S. trade data are gathered from the USDA, Foreign Agricultural Service (FAS) Global Agricultural Trade System (GATS). The biomass-based diesel feedstock usage data are reported by the U.S. Department of Energy, Energy Information Administration (EIA) in the monthly *Feedstocks consumed for production of biofuels* report.[1] USDA, ERS also utilizes

[1] EIA began collecting and publishing renewable diesel feedstock data in January 2021.

the USDA, FAS, *Production, Supply and Distribution* (*PSD*) database for international vegetable oil balance sheets. For foreign corn oil, supply and demand data are sourced from Oil World. International trade data are gathered from Trade Data Monitor, LLC (TDM). To note, the other use category has no data reported and is residually calculated. The data set includes food applications, feed, industrial use such as soap, lubricants, and stocks held by the end users such as food manufacturers and biofuels facilities and residual including statistical error in data collection.

Part 1: U.S. Vegetable Oils, Animal Fats, Used Cooking Oil, and Grease Supply and Demand

This section covers the domestic supply and demand for major vegetable oils, animal fats, used cooking oil, and grease that are used for food, biomass-based diesel, and other industrial applications (table 1sa[2]). These feedstocks are categorized as follows:

1. Vegetable oils (i.e., corn oil, coconut oil, cottonseed oil, olive oil, peanut oil, canola oil, safflower oil, soybean oil, palm oil, palm kernel oil, sesame oil, and sunflowerseed oil),
2. Animal fats (i.e., tallow, lard, and poultry fats),
3. Used cooking oil and grease (i.e., yellow, white, and other grease)

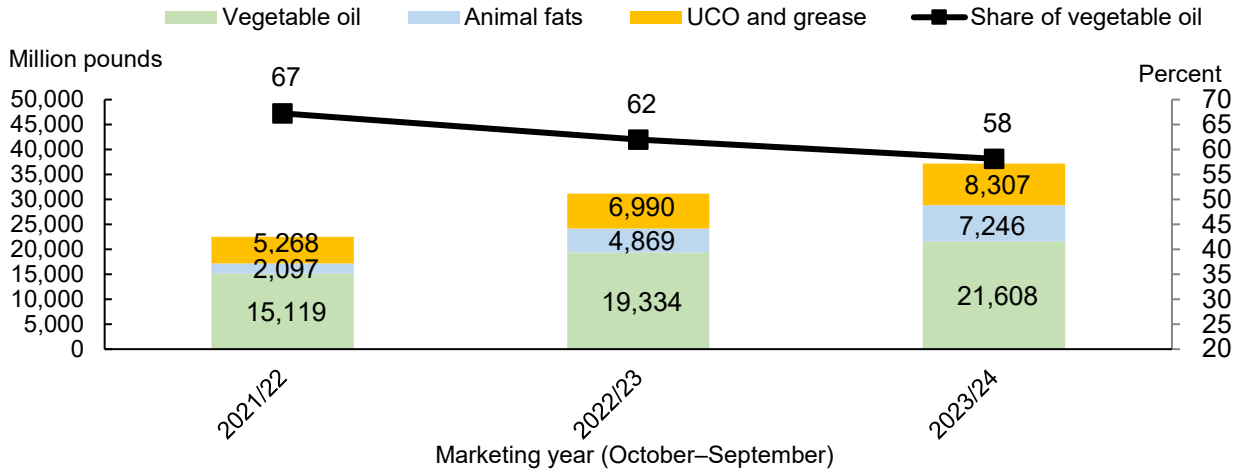
U.S. vegetable oils, animal fats, and used cooking oil and grease production experienced steady growth in the last 5 years, reaching 54.4 billion pounds in MY 2023/24. Vegetable oil production accounted for most of the growth due to an increased crush volume, whereas animal fats grew in tandem with livestock production. Used cooking oil domestic disappearance grew 9 percent annually due to strong demand from the biomass-based diesel industry primarily driven by Federal and State policies. The use of those feedstocks in biomass-based diesel production reached a record-high 37.2 billion pounds in MY 2023/24 and accounted for 49 percent of total domestic vegetable oils, animal fats, and used cooking oil and greases disappearance.

Strong domestic demand from the biomass-based diesel industry pushed vegetable oil and animal fats prices to record highs, which led to historically low exports and incentivized record-high imports. In MY 2023/24, imports of vegetable oils, animal fats, used cooking oil, and greases accounted for 30 percent of total domestic disappearance. Due to policy incentives, animal fat and grease imports grew more than vegetable oil imports from MY 2021/22 to MY 2023/24. As a result of larger imports, the share of animal fats, greases, and used cooking oil in

[2] Data for the tables and figures are available in the Oil Crops Outlook Tables accompanying this outlook.

biomass-based diesel production increased in MY 2023/24 to 42 percent. The share of vegetable oils fell to 58 percent of total feedstocks used in biomass-based diesel production in MY 2023/24, compared with 67 percent in MY 2021/22 (figure 1sa).

Figure 1sa
Feedstocks consumed for production of biomass-based diesel in the United States



Note: Does not include recycled feedstocks.
Source: USDA, Economic Research Service using U.S. Department of Energy, Energy Information

The soybean oil share declined to 35 percent in MY 2023/24 from 45 percent in MY 2021/22. Soybean oil has a less favorable carbon intensity score compared with yellow grease, used cooking oil, corn oil, and inedible tallow under California's LCFS program. Those regulatory advantages make fats and other grease more attractive feedstocks for renewable diesel production. Another factor renewable diesel producers consider as they select inputs are transportation costs to get the domestically produced vegetable oils to major renewable diesel facilities, many of which are located closer to ports and have access to imported feedstocks.

Table 1sa: U.S. vegetable oils, animal fats, UCO, and grease balance sheet							
Attribute/Commodity	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Change from 2021/22
			Million pounds				
Beginning stocks	**3,255**	**2,993**	**3,027**	**3,312**	**3,277**	**2,892**	**-420**
Vegetable oils	2,955	2,718	2,770	3,023	3,009	2,635	-388
Animal fats	183	168	153	161	165	148	-13
UCO and grease	116	108	103	128	103	109	-19
Production	**51,252**	**51,649**	**51,871**	**52,884**	**53,317**	**54,435**	**1,551**
Vegetable oils 1/	32,713	33,303	33,756	34,908	35,195	36,317	1,409
Animal fats 2/	9,551	9,554	9,285	9,189	9,490	9,695	505
UCO and grease 3/	8,988	8,791	8,830	8,786	8,632	8,423	-363
Imports	**11,447**	**11,683**	**11,984**	**13,627**	**18,205**	**22,661**	**9,034**
Vegetable oils	10,509	10,943	11,054	11,901	14,203	15,406	3,504
Animal fats	465	498	658	1,039	1,575	2,125	1,087
UCO and grease	473	241	272	687	2,427	5,130	4,443
Total supply	**65,953**	**66,325**	**66,882**	**69,823**	**74,799**	**79,988**	**10,165**
Vegetable oils	46,177	46,964	47,580	49,833	52,407	54,358	4,526
Animal fats	10,199	10,220	10,096	10,389	11,230	11,968	1,579
UCO and grease	9,577	9,141	9,206	9,601	11,163	13,662	4,061
Exports	**4,925**	**6,248**	**5,324**	**4,774**	**2,059**	**2,086**	**-2,688**
Vegetable oils	3,013	3,831	2,770	2,717	1,048	1,234	-1,484
Animal fats	984	1,046	1,095	1,005	498	494	-511
UCO and grease	928	1,371	1,459	1,051	513	358	-693
Domestic disappearance	**58,035**	**57,051**	**58,246**	**61,771**	**69,849**	**75,263**	**13,492**
Vegetable oils	40,446	40,362	41,787	44,106	48,724	50,735	6,629
Animal fats	9,048	9,022	8,840	9,218	10,584	11,333	2,115
UCO and grease	8,541	7,666	7,619	8,447	10,541	13,195	4,747
Biofuel use	**-**	**-**	**-**	**22,484**	**31,193**	**37,161**	**14,676**
Vegetable oils	-	-	-	15,119	19,334	21,608	6,488
Animal fats	-	-	-	2,097	4,869	7,246	5,150
UCO and grease	-	-	-	5,268	6,990	8,307	3,038
Other use 4/	**-**	**-**	**-**	**39,287**	**38,656**	**38,102**	**-1,184**
Vegetable oils	-	-	-	28,986	29,390	29,127	141
Animal fats	-	-	-	7,122	5,716	4,087	-3,035
UCO and grease	-	-	-	3,179	3,551	4,888	1,709
Ending stocks	**2,993**	**3,027**	**3,312**	**3,277**	**2,892**	**2,639**	**-638**
Vegetable oils	2,718	2,770	3,023	3,009	2,635	2,390	-619
Animal fats	168	153	161	165	148	140	-25
UCO and grease	108	103	128	103	109	109	6

UCO = Used cooking oil. – = incomplete data. Before 2021, the U.S. Department of Energy, Energy Information Administration only included feedstock use for biodiesel and not renewable diesel.

1/ Vegetable oils include corn oil, coconut oil, cottonseed oil, olive oil, peanut oil, canola oil, safflower oil, soybean oil, palm oil, palm kernel oil, sesame oil, and sunflowerseed oil.

2/ Tallow and poultry fat production estimates come from USDA, National Agricultural Statistics Service. Lard production is a USDA, Economic Research Service (ERS) estimate.

3/ UCO and grease is estimated by USDA, ERS.

4/ Other use category includes food, feed, other industrial, stocks at the end users, and residual (error).

Note: Data are aggregated on an October through September marketing year.

Source: USDA, Economic Research Service calculations using data from USDA, National Agricultural Statistics Service, Quick stats; USDA, Foreign Agricultural Service, Global Agricultural Trade Systems; and U.S. Department of Energy, Energy Information Administration.

Vegetable Oils

U.S. vegetable oils continue to be the largest feedstock used in biomass-based diesel production despite significant growth of animal fats and used cooking oil and grease since MY 2021/22. To estimate U.S. vegetable oil supply and demand, USDA, ERS utilizes vegetable oil production and stocks data from the USDA, NASS *Fats and Oils Current Agricultural Industrial Report* (*CAIR*). USDA, NASS only surveys stocks held at crush facilities and does not survey stocks held by end users. EIA also does not report stocks. As a result, stocks held at biofuel facilities and food manufacturers are included in the other use category along with food and other industrial use. USDA, NASS does not report crude sunflowerseed oil production. USDA calculates sunflowerseed oil production based on sunflowerseed crush estimates from the National Sunflowerseed Association.

USDA, ERS calculates total domestic vegetable oil disappearance by subtracting exports and ending stocks from total supply. From total domestic disappearance, USDA, ERS deducted the vegetable oils usage for biofuels as reported by EIA and calculated the other use category. The other use category contains the amount of vegetable oils available for food, feed, industrial applications (e.g., soap, cosmetics, lubricants, and animal feeds), ending stocks at the end users (e.g., food manufacturers, and biofuels facilities), refinery losses and residual including statistical error. There are no data reported in the other use category due to the termination of selected Current Industrial Reports by the U.S. Department of Commerce, Bureau of the Census (Census Bureau) in June 2011.

U.S. vegetable oil production has grown steadily over the last 5 years, with soybean oil accounting for 55 percent of total vegetable oil production. The U.S. soybean industry has grown its crushing capacity in response to planned growth in the renewable diesel capacity. With the higher soybean crush capacity and higher domestic soybean production, U.S. soybean oil production rose to meet the growing demand from biomass-based diesel producers. Despite the increase in the U.S. soybean crush volumes and production of soybean oil, the imports of vegetable oil increased, especially canola oil from Canada. Canola oil imports surged following the U.S. Environmental Protection Agency's (EPA) approval of canola oil in renewable diesel production in December 2022. Vegetable oil exports decreased but not enough to make up for the growing U.S. demand resulting in the United States becoming a net importer of vegetable oils in MY 2023/24. Amid tightened stocks, the other use category for vegetable oils (nonbiomass-based diesel categories) also decreased in MY 2023/24 compared with MY 2022/23.

Animal Fats

U.S. animal fats data are a mix of estimated and reported data. Tallow and poultry fats production data are available from the USDA, NASS *CAIR* report. Tallow production data are broken into edible tallow, a category that includes technical tallow, and inedible tallow. Lard is surveyed by USDA, NASS, but does not capture all data availability, so USDA, ERS estimates lard production by using the total live weight provided in the USDA, NASS Livestock Slaughter report and assumes an average lard yield of 2.8 percent. Although USDA, NASS also reports stocks, they are often undisclosed for confidentiality reasons.

U.S. animal fats production has remained constant as it is limited by the growth in livestock production. The United States became a net importer of animal fats in MY 2021/22 as imports grew and exports declined. Tallow has the largest share of animal fats with imports coming mainly from Canada, Brazil, and Australia.

Used Cooking Oil and Grease

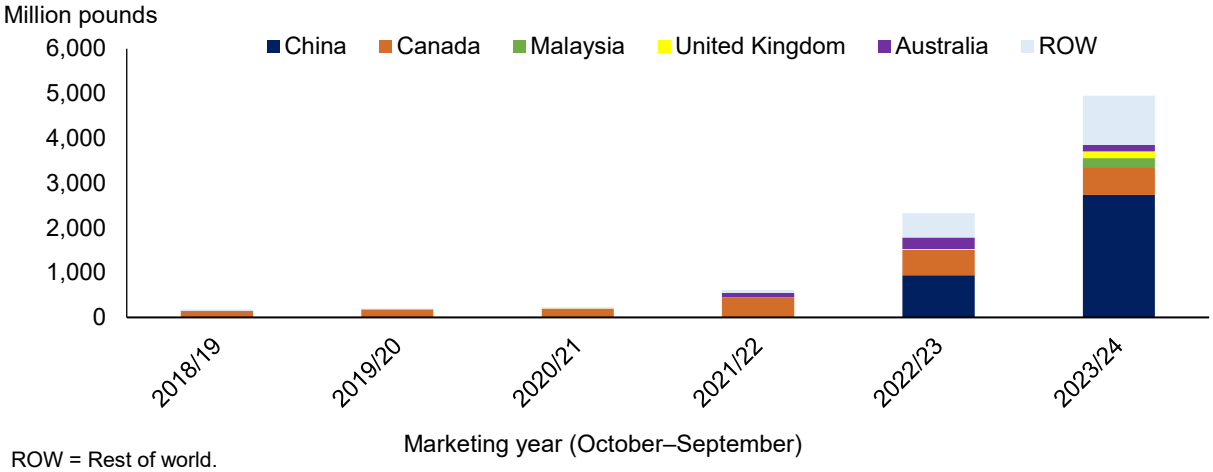
Used cooking oil and yellow grease data for use in biomass-based diesel are currently combined in the EIA's monthly biofuel feedstock report. Grease is a byproduct of rendering and production, and stocks are reported by USDA, NASS in the monthly *CAIR* report. Greases includes choice white grease, yellow grease, and other grease as reported by USDA, NASS in the monthly *CAIR* report. Used cooking oil is any grease, oil, or fat that has finished its lifecycle as a cooking ingredient. Used cooking oil domestic availability depends on the amount of vegetable oils used in food, food manufacturing, frying, and baking, as well as the proportion of that oil that can be collected from restaurants or other food enterprises.

It is important to note that there is no publicly available data for used cooking oil. USDA, ERS estimates domestic used cooking oil availability based on several assumptions. First, USDA, ERS calculates the amount of edible vegetable oil and fats available for food, which can then be used in frying and baking processes where used cooking oil is extracted. To do this, USDA, ERS subtracts vegetable oil use for biofuels from total domestic disappearance of vegetable oils and edible fats (i.e., lard and edible tallow), and then multiplies this value by 85 percent to get food use. The other remaining 15 percent is assumed to be the amount of edible vegetable oils used in the industrial category, which includes feed, soap, lubricant, resin, and other industrial use as well as the inventory held by the processing facilities such as food manufacturers, biomass-based diesel producers, and others. From there, USDA, ERS assumes that 35 percent of vegetable oils and fats consumed in food are used for baking and frying. Estimates for

vegetable oils used for food as well as for in baking and frying were guided by the Census Bureau's Current Industrial Reports before June 2011.

USDA, ERS estimates a range of how much used cooking oil is left from baking and frying processes (30–70 percent) and assumes that the entire amount is being collected from the food industry (e.g., food manufacturers, restaurants, the hospitality industry, etc.). To note, the average used cooking oil estimate is used in the summary table above. However, the estimated range is from 2.9 billion pounds to 6.8 billion pounds based on the range of 30 to 70 percent oil assumed to be left from baking and frying. Availability of domestic used cooking oil is estimated to be steady over the last 5 years, while imports have increased substantially in MY 2022/23 and MY 2023/24 (figure 2sa).

Figure 2sa
U.S. used cooking oil imports by country



ROW = Rest of world.
Note: Used cooking oil is under harmonized trade systems code 1518004000.
Source: USDA, Economic Research Service using USDA, Foreign Agricultural Service, Global Agricultural Trade System database.

Imports from China in MY 2023/24 accounted for 55 percent of total U.S. used cooking oil imports, followed by imports from Canada and Malaysia. Assuming all used cooking oil imports are for biofuel use, they accounted for 13 percent of total feedstocks used in biomass-based diesel production in MY 2023/24, compared with 7 percent in MY 2022/23.

Part 2: Overview of Foreign Feedstock Supply by Major Exporters and U.S. Share

With U.S. renewable diesel production doubling in the last 2 years, the demand for feedstocks lifted domestic vegetable oil and animal fats prices above world prices in MY 2020/21 through MY 2022/23 and stayed elevated in MY 2023/24. The strong domestic vegetable oil prices

reduced exports and incentivized imports. U.S. imports of feedstocks surged in MY 2023/24—especially for canola oil, used cooking oil, and tallow.

In this section, USDA, ERS reviews the availability of biomass-based diesel feedstocks (those approved by the EPA), major suppliers to the U.S. market, and the changing share of global trade. In this report, USDA, ERS narrows the focus of foreign suppliers to only countries that account for 80 percent of global trade or 80 percent of the U.S. import share (table 2sa).

Table 2sa: Countries included in selected foreign commodity balance sheets

Commodity	80 percent of global trade 1/	80 percent of U.S. imports 2/	Both 3/
Soybean oil	Argentina Brazil European Union Paraguay Ukraine Bolivia	Canada Mexico	
Canola oil	European Union Russia Belarus		Canada
Corn oil	Turkey European Union China	Brazil	Canada Mexico
Tallow	Argentina India New Zealand		Australia Brazil Canada Uruguay
Used cooking oil	Indonesia		China Canada Malaysia

1/ This column includes those countries that account for 80 percent of global trade but not 80 percent of U.S. imports.
2/ This column includes countries that account for 80 percent of U.S. imports, but are not a major global exporter.
3/ This column includes the countries that both fall in the top 80 percent of global trade and 80 percent of U.S. imports.
Note: The United States is not included in these countries, even in those cases where it is one of the countries making up the top 80 percent of global trade. The selected commodities are those feedstocks that are approved by the U.S. Environmental Protection Agency in biomass-based diesel production.
Source: USDA, Economic Research Service calculations using Trade Data Monitor, LLC data.

Table 2sa shows the list of applicable countries, with the first column showing the top foreign exporters in MY 2023/24 together accounting for 80 percent of the global trade. The second column shows top suppliers to the United States, together accounting for 80 percent of U.S. imports of feedstocks. The third column are those countries that are both a leading global exporter and export to the United States. The United States is not included in these countries, even in those cases where it is one of the countries making up the top 80 percent of global trade. This section has limited data reported by respective countries and utilizes the USDA, FAS *PSD* database for production, stocks, and food use data of vegetable oils. Tallow production data are sourced from the United Nation's Food and Agriculture Organization (FAO) FAOSTAT database. USDA, ERS estimates used cooking oil availability from foreign suppliers using a

similar methodology to that used for the United States in Part 1 (table 3sa).

Table 3sa: Foreign biomass-based diesel feedstock balance sheets

Attribute/Feedstock 1/	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	Change from 2021/22
			Million pounds				
Beginning stocks	**4,381**	**5,148**	**6,724**	**6,072**	**7,304**	**6,149**	**77**
Vegetable Oils	4,381	5,148	6,724	6,072	7,304	6,149	77
Tallow	-	-	-	-	-	-	0
UCO	-	-	-	-	-	-	0
Production	**104,914**	**107,208**	**109,716**	**107,756**	**110,844**	**116,398**	**8,642**
Vegetable Oils 2/	82,617	84,453	86,450	85,334	87,613	92,257	6,923
Tallow 3/	5,593	5,465	5,372	5,294	5,524	5,836	542
UCO 4/	16,703	17,290	17,894	17,128	17,707	18,304	1,177
Imports	**3,641**	**4,006**	**4,264**	**4,698**	**4,513**	**6,067**	**1,369**
Vegetable Oils	2,870	3,048	3,046	3,512	3,624	4,626	1,114
Tallow (HS 150210)	235	257	409	337	321	454	118
UCO (HS 158100)	536	701	810	849	568	987	137
Total supply	**112,936**	**116,362**	**120,705**	**118,526**	**122,660**	**128,614**	**10,088**
Vegetable Oils	89,868	92,649	96,220	94,918	98,541	103,032	8,115
Tallow	5,829	5,722	5,781	5,631	5,845	6,290	659
UCO	17,239	17,992	18,704	17,977	18,275	19,291	1,314
Exports	**35,140**	**37,706**	**41,179**	**39,039**	**42,936**	**46,835**	**7,796**
Vegetable Oils	29,327	30,482	33,651	30,511	33,198	33,461	2,949
Tallow (HS 150210)	1,897	1,879	2,147	2,421	2,934	3,493	1,072
UCO (HS 158100)	3,917	5,345	5,381	6,107	6,804	9,882	3,775
Exports to the United States	**4,879**	**4,981**	**5,337**	**6,369**	**10,114**	**13,801**	**7,432**
Vegetable Oils	4,283	4,324	4,414	4,666	6,592	7,836	3,171
Tallow	449	481	725	1,256	1,809	2,042	786
UCO	146	176	198	448	1,714	3,923	3,475
Share of exports to the United States (percent)	**14**	**13**	**13**	**16**	**24**	**29**	**13**
Vegetable Oils (Percent)	15	14	13	15	20	23	8
Tallow (Percent)	24	26	34	52	62	58	7
UCO (Percent)	4	3	4	7	25	40	32
Domestic disappearance	**72,648**	**71,932**	**73,454**	**72,183**	**73,576**	**74,825**	**2,642**
Vegetable Oils	55,394	55,443	56,497	57,103	59,195	62,618	5,516
Tallow	3,932	3,843	3,633	3,210	2,911	2,798	-413
UCO	13,323	12,647	13,323	11,870	11,471	9,409	-2,461
Ending stocks	**5,148**	**6,724**	**6,072**	**7,304**	**6,149**	**6,953**	**-351**
Vegetable Oils	5,148	6,724	6,072	7,304	6,149	6,953	-351
Tallow	-	-	-	-	-	-	0
UCO	-	-	-	-	-	-	0

- = no data

HS = Harmonized system. UCO = Used cooking oil.

1/ The feedstocks included are those approved by the U.S. Environmental Protection Agency for use in biomass-based diesel production.

2/ Vegetable oils included in this table are just soybean oil, canola oil, and corn oil.

3/ Tallow data are through 2021 from FAOSTAT, then estimated using slaughter numbers from USDA, Foreign Agricultural Service, *Production, Supply and Distribution* data.

4/ UCO availability is estimated by USDA, Economic Research Service.

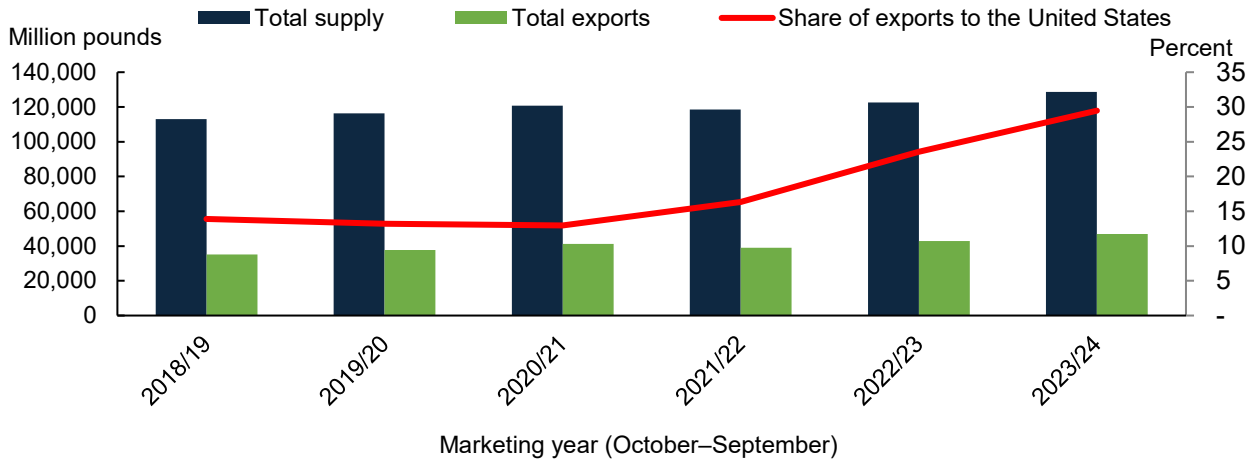
Note: Countries include the top 80 percent of global trade and 80 percent of United States imports.

Data are aggregated on an October through September marketing year.

Source: USDA, Economic Research Service calculations using data from USDA, Foreign Agricultural Service, *Production, Supply and Distribution* database; Trade Data Monitor, LLC; Oil World; and the United Nations Food and Agriculture Organization, FAOSTAT database.

While foreign production of feedstocks experienced steady growth over the last 5 years, foreign exports grew 7.8 billion pounds since MY 2021/22 and accounted for 40 percent of total foreign production in MY 2023/24. Used cooking oil and tallow contributed to most of this growth while vegetable oil exports have grown slowly. Most of the additional foreign feedstock exports went to the United States. The United States has increased its' share of foreign trade, especially with used cooking oil, canola oil, and tallow (figure 3sa).

Figure 3sa
Total foreign biomass-based diesel feedstocks exports, supply, and share to the United States



Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, *Production, Supply and Distribution* database; Oil World; Trade Data Monitor, LLC; and United Nations Food and Agriculture Organization, FAOSTAT database.

Vegetable Oils

This study focuses on three vegetable oils (i.e., soybean oil, canola oil, and corn oil) approved by EPA for use in biomass-based diesel production by end of MY 2023/24. The expansion of these vegetable oil supplies is limited by the size of the crop and crush capacity of each country. Canola oil is the top imported vegetable oil in the United States. Imports have expanded over the MY 2018/19–2023/24 period, with Canada accounting for more than 90 percent of the U.S. canola oil imports. During this period, foreign canola oil supplies have grown due to Canada's expanded crush capacity and Russia's doubled canola seed production. The United States accounted for 96 percent of Canada's canola oil exports in MY 2023/24, up from 88 percent in MY 2022/23 and up from 55 percent 5 years ago. Higher U.S. prices bid Canadian canola oil trade away from China. China, the second largest importer, turned to importing more canola oil from Russia.

Although soybean oil is the leading vegetable oil in biomass-based diesel production, the United States depends predominantly on domestic production. Although foreign soybean oil production has increased on average 1 percent over the past 5 years, U.S. imports are limited by a 19.1-percent tariff from those countries not under free trade agreements with the United States. In addition, imported soybean oil for biofuel is limited by EPA's requirement that "imported soy (beans or oil) as biomass-based diesel feedstock must maintain records that serve as evidence that their soy came from land that was cleared or cultivated prior to December 19, 2007, and that was actively managed or fallow, and nonforested on that date." As a result of these restrictions, U.S. soybean oil imports are largely supplied by Canada and Mexico, whereas the other leading soybean oil producers like Brazil and Argentina face limitations. Further, Argentina has struggled with drought-reduced soybean crops in MY 2021/22 and MY 2022/23 and Brazil has expanded domestic demand for soybean oil in its own biofuel production.

Corn oil use in biomass-based diesel has increased in recent years with expansion in ethanol production. For corn oil production, USDA, ERS uses corn oil data from Oil World and trade data from Trade Data Monitor, LLC under the Harmonized System (HS) code 151529. It is important to note that the corn oil production and trade data include corn oil from both food corn oil from wet milling and distillers corn oil produced through dry milling. Distillers corn oil is the byproduct of the ethanol grind, and it is the primary oil that the United States uses in biomass-based diesel production. Since Brazil, Canada, and Mexico produce primarily distillers corn oil, those countries account for over 80 percent of U.S. imports. The United States continues to remain a leading corn oil exporter, despite the increased use of corn oil in the United States as a feedstock in biomass-based diesel production.

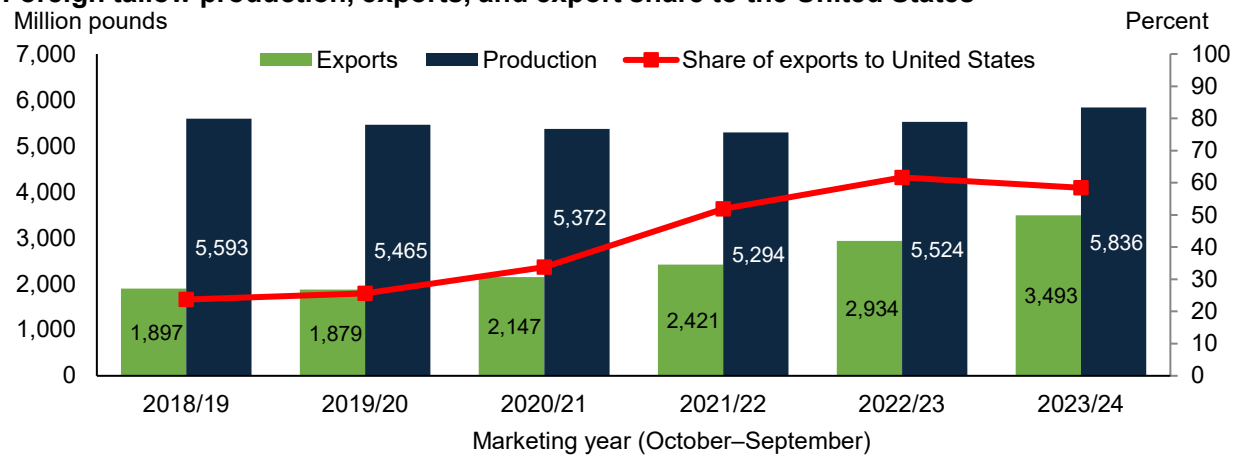
Tallow

Tallow is primarily derived from rendered beef tissue but could contain other animal fats. USDA, ERS estimates foreign tallow production using FAO's FAOSTAT data for rendered fat from cattle, buffalo, and sheep, along with total cattle slaughter numbers from USDA, FAS, *PSD* data.[3] The trade data used are under the HS code 150210. The countries included in this section are Brazil, Canada, Australia, Argentina, Uruguay, India, and New Zealand. Foreign tallow production has been relatively steady, in line with the cattle cycle, whereas tallow exports

[3] FAO data are available on a calendar year basis until 2021. USDA, ERS calculates an average pound of tallow per head historically utilizing USDA, FAS total cattle slaughter numbers. This calculation is then used to estimate Tallow for MY 2021/22 through MY 2023/24 by multiplying by the slaughter numbers for those calendar years. USDA, ERS then converts the calendar years to marketing years by dividing the calendar year estimate by 12 and aggregating it up on an October through September basis.

have nearly doubled. The U.S. imports about 60 percent of those exports (figure 4). Australia remains the top global exporter and is the second largest supplier to the United States. The United States has increased the share of Australia's exports, but continues to compete with Singapore, China, and South Korea. Brazil was the top supplier for the United States in MY 2023/24 as it has expanded its capability to export these byproducts and reduced domestic disappearance. The U.S. increased its share of Brazil's tallow exports to 95 percent in MY 2023/24, up over 10 percent from MY 2022/23.

Figure 4sa
Foreign tallow production, exports, and export share to the United States



Source: USDA, Economic Research Service using data from United Nations Food and Agriculture Organization, FAOSTAT database; USDA, Foreign Agricultural Service, *Production, Supply and Distribution* database; and Trade Data Monitor, LLC.

Used Cooking Oil

The foreign used cooking oil market is complex with limited available data. This section provides a range of estimates of used cooking oil supply and export potential to the United States. USDA, ERS estimates foreign used cooking oil availability in three parts using a similar method for the United States in Part 1. First, total foreign food use is calculated using food consumption from USDA, FAS, *PSD* data for China, Indonesia, Malaysia, and Canada. Then, USDA, ERS assumes that 35 percent of total food consumption is used in baking and frying. And lastly, USDA, ERS assumes a range of 30–70 percent left from baking and frying is considered used cooking oil. This estimate also assumes that 100 percent of used cooking oil is collected. Trade data is from Trade Data Monitor, LLC under HS code 151800.

While foreign used cooking oil availability has been stable, trade has expanded significantly, driven by demand from the United States. Foreign used cooking oil trade doubled in the last 5 years with China, Malaysia, Indonesia, and Canada accounting for 60 percent of global

shipments. China and Canada are the major U.S. trading partners and account for 70 percent of U.S. imports in MY 2023/24. China's used cooking oil exports tripled in the last couple of years and 46 percent of China's exports landed in the United States in MY 2023/24. China's domestic demand from biodiesel producers for used cooking oil declined as the EU put restrictions on biodiesel imports from China. As a result of EU's restriction on biodiesel imports, China's biodiesel exports declined, and used cooking oil exports increased. China can expand exports of used cooking oil depending on domestic use and the amount of collection.

In addition to China, Malaysia and Indonesia are major exporters that ship mainly to Singapore, the EU, and the United Kingdom. Exports could shift from these markets to the United States. However, over the past several years, this has not happened despite higher used cooking oil prices in the United States. Indonesia's used cooking oil exports could potentially expand, but this may be constrained by increased domestic use for its own biofuels production. Notably, there are other countries that are major vegetable oil consumers (e.g., India) that currently are not yet major exporters of used cooking oil, but there is potential for expansion if these countries improve their collection infrastructure.

Conclusion

The recent demand growth for biomass-based diesel—especially renewable diesel—driven by both Federal and State policies, reshaped the U.S. feedstock landscape. While domestic feedstock production rose by 1.6 billion pounds from 2021/22 to 2023/24, imports surged by 9 billion pounds. The regulatory and price advantages of certain imports, such as used cooking oil, tallow and canola oil compared with domestically produced soybean oil caused shifts in global trade. As a result, the United States became a net importer of vegetable oils, fats, and used cooking oil in MY 2023/24, and accounted for 29 percent of foreign trade.

The outlook for feedstock supply to the U.S. market will largely depend on Federal and State policies, planned U.S. soybean crush capacity expansion, Canada's canola crush capacity expansion, tallow imports from Brazil, and used cooking oil supply. With soybean crushing projects underway, U.S. soybean crush capacity is estimated to reach over 3 billion bushels in MY 2024/25. Used cooking oil supply can come from China and other countries depending on the amount of vegetable oils consumption in those countries, collection rate, and the transportation infrastructure. Feedstock prices and global feedstock trade flows will depend on policies not only in the United States but also in other major biofuel producing countries.

Suggested Citation

Bukowski, M., Swearingen, B., & Hubbs, T. (2025). *Oil crops outlook: February 2025* (Report No. OCS-25b). U.S. Department of Agriculture, Economic Research Service.