



# Oil Crops Outlook: December 2023

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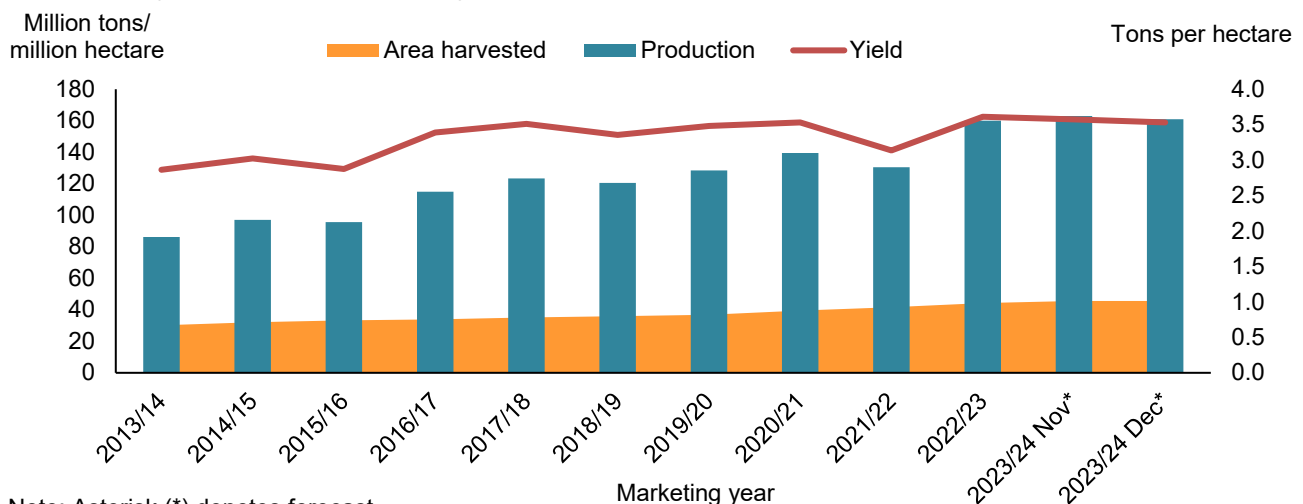
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## Brazil's Soybean Production Reduced in MY 2023/24

The soybean production forecast for Brazil for marketing year (MY) 2023/24 is reduced this month by 2.0 million metric tons to 161.0 million metric tons on lower yield. Yield is forecast at 3.53 metric tons per hectare, down 1 percent from last month's forecast and 2 percent below last year's record yield. Harvested area is forecast at a record 45.6 million hectares, unchanged from last month and up 1.3 million hectares from last year. The lower production forecast for Brazil is offset partially by higher production in Canada and Russia.

Figure 1

### Brazilian soybean production and yield



Note: Asterisk (\*) denotes forecast.

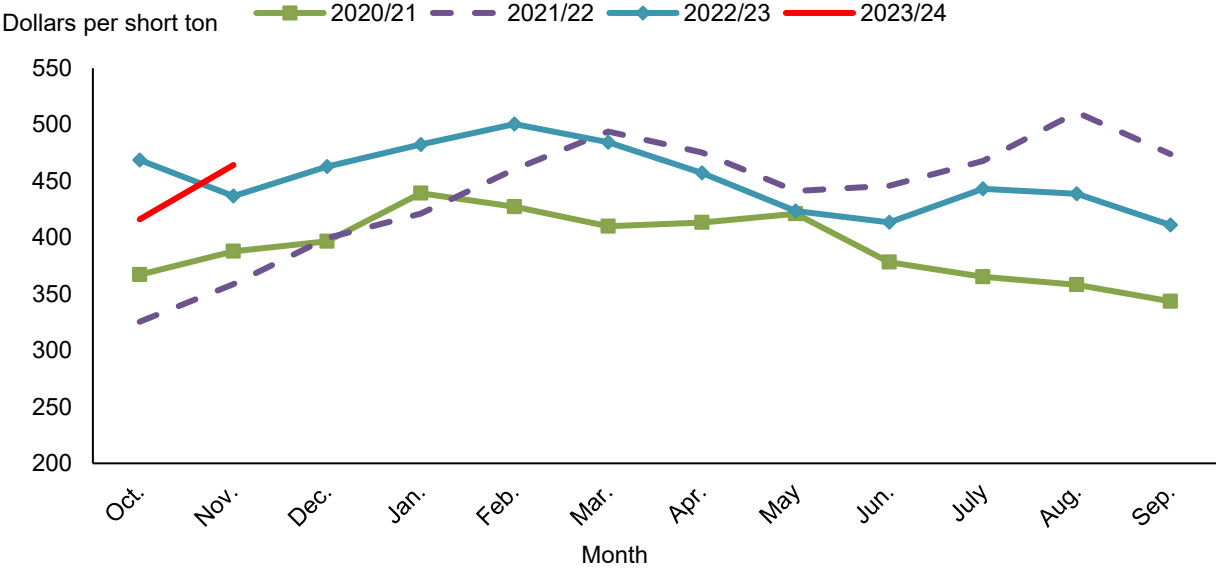
Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, *Production, Supply and Distribution* database, December 2023.

# Domestic Outlook

## Domestic Soybean Meal Prices on the Rise

The shrinking prospects for Brazil’s soybean production has increased the value of U.S. soybeans. In November, soybean cash prices at country elevators in Central Illinois increased by \$0.68 per bushel to \$13.08 per bushel. Throughout the country, cash prices rallied above \$13.00 per bushel by the middle of November and then prices declined to an average of \$12.67 per bushel in the first week of December. Despite these gains, the forecast for average soybean price received by farmers for the MY 2023/24 is unchanged this month at \$12.90 per bushel as prices have begun to decline in December. Aligning with the soybean price rallies in November, Central Illinois soybean meal prices rose to an average of \$464.27 per short ton, up from \$416.16 in October. (figure 2). As a result, the 2023/24 season-average soybean meal price is increased to \$390.00 per short ton from \$380.00 per short ton last month.

Figure 2  
**U.S. soybean meal prices, Decatur, Illinois**



Source: USDA, Economic Research Service using data from USDA, Agricultural Marketing Service, *National Grain and Oilseed Processor Feedstuff Report*.

In contrast, soybean oil prices declined nearly 6 percent from 56.60 cents per pound in October to 53.39 cents per pound in November on the weaker Renewable Identification Numbers (RIN's) prices, lower energy prices and increased supply of alternative vegetable oils and fats in the biofuels market. As a result, the season-average soybean oil price is lowered 4.0 cents to 57.0 cents per pound.

Soybean meal prices were also well supported by the soybean meal export program. In October, the United States exported 1.3 million short tons of soybean meal, a record-high amount for the month of October. As of November 30, U.S. soybean meal commitments totaled 6.9 million short tons, 19 percent above the same week in MY 2022/23. Early bookings were largely driven by competitive U.S. soybean meal prices compared with Argentina where total soybean crush for MY 2022/23 was affected by drought. In September and October, soybean crushers in Argentina processed well below 2.0 million metric tons, which are the lowest monthly crush volumes since 2001. Alternatively, the United States has seen record-high monthly soybean crush volumes in September and October, which has boosted soybean meal production. U.S. soybean crush totaled 201.4 million bushels in October, up 27.0 million bushels from September and up 2.4 percent from October 2022. The new record daily crushing rate was established at 6.5 million bushels per day, 1.6 percent higher than the previous record observed in December 2021. The record daily crushing rate is partially attributed to the new soybean crushing plant in North Dakota. The Green Bison Soybean processing plant in Spiritwood is the first soybean crushing plant and refinery in North Dakota with a capacity to process 150,000 bushels per day. Archer Daniels Midland owns 75 percent of the plant, and Marathon Petroleum owns 25 percent.

## Soybean Oil and Canola Oil Used for Biofuels Finalized for MY 2022/23

The U.S. Department of Energy's U.S. Energy Information Administration (EIA) published their monthly report of feedstocks consumed for production of biofuels in September, finalizing data for the MY 2022/23. This report suggests that over 30.0 billion pounds of vegetable oils, waste oils, fats, and greases were consumed for biofuel production. Soybean oil accounted for the largest portion of feedstocks consumed at 41 percent. EIA reported that 1.2 billion of soybean oil was used for biofuels production in September. This brings the total soybean oil use for production of biofuels to 12.5 billion pounds, 2.1 billion pounds higher than MY 2021/22. The increase is mainly due to the boost in soybean oil as a feedstock used in renewable diesel production, which grew from 3.1 billion pounds in MY 2021/22 to 5.3 billion pounds in MY

2022/23. Furthermore, canola oil use for biofuel production reached a record-high level of 2.9 billion pounds, up 1.6 billion pounds from MY 2021/22 and it accounted for 10 percent of feedstocks. The strong demand for canola oil use in biofuels was a result of U.S. Environmental Protection Agency (EPA)'s ruling in December 2022 that approved the canola oil pathway for renewable diesel.

The latest EIA report from November 30 indicated that the U.S. renewable capacity reached 3.70 billion gallons, up 1.49 billion gallons from September 2022, whereas biodiesel capacity is slightly down at 2.07 billion gallons. This growth in U.S. renewable diesel capacity is attributable to increasing the targets for State and Federal renewable fuel programs and the renewal of biomass-based diesel tax credits. The soybean oil and canola oil forecasts for MY 2023/24 are unchanged this month.

# International Outlook

## 2023/24 Brazil's Soybean Production Forecast Lowered

Brazil's soybean production for MY 2023/24 is reduced by 2.0 million metric tons to 161.0 million metric tons, up 1.0 million metric tons from revised MY 2022/23. If realized, this would be a new record for Brazil's soybean crop. Soybean planting is underway in Brazil and CONAB (Companhia Nacional de Abastecimento) reported that, as of December 4, 83.1 percent of soybean acreage was seeded compared with 90.7 percent during the same period last year. Planting began in mid-September but was delayed by an erratic start to the rainy season in southern Brazil and very dry weather in central and northern Brazil. Delayed planting in Goiás, Bahia, and Rio Grande do Sul coupled with long dry and hot periods in Mato Grosso limited yield prospects for MY 2023/24. On the other hand, abundant rainfall in southern Brazil has created a good start for the soybean crop. With lower yield prospects in center-west and northeastern States, yields are lowered 1 percent to 3.53 metric tons per hectare. Despite the late planting, area harvested remains unchanged at a record-high of 45.6 million hectares.

Brazil's soybean crop for MY 2022/23 is raised to 160.0 million metric tons, up 2.0 million metric tons from last month's forecast reflecting the robust export and crush this fall. The harvested acreage increased by 0.2 million hectares to 44.3 million hectares and yield is raised by 0.03 tons per hectare to 3.61 tons per hectare.

For the first 2 months (October and November) of MY 2023/24, Brazil's soybean exports totaled 10.8 million metric tons, 70 percent higher than a year earlier. China accounted for nearly 88 percent of the exports in this period. The strong shipments from Brazil prompted USDA to raise its export forecast for MY 2023/24 by 2 million metric tons to 99.5 million metric tons this month. Brazil's monthly soybean trade may wind down in December and January, but this could be a brief interlude before the brisk pace resumes with delivery of the new crop harvest. With stronger first quarter shipments to China from Brazil and the United States, China's soybean imports for MY 2023/24 are raised 2.0 million metric tons to 102.0 million metric tons. With unchanged domestic soybean consumption this month, China's soybean ending stocks are projected to increase to 35.7 million metric tons.

## Global Rapeseed Production Boosted On Higher Yields

The MY 2023/24 global rapeseed production forecast is raised this month by 1.4 million metric tons to 87.0 million metric tons on larger crops in Canada and Australia. Guided by the recent report from Statistics Canada, Canada's rapeseed production is increased by 1.0 million metric tons to 18.8 million metric tons on higher yield and harvested acreage. Yield increased 5 percent to 2.12 metric tons per hectare while harvested acreage is 0.6 percent higher this month and estimated at 8.9 million hectares. With higher domestic supplies, Canada's crush, feed and residual use, and exports are revised higher. Crush is revised to 10.3 million metric tons, boosting available oil and meal supplies. The additional oil and meal supplies resulted in larger export forecasts and slightly larger domestic use. With increased exports coming from Canada, the United States rapeseed oil import forecast is up 45,000 metric tons to 3.0 million metric tons.

Rapeseed production in Australia is forecast up 0.4 million metric tons to 5.5 million metric tons on higher yields, but production remains well below last year's record high. This allows for additional exports—especially to the European Union (EU)—and boosts ending stocks in Australia. The EU's rapeseed imports are revised up 0.2 million metric tons to 5.3 million metric tons.

# Special Article: U.S. Biofuel Policies Impact on Vegetable Oil Trade

## Summary

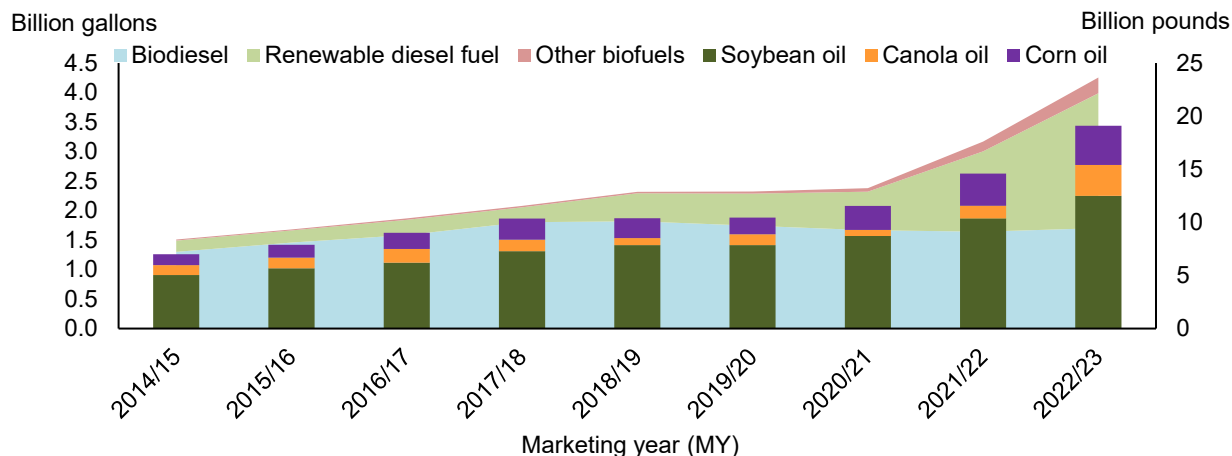
Strong demand for vegetable oils driven by the U.S. biofuel policy has created a wedge between U.S. prices and world prices, which has impacted global vegetable oil and processed oil trade volumes. U.S. vegetable oil exports in marketing year (MY) 2022/23 declined significantly while vegetable oil imports increased to a record high. This special article analyzes the structural change that the biofuels policy brought to the U.S. vegetable oil trade flows and its major trading partners in MY 2022/23.

## Domestic Demand

Historically, domestic demand for vegetable oils as an ingredient for food, animal feed, and other industrial uses has increased steadily in tandem with U.S. population growth. More recently, State and Federal biofuel policies have encouraged the use of various biomass feedstocks in fuel production to reduce greenhouse gas emissions. Implementing these policies resulted in significantly increased demand for vegetable oils as feedstock for biofuel production—particularly for renewable diesel. In MY 2022/23 major vegetable oils use (e.g., soybean oil, canola oil, and corn oil) for biofuels production is estimated at 19.1 billion pounds, up nearly 4.5 billion pounds from MY 2021/22 (figure 1).

Figure 1

### Biomass-based diesel production and vegetable oils use, MY 2014/15–2022/23



Note: Soybean oil, canola oil, and corn oil account for approximately 64 percent of estimated total feedstocks used in biofuel production in MY 2022/23. Fats, poultry and animal feedstock categories are excluded.

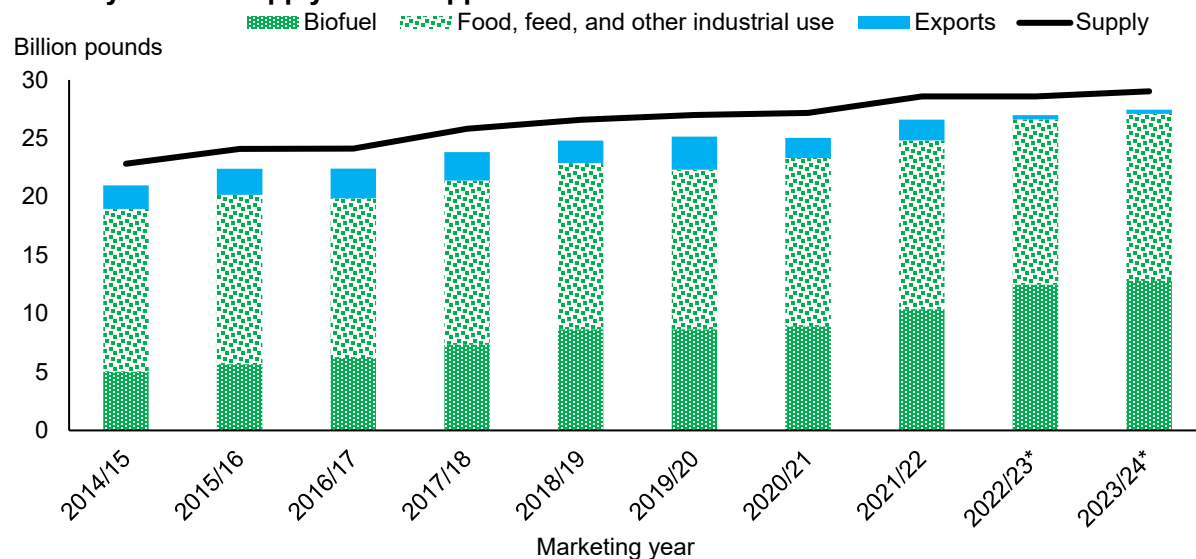
Source: USDA, Economic Research Service using data from U.S. Department of Energy, U.S. Energy Information Administration, *Monthly Energy Review* and *Feedstocks consumed for production of biofuels*, November 2023.

Soybean oil mostly contributed to this increase with soybean oil use for biofuels surging from 10.4 billion pounds in MY 2021/22 to a record high of 12.5 billion pounds in MY 2022/23. Soybean oil used for renewable diesel, which climbed from 3.1 billion pounds in 2021/22 to 5.3 billion pounds in 2022/23, accounted for the rise in use and soybean oil used for biodiesel declined slightly. Furthermore, canola oil use for biofuels skyrocketed in MY 2022/23 to 2.9 billion pounds from 1.3 billion pounds in MY 2021/22. This significant increase was a result of the U.S. Environmental Protection Agency’s (EPA) ruling in December 2022, which approved a pathway for canola oil to be used in renewable diesel. Before December 2022, canola oil was only approved for use in biodiesel. Corn oil use for biofuels in MY 2022/23 reached a record-high 3.7 billion pounds, with record-low corn oil exports at 281 million pounds and record-high corn oil imports of 180 million pounds.

Soybean oil use for biofuel production in MY 2022/23 accounted for 47 percent of domestic consumption (figure 2). The use of soybean oil in the food, feed, and other industrial category declined 2 percent and totaled 14.1 billion pounds, whereas canola oil use in this category increased by 16 percent and reached 5.0 billion pounds.

Figure 2

**U.S. soybean oil supply and disappearance**



Note: Asterisk (\*) denotes forecast.

Source: USDA, Economic Research Service using data from USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates*.

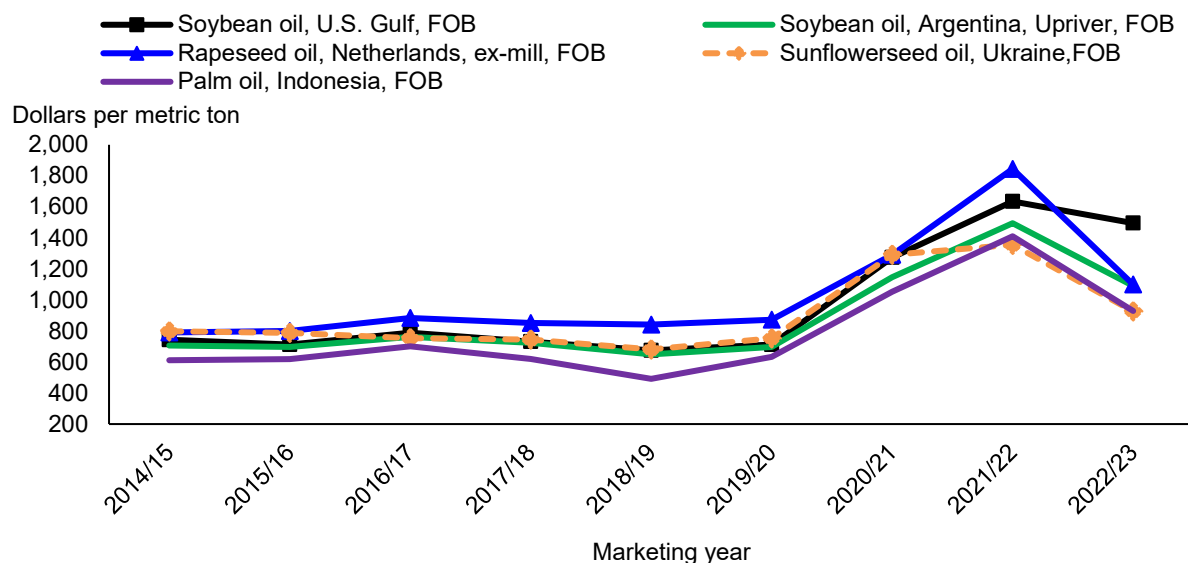
Despite the 4-billion-pound increase of soybean oil, canola oil, and corn oil use in biofuel in MY 2022/23, domestic production of those three oils only grew by 380 million pounds to 34.1 billion pounds. Most of the increased year-over-year use came from lower U.S. exports and higher imports of those vegetable oils.



# Prices

U.S. vegetable oil prices skyrocketed to a record-high level in MY 2021/22, driven by both the domestic biofuels policy and by the tight global vegetable oils supply due to the war in Ukraine, drought conditions in Canada and Argentina, and Indonesia’s restrictive palm oil export policies during that marketing year. In MY 2022/23, global vegetable oils prices declined on record-high palm oil production and record global sunflowerseed and rapeseed crush, while U.S. prices remained elevated above global prices (figure 3). Soybean oil prices for the export market, U.S. Gulf freight-on-board (FOB) for MY 2022/23 averaged \$1,495.00 per metric ton, down \$139.00 per metric ton from MY 2021/22, but still above the prior 5-year average. This average U.S. price is more than \$400.00 per metric ton higher than Argentina, the largest U.S. competitor in the soybean oil export market. Despite Argentina’s soybean oil supply being affected by historically low soybean crush (due to severe drought), the strong domestic demand for soybean oil kept the spread between U.S. and Argentina’s soybean oil prices at the record-high level in MY 2022/23.

Figure 3  
**World vegetable oils prices, MY 2014/15–2022/23**



MY = Marketing year. FOB = Free on board.

Source: USDA, Economic Research Service using data from International Grains Council .

The U.S. soybean oil price was also higher than other global vegetable oils due to the larger supply of sunflowerseed oil and rapeseed oil as global sunflowerseed and rapeseed crush recovered—especially in the Black Sea region and Canada. Sunflowerseed oil and rapeseed oil prices in MY 2022/23 declined by 30 percent and 40 percent, respectively. Similarly, the price

for palm oil, a globally dominant vegetable oil, declined by \$481.00 per metric ton in MY 2022/23 and FOB, Indonesia averaged \$929.00 per metric ton.

As a result, U.S. vegetable oils exports—especially soybean oil exports in MY 2022/23—declined to a historically low level. Soybean oil exports totaled 378 million pounds and marginally exceeded the soybean oil imports of 376 million pounds. For the first time, the United States almost became a net importer of soybean oil even though the United States, historically, was one of the major soybean oil exporters, contributing 8 percent to the global soybean oil trade for the past 5 years (i.e., MY 2017/18–2021/22).

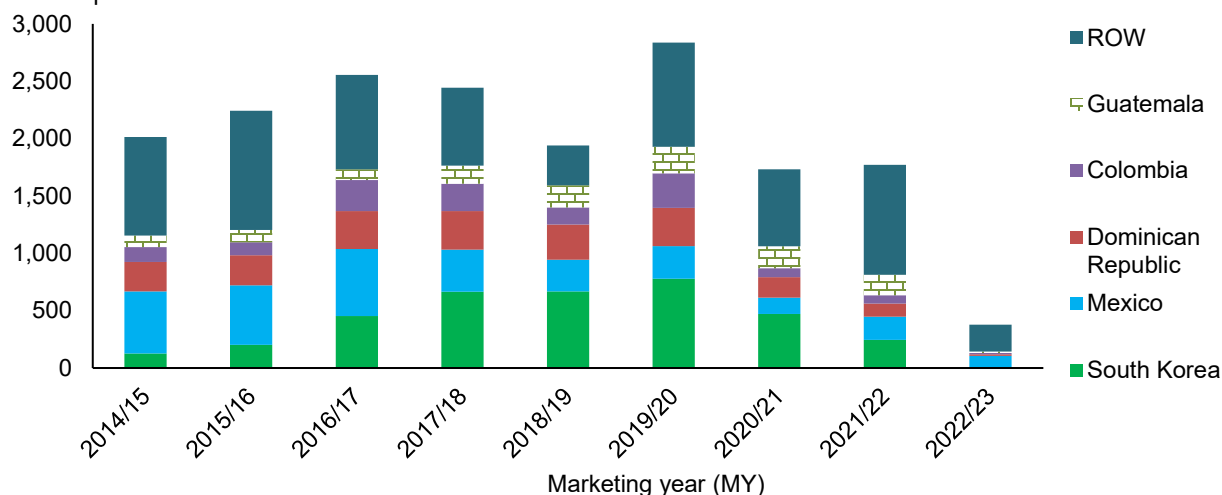
## U.S. Record-Low Soybean Oil Exports and Its Implication to Traditional Trading Partners

The U.S vegetable oil exports for MY 2022/23 totaled 0.455 million metric tons (i.e., 1.0 billion pounds), down 0.762 million metric tons (1.6 billion pounds) from MY 2021/22. Shipments of all major vegetable oils decreased, with soybean oil exports accounting for 83 percent of this decline. The United States lost share in the global soybean oil markets, which had implications on its major trading partners. Traditional buyers of U.S. soybean oil (i.e., South Korea, Mexico, the Dominican Republic, Colombia, and Guatemala) averaged more than 65 percent of the total U.S. soybean oil exports for the MY 2014/15–MY 2020/21 period (figure 4).

Figure 4

### U.S. soybean oil export destinations, MY 2014/15–2022/23

Million pounds



ROW=Rest of world. MY=Marketing year.

Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, *Global Agriculture Trade System*.

Mexico and South Korea, two of the leading buyers of U.S. soybean oil, saw a decline in imports from the United States. Mexico declined by 48 percent from MY 2021/22 while South Korea imported only 265 metric tons in MY 2022/23, a decrease from more than 110,000 metric tons in MY 2021/22. Although both countries imported additional soybean oil supplies from other countries (e.g., Argentina and Brazil), total soybean oil imports were lower in MY 2022/23 (figure 5). To offset soybean oil imports, Mexico imported higher volumes of soybeans and rapeseed, leading to increased crush and slightly higher vegetable oil consumption year-over-year. For South Korea, MY 2022/23 consumption was nearly unchanged from MY 2021/22, as higher palm oil and rapeseed oil imports offset the decline in soybean oil imports.

Figure 5

**Total soybean oil imports by destination, MY 2017/18–2022/23**

Figure 5a

**Mexico**

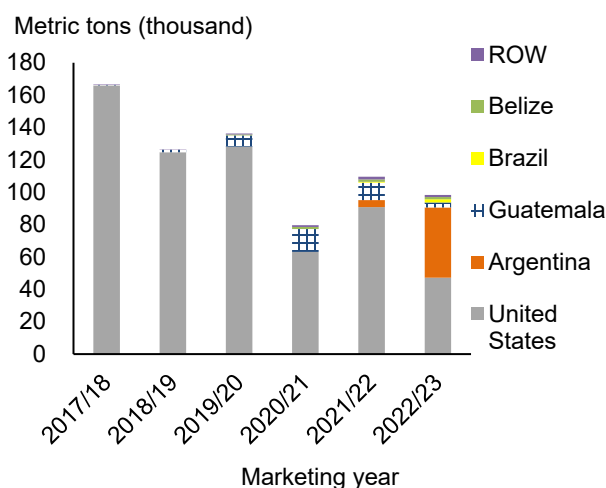
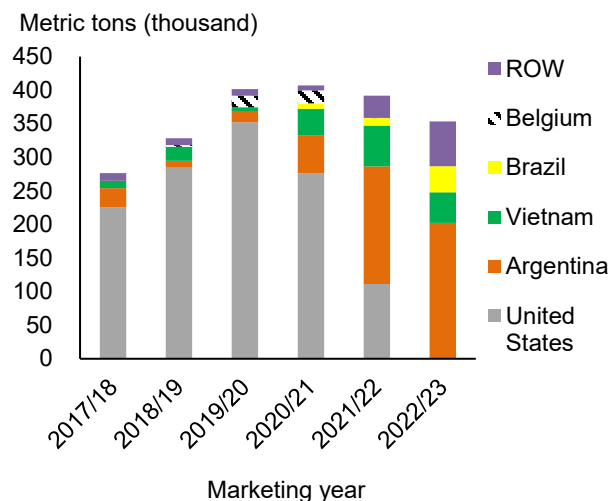


Figure 5b

**South Korea**



MY = Marketing year, ROW=Rest of world.

Source: USDA, Economic Research Service using data from Trade Data Monitor.

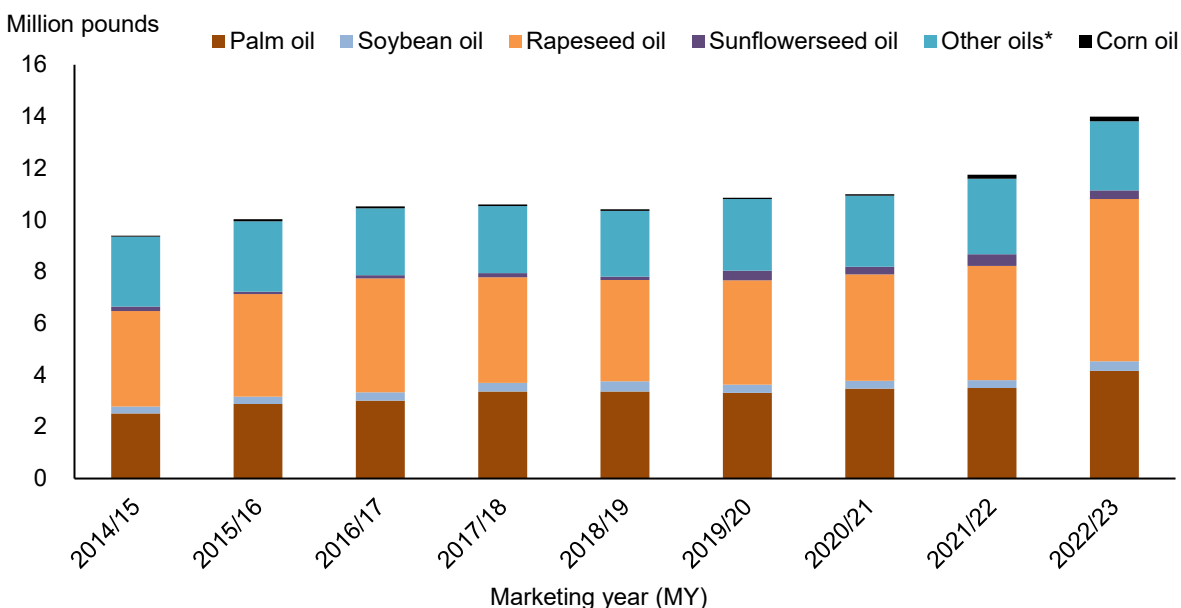
## U.S. Vegetable Oils Imports

Despite the increase in domestic vegetable oils production and lower oil exports, the U.S. domestic market still required an additional supply of oils to meet the demand for feedstocks. In MY 2022/23, vegetable oil imports increased and accounted for 29 percent of domestic vegetable oil consumption. Soybean oil imports marginally increased in MY 2022/23 as the expansion of soybean oil imports from major soybean oil exporters (e.g., Argentina and Brazil) are limited by a 19.1-percent import tariff. As a result, canola oil, palm oil, and processed oil imports substantially increased in MY 2022/23 to help with domestic supply—especially for biofuel use. Although canola oil imports have a 6.4-percent tariff, the major supplier of canola oil is Canada, a key free trade partner. The canola oil imports have been on the rise since 2006 when the U.S. Food and Drug Administration (FDA) required food companies to disclose the

amount of trans fat on the nutrition facts label as canola oil has very low trans-fat content. When combined with the EPA-approved pathway for renewable diesel use, canola oil imports increased by 42 percent to a record-high 6.3 billion pounds in MY 2022/23 (figure 6). In the last 5 years, the U.S. share of Canadian canola oil trade increased from 52 percent in MY 2018/19 to 88 percent in MY 2022/23, while China’s share of Canadian oil trade declined from 31 percent to 4 percent.

U.S. palm oil imports for MY 2022/23 increased 19 percent and reached a record-high level of 4.5 billion pounds to compensate for other vegetable oils not being used in food and other industrial use. Refined palm oil imports from Indonesia accounted for nearly 87 percent of total palm oil imports in MY 2022/23. Corn oil imports in MY 2022/23 also reached a record of 180 million pounds, mainly sourced from Canada.

Figure 6  
**U.S. imports of vegetable oils, MY 2014/15–2022/23**



\*Other oils=Cottonseed oil, coconut oil, olive oil, palm kernel oil, and peanut oil. MY= Marketing year.  
Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, Global Agricultural Trade System (GATS).

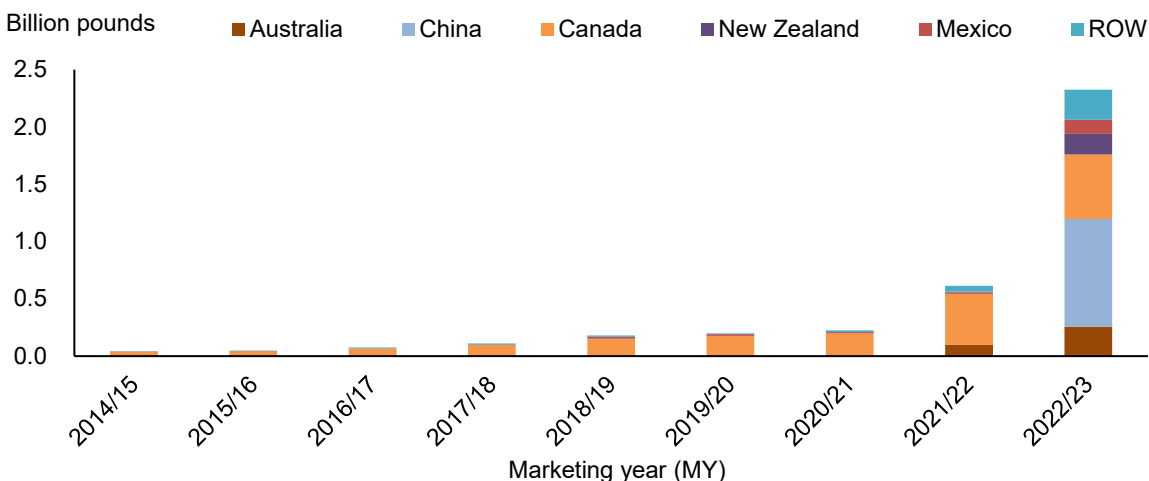
## U.S. Imports of Animal and Vegetable Fats and Oils

The increased vegetable oil imports were still not enough to cover growing demand. This resulted in higher imports of processed oils, reported by U.S. Department of Commerce, Bureau of the Census under the Harmonized System (HS) code 1518004000, which are defined as animal and vegetable fats and oils and their fraction that have been boiled, oxidized,

dehydrated, or otherwise chemically modified. These imports increased from 0.6 billion pounds in MY 2021/22 to 2.6 billion pounds in MY 2022/23 on higher use as feedstocks in domestic biofuels production (figure 7). This HS code includes used cooking oil (UCO) and fats that have lower carbon intensity (CI) score compared with the other vegetable oils. California’s Low Carbon Fuel Standard (LCFS) incentivizes the use of byproducts as feedstocks in biomass-based diesel fuels.

Figure 7

**U.S. imports of processed oils by country, MY 2014/15–2022/23**



ROW=Rest of world. MY=Marketing year.

Note: Harmonized System Code 1518004000 defined as: animal and vegetable fats and oils and their fractions, boiled, oxidized, dehydrated, sulfurized, etc. or otherwise chemically modified excluding heading 1516.

Source: USDA, Economic Research Service using data from USDA, Foreign Agricultural Service, Global Agricultural Trade System (GATS).

In MY 2021/22, the U.S. Department of Commerce, Bureau of the Census’ trade data indicated that 72 percent of processed oils originated from Canada, followed by Australia. In MY 2022/23, China emerged as a supplier of processed oils shipping over 0.9 billion pounds, which accounted for 40 percent of total U.S. processed oils imports. The average price for imported processed oils was \$1,465.80 per metric ton compared with the average soybean oil price of \$1,495.00 per metric ton.

## 2023/24 Vegetable Oil Balance Sheet Implications

This structural shift in the U.S. vegetable oils market is likely to continue to affect trade flows moving forward as biofuel use continues to grow. With lower exportable supplies, the United States’ key trading partners are likely to continue to shift to other markets, decrease usage, or seek other oils to fill the gaps. The strong domestic demand for vegetable oils is also forecast to continue increasing imports of vegetable oils. This is projected to push the United States to be a net importer of soybean oil in MY 2023/24.

## Suggested Citation

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