

United States Department of Agriculture



Grain Transportation Report

A weekly publication of the Agricultural Marketing Service www.ams.usda.gov/GTR

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WEEKLY HIGHLIGHTS

March Grain Stocks Show Tight Supplies and Steady Disappearance On March 31, USDA's National Agricultural Statistics Service (NASS) published its latest *Grain Stocks* report. As of March 1, total U.S. grain stocks were 10.3 billion bushels (bbu). This was down 7 percent from last year and down 14 percent from the prior 5-year average for March. Total disappearance—the difference in grain stocks from December 1, 2022 to March 1, 2023—was 5.2 bbu, which was down 6 percent from the previous year and nearly even with the 5-year average. Disappearance is a proxy for transportation demand because all grain that leaves storage must enter the transportation system. Over the same period (December 1 to March 1), <u>rail carloads</u> of grain were 2 percent above the 5-year average, while <u>barged grain movements</u> were 13 percent below the 5-year average. The flatness of disappearance and rise in rail volumes—which exceeded the decline in barge volumes—suggest that truck movements were below the

prior 5-year average, (Direct data for truck movements are unavailable and must be inferred from rail and barge movements.) Compared to the 5-year average, disappearance of corn was down 4 percent; wheat, down 7 percent; and soybeans, up 18 percent.

FMC Seeks Compliance To End Unjust Policies on Detention Charges

The Federal Maritime Commission (FMC) is working to confirm, through its Vessel-Operating Common Carrier Audit Program, that the demurrage and detention practices of the 11 largest ocean carriers align with a recent precedential FMC case. In the TCW vs. Evergreen case last December, FMC determined per diem charges should not be imposed when they do not "serve … incentivizing purposes, such as when empty equipment cannot be returned on weekends, holidays, and port closures." FMC is also working to ensure marine terminal operators' compliance with its guidance of May 2020 (<u>46 CFR 545.5</u>). That rule clarifies FMC's prohibitions against "unjust or unreasonable" ocean carrier policies and practices, regarding receiving, handling, storing, or delivering property.

FMC Final Rule Amends Assessment and Collection of Civil Penalties

Effective April 19, 2023, a newly published <u>final rule</u> amends the Federal Maritime Commission's (FMC) Rules of Practice and Procedure governing the assessment and collection of civil penalties. FMC's rule requires ocean carriers to refund importers and exporters for illegal overcharges (such as demurrage and detention). Potentially, the rule may also penalize ocean carriers for other violations of the U.S. Shipping Act. According to a new provision enacted by OSRA 2022 (section 4130), carriers must now refund customers not only if invoices are inaccurate, but also if they do not include FMC's required minimum information. FMC announced the final rule shortly after FMC <u>levied</u> a \$950,000 fine against Wan Hai Lines for allegedly violating the U.S. Shipping Act.

Great Lakes Shipping Season Opens

The 2023 Great Lakes shipping season began on March 25 when the U.S. Army Corps of Engineers (USACE) reopened the Poe Lock. The lock received critical repairs and maintenance during the 10-week winter shutdown of the Great Lakes. USACE determines when to open and close Great Lakes navigation seasons based on the lakes' navigability. So far this season, other reopenings on the Great Lakes include the Port of Duluth-Superior, North America's farthest-inland freshwater seaport, and the Twin Ports. As of March 25, the National Oceanic and Atmospheric Administration reported the Great Lakes total ice cover was 5.2 percent, down from 21 percent the same day last year. From 2018 to 2020, the Port of Duluth-Superior shipped between <u>1.1 million tons and 1.5 million tons of grain</u>.

Snapshots by Sector

Export Sales For the week ending March 23, unshipped balances of wheat, corn, and soybeans for marketing year (MY) 2022/23 totaled 24.71 million metric tons (mmt), down 33 percent from the same time last year and down 2 percent from last week. Net corn export sales for MY 2022/23 were 1.037 mmt, down 67 percent from last week. Net soybean export sales were 0.348 mmt, up significantly from last week. Net weekly wheat export sales were 0.152 mmt, up 21 percent from last week.

Rail

U.S. Class I railroads originated 19,889 grain carloads during the week ending March 25. This was a 6-percent increase from the previous week, 12 percent fewer than last year, and 14 percent fewer than the 3-year average.

Average April shuttle secondary railcar bids/offers (per car) were \$207 below tariff for the week ending March 30. This was \$57 less than last week and \$1,757 lower than this week last year.

Barge

For the week ending April 1, **barged grain movements** totaled 714,527 tons. This was 10 percent higher than the previous week and 8 percent higher than the same period last year.

For the week ending April 1, 454 grain barges **moved down river**—48 more than last week. There were 702 grain barges **unloaded** in the New Orleans region, 7 percent more than last week.

Ocean

For the week ending March 30, 30 **oceangoing grain vessels** were loaded in the Gulf—9 percent fewer than the same period last year. Within the next 10 days (starting March 31), 27 vessels were expected to be loaded—44 percent fewer than the same period last year.

As of March 30, the rate for shipping a metric ton (mt) of grain from the U.S. Gulf to Japan was \$52.00. This was unchanged from the previous week. The rate from the Pacific Northwest to Japan was \$29.00 per mt, unchanged from the previous week.

Fuel

For the week ending April 3, the U.S. average **diesel fuel price** decreased 2.3 cents from the previous week to \$4.105 per gallon, 103.9 cents below the same week last year.

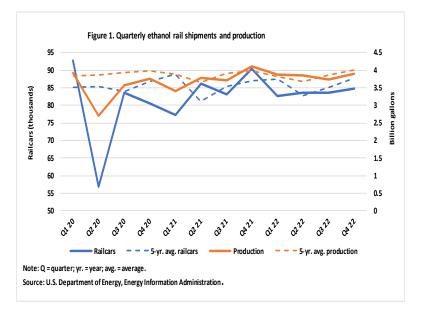
Feature Article/Calendar

Ethanol Transportation Update for Fourth Quarter 2022

From third quarter 2022 to fourth quarter 2022 (quarter to quarter), ethanol production rose 4 percent to 3.9 billion gallons, and total 2022 ethanol production was up 2 percent from 2021. Quarter to quarter, ethanol exports fell because strong purchases by Canada did not offset diminished shipments to other top export destinations. However, total 2022 ethanol exports still surpassed 2021 exports by 9 percent. This article examines fourth-quarter 2022 ethanol production and exports and their effects on demand for ethanol transportation.¹ Projections for future ethanol production are also explored, as well as influences on future exports and transportation demand.

Ethanol Production and Rail Movements

Despite falling energy prices and waning gasoline demand, ethanol profit margins in October and November 2022 averaged \$0.33 per gallon, compared to \$0.25 per gallon for the first 9 months of 2022. As a result of rising corn prices and declining ethanol fuel prices, margins fell in December. Because fourth-quarter margins were still strong, ethanol production-at 3.9 billion gallons-was up 4 percent quarter to quarter. Despite being down 5 percent from fourth quarter 2021 to fourth quarter 2022 (year to year) and down 2 percent from the 5-year average, fourth-quarter ethanol production approached pre-COVID levels. Mirroring the quarter-to-quarter rise in production, Class I railroads originated 84,862 carloads of U.S. ethanol (domestic and exported to Canada)-up 1 percent quarter to quarter, but down 6 percent year to year and down 3 percent from the 5year average (fig. 1).



Ethanol Exports Decline in Fourth Quarter

Reduced ethanol purchases by South Korea, Netherlands, and India and the virtual absence of purchases by Brazil and China weakened U.S. ethanol exports and dampened demand for ethanol transportation. Strong exports to Canada could not offset the weak exports elsewhere. According to <u>USDA's Foreign Agricultural Service (FAS) data</u>, U.S. ethanol exports were down 16 percent quarter to quarter, down 34 percent year to year, and down 36 percent from the 5-year average. Quarter to quarter, ethanol exports to South Korea were down 40 percent and, to the Netherlands, down 63 percent. Although exports to Brazil, India, and China were up quarter to quarter, they collectively accounted for only 3 percent of total U.S. ethanol exports.

Canada, South Korea, and Netherlands become top buyers of U.S. ethanol in 2022. Canada, South Korea, and Netherlands emerged as the top three buyers of U.S. ethanol in 2022, accounting for 56 percent of total exports. At almost 142 million gallons, U.S. fourth-quarter ethanol exports to Canada were up 3 percent quarter to quarter, up 27 percent year to year, and accounted for 59 percent of total U.S. ethanol exports for the quarter. Canada was the only consistent top buyer of U.S. ethanol in 2022, and its purchases grew throughout the year.

Because Brazilian ethanol prices were more competitive than U.S. prices, Brazilian product outsold U.S. product to South Korea, the European Union, and India in the fourth quarter. For example, continuing a decline begun in the second quarter, U.S. ethanol exports to South Korea fell another 40-percent from the third to fourth quarter, to nearly 17 million gallons. Although South Korea's purchases of U.S. ethanol were down, the country's total 2022 purchases were still up 4 percent year to year. U.S. ethanol exports to Netherlands also continued a decline begun in the second quarter, falling another 63 percent from third quarter to fourth quarter and dropping 64 percent year to year. Still, the United States exported over 99 million gallons of ethanol to Netherlands in 2022—more than double the 2021 exports.

Brazil and China buy little U.S. ethanol; exports to India decline. Ranked as the one of the top two buyers of U.S ethanol until 2020, Brazil purchased significantly less U.S. ethanol in 2021, and still less in 2022. At 51,000 gallons, Brazil's fourth-quarter 2022

¹ "Ethanol transportation" refers to transportation used to convey ethanol—not transportation powered by ethanol.

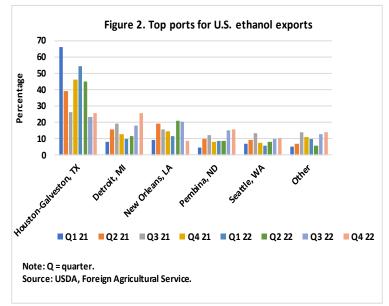
purchases were down almost 800-fold year to year—the combined result of a weak Brazilian real, reduced demand for ethanol, and prioritization of ethanol production over sugar production.²

Like Brazil, China also purchased very little U.S. ethanol after fourth quarter 2021. At 268,000 gallons, fourth-quarter 2022 U.S. ethanol exports to China rose only 1 percent from the previous quarter. China's total ethanol imports in 2022 were just over 663,000 gallons—down from over a 100 million gallons in 2021 (an over 150-fold decrease). The steep drop stemmed from China's high tariffs and rising international shipping costs, which combined to make ethanol imports unviable.

U.S. ethanol exports to India rose from just under 15,000 gallons in third quarter 2022 to 7.4 million gallons in fourth quarter 2022— an almost 500-fold increase. However, this late-2022 rise could not erase a more significant drop for the whole year: India's share of total U.S. ethanol exports fell from 12 percent in 2021 (third place among importers of U.S. ethanol) to 7 percent in 2022. Year to year, exports to India were down 84 percent—i.e., from over 46 million gallons in fourth quarter 2021.

Detroit edges out Port of Houston as top port of exit

in fourth quarter 2022. U.S. port activity reflects the changing dynamics of top destinations for U.S. ethanol. As the Port of Detroit's share of ethanol exports rose from 18 percent to 26 percent quarter to quarter, the port surpassed the Port of Houston as the Nation's top port of exit for ethanol exports. Detroit's advancement was mainly due to the port's 16-percent rise in exports to Canada. Although the Port of Houston's export share rose from 24 percent to 25 percent quarter to quarter, its declining exports to South Korea and Netherlands tempered the increase. The Port of New Orleans' share fell from 21 percent to 9 percent because of decreased exports to the United Kingdom, Netherlands, and South Korea. For 2022 overall, the Port of Houston retained its place as the top port of exit, with a 40percent share, followed by New Orleans (16 percent) and Detroit (15 percent) (fig. 2).



Looking Ahead

According to the Energy Information Administration's (EIA)<u>March2023Short-Term</u>

Energy Outlook, fuel ethanol blended into gasoline

will average 930,000 barrels per day in 2023, up from 910,000 barrels in 2022. EIA projects ethanol production will average 1 million barrels per day in 2023 (unchanged from 2022) and 1.02 million barrels per day in 2024. From marketing year (MY) 2021/22 to MY 2022/23, use of corn for ethanol is projected to fall 1 percent, according to USDA's March 2023 *World Agricultural Supply and Demand Estimates* report. U.S. ethanol exports for fiscal year (FY) 2023 are forecastat \$3.6billion. This is down \$600 million from the November forecast and shy of the record FY 2022 \$4.1 billion, but still the second-highest value on record.³ In FY 2023, per unit ethanol prices are anticipated to be historically high (elevated by higher corn and gasoline prices). Nonetheless, these high prices are not expected to neutralize projected FY 2023 declines in ethanol export volumes.

Demand from foreign buyers of U.S. ethanol is expected to soften in response to inflation, high fuel prices, and a perceived risk of recession. Also, ethanol exports to Brazil are expected to be limited because of a devalued Brazilian real, slow recovery for ethanol- gasoline demand, and reinstatement of a 16-percent duty.⁴ On the other hand, <u>new Japanese policy granting the United</u> States full access to its ethanol market (up from 66-percent access in 2021) may increase U.S. export opportunities and, therefore, raise demand for ethanol transportation. Canada is expected to remain the top buyer for U.S. ethanol exports.

Domestically, greater use of 15 percent ethanol blended gasoline (E15) in the Midwest and growing demand for corn oil are expected to raise the demand for ethanol and, thereby, also, increase domestic demand for ethanol transportation.⁵

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³ Fiscal year is defined as October 1 of previous year through September 30 of current year.

² On March 21, 2022, the Government of Brazil decided to suspend the import tariff on ethanol until December 2022 to help moderate rising gasoline prices.

⁴ February 1, the Brazilian Foreign Trade Chamber (Camex) reinstated its import tariff on American ethanol shipped to Brazil. The new tariff rate on ethanol will be 16 percent in 2023 and 18 percent in 2024.

⁵ On March 6, the U.S. Environmental Protection Agency (EPA) published a proposed rule to allow permanent year-round E15 sales as requested by governors in nine corn-growing States—Ohio, Iowa, Illinois, Kansas, Minnesota, Nebraska, North Dakota, South Dakota, and Wisconsin.

Grain Transportation Indicators

Table 1

Grain transport cost indicators¹

| | Truck | Rai | Rail | | 00 | cean |
|---------------------|-------|-------------|---------|-----|------|---------|
| For the week ending | | Non-Shuttle | Shuttle | | Gulf | Pacific |
| 04/05/23 | 276 | 324 | 246 | 312 | 233 | 206 |
| 03/29/23 | 277 | 326 | 250 | 317 | 233 | 206 |

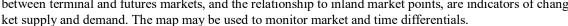
¹Indicator: Base year 2000 = 100. Weekly updates include truck = diesel (\$/gallon); rail = near-month secondary rail market bid and monthly tariff rate with fuel surcharge (\$/car); barge = Illinois River barge rate (index = percent of tariff rate); ocean = routes to Japan (\$/metric ton); n/a = not available due to holiday.

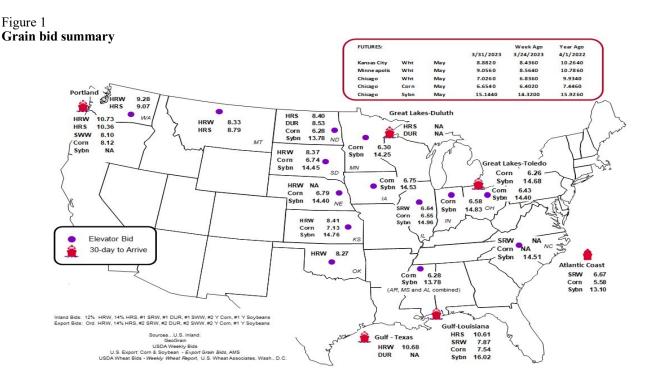
Source: USDA, Agricultural Marketing Service.

| Table 2 Market Update | e: U.S. origins to export po | osition price spreads (\$/bus | shel) |
|--------------------------|------------------------------|-------------------------------|-----------|
| Commodity | Origin-destination | 3/31/2023 | 3/24/2023 |
| Corn | IL–Gulf | -0.99 | -0.95 |
| Corn | NE–Gulf | -0.75 | -0.70 |
| Soybean | IA–Gulf | -1.49 | -1.45 |
| HRW | KS–Gulf | -2.27 | -2.22 |
| HRS | ND–Portland | -1.96 | -1.98 |

Note: nq = no quote; n/a = not available; HRW = hard red winter wheat; HRS = hard red spring wheat. Source: USDA, Agricultural Marketing Service.

The grain bid summary illustrates the market relationships for commodities. Positive and negative adjustments in differential between terminal and futures markets, and the relationship to inland market points, are indicators of changes in fundamental mar-





Rail Transportation

Table 3

Class I rail carrier grain car bulletin (grain carloads originated)

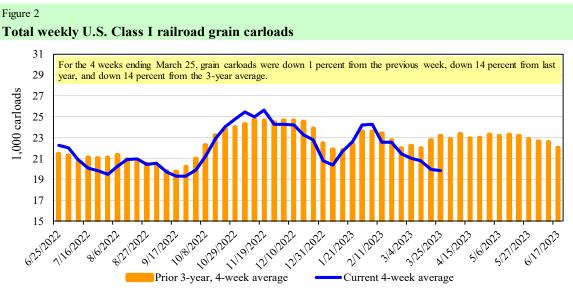
| For the week ending: | E | ast | | West | | U.S. total | Ca | nada |
|-----------------------------------|--------|---------|---------|--------|---------|------------|---------|---------|
| 3/25/2023 | CSXT | NS | BNSF | KCS | UP | U.S. total | CN | СР |
| This week | 2,323 | 2,372 | 8,247 | 1,200 | 5,747 | 19,889 | 5,237 | 4,880 |
| This week last year | 1,639 | 2,501 | 12,520 | 1,274 | 4,605 | 22,539 | 3,522 | 3,597 |
| 2023 YTD | 24,764 | 32,698 | 120,442 | 15,784 | 68,404 | 262,092 | 62,737 | 54,259 |
| 2022 YTD | 22,142 | 27,656 | 141,818 | 15,609 | 74,235 | 281,460 | 41,973 | 44,629 |
| 2023 YTD as % of 2022 YTD | 112 | 118 | 85 | 101 | 92 | 93 | 149 | 122 |
| Last 4 weeks as % of 2022* | 105 | 108 | 71 | 111 | 98 | 86 | 148 | 111 |
| Last 4 weeks as % of 3-yr. avg.** | 106 | 107 | 70 | 113 | 98 | 86 | 126 | 95 |
| Total 2022 | 93,313 | 130,282 | 570,232 | 66,338 | 296,945 | 1,157,110 | 214,297 | 214,010 |

*The past 4 weeks of this year as a percent of the same 4 weeks last year.

**The past 4 weeks as a percent of the same period from the prior 3-year average. YTD = year-to-date; avg. = average; yr. = year.

Note: NS = Norfolk Southern; KCS = Kansas City Southern; UP = Union Pacific; CN = Canadian National; CP = Canadian Pacific.

Source: Association of American Railroads.



Source: Association of American Railroads.

Table 4

Railcar auction offerings¹ (\$/car)²

| Fo | or the week ending: | | | | <u>Deliver</u> | <u>y period</u> | | | |
|-------------------|----------------------|----------|----------|----------|----------------|-----------------|----------|---------|---------|
| | 3/30/2023 | Apr-23 | Apr-22 | May-23 | May-22 | Jun-23 | Jun-22 | Jul-23 | Jul-22 |
| BNSF ³ | COT grain units | no bids | 0 | no bids | 0 | no bids | 0 | no bids | no bids |
| | COT grain single-car | no offer | 201 | no offer | 0 | no offer | 0 | 0 | 0 |
| UP ⁴ | GCAS/Region 1 | no offer | no offer | no offer | no offer | no offer | no offer | n/a | n/a |
| | GCAS/Region 2 | no offer | no offer | no offer | no offer | no offer | no offer | n/a | n/a |

¹Auction offerings are for single-car and unit train shipments only.

²Average premium/discount to tariff, last auction. n/a = not available.

 3 BNSF - COT = BNSF Railway Certificate of Transportation; north grain and south grain bids were combined effective the week ending 6/24/06.

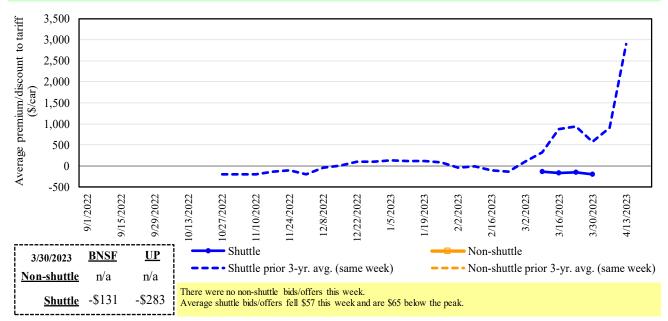
⁴UP - GCAS = Union Pacific Railroad Grain Car Allocation System.

Region 1 includes: AR, IL, LA, MO, NM, OK, TX, WI, and Duluth, MN.

Region 2 includes: CO, IA, KS, MN, NE, WY, and Kansas City and St. Joseph, MO.

Source: USDA, Agricultural Marketing Service.

The **secondary rail market** information reflects trade values for service that was originally purchased from the railroad carrier as some form of guaranteed freight. The **auction and secondary rail** values are indicators of rail service quality and demand/ supply.





Note: Non-shuttle bids include unit-train and single-car bids. n/a = not available; avg. = average; yr. = year; BNSF = BNSF Railway; UP = Union Pacific Railroad. Source: USDA, Agricultural Marketing Service.

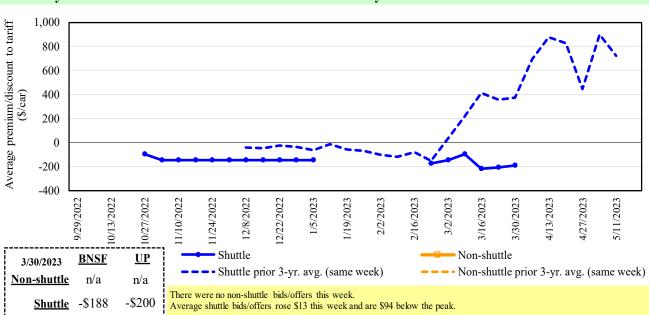
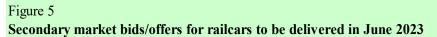
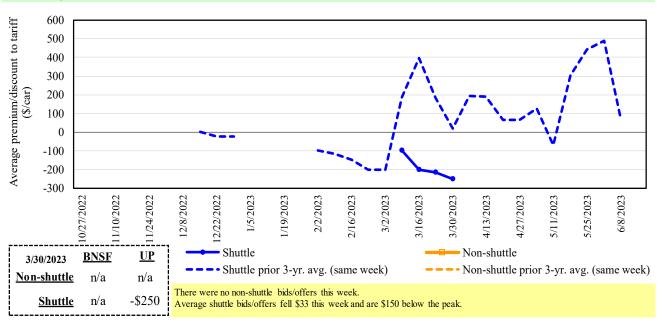


Figure 4 Secondary market bids/offers for railcars to be delivered in May 2023

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Note: Non-shuttle bids include unit-train and single-car bids. n/a = not available; avg. = average; yr. = year; BNSF = BNSF Railway; UP = Union Pacific Railroad. Source: USDA, Agricultural Marketing Service.





Note: Non-shuttle bids include unit-train and single-car bids. n/a = not available; avg. = average; yr. = year; BNSF = BNSF Railway; UP = Union Pacific Railroad. Source: USDA, Agricultural Marketing Service.

Table 5

Weekly secondary railcar market (\$/car)¹

| | For the week ending: | | | De | livery period | | |
|-------------|----------------------------|---------|---------|--------|---------------|--------|--------|
| | 3/30/2023 | Apr-23 | May-23 | Jun-23 | Jul-23 | Aug-23 | Sep-23 |
| | BNSF-GF | n/a | n/a | n/a | n/a | n/a | n/a |
| le | Change from last week | n/a | n/a | n/a | n/a | n/a | n/a |
| hutt | Change from same week 2022 | n/a | n/a | n/a | n/a | n/a | n/a |
| Non-shuttle | UP-Pool | n/a | n/a | n/a | n/a | n/a | n/a |
| Z | Change from last week | n/a | n/a | n/a | n/a | n/a | n/a |
| | Change from same week 2022 | n/a | n/a | n/a | n/a | n/a | n/a |
| | BNSF-GF | (131) | (188) | n/a | n/a | (200) | 217 |
| | Change from last week | (43) | 1 | n/a | n/a | 0 | 417 |
| Shuttle | Change from same week 2022 | (856) | (613) | n/a | n/a | (300) | (150) |
| Shu | UP-Pool | (283) | (200) | (250) | (225) | (100) | n/a |
| | Change from last week | (70) | 25 | (50) | 8 | 0 | n/a |
| | Change from same week 2022 | (2,658) | (2,250) | n/a | n/a | (300) | n/a |

¹Average premium/discount to tariff, \$/car-last week.

Note: Bids listed are market indicators only and are not guaranteed prices. n/a = not available; GF = guaranteed freight; Pool = guaranteed pool;

BNSF = BNSF Railway; UP = Union Pacific Railroad.

Data from James B. Joiner Co., Tradewest Brokerage Co.

Source: USDA, Agricultural Marketing Service.

Table 6

Tariff rail rates for unit and shuttle train shipments¹

| | | | Tariff | Fuel | Tariff plus surcl | arge ner | Percent change |
|---------------|----------------------------|---------------------------------|----------|------------------------|-------------------|---------------------|-------------------|
| April 2023 | Origin region ³ | Destination region ³ | rate/car | _ surcharge per car | metric ton | bushel ² | Y/Y ⁴ |
| Unit train | ···· | | Tate/cai | per cui | metric ton | | |
| Wheat | Wichita, KS | St. Louis, MO | \$3,695 | \$238 | \$39.05 | \$1.06 | 1 |
| | Grand Forks, ND | Duluth-Superior, MN | \$3,858 | \$89 | \$39.20 | \$1.07 | 6 |
| | Wichita, KS | Los Angeles, CA | \$7,490 | \$459 | \$78.94 | \$2.15 | 5 |
| | Wichita, KS | New Orleans, LA | \$4,600 | \$418 | \$49.83 | \$1.36 | 5 |
| | Sioux Falls, SD | Galveston-Houston, TX | \$7,226 | \$377 | \$75.50 | \$2.05 | 4 |
| | Colby, KS | Galveston-Houston, TX | \$4,850 | \$458 | \$52.71 | \$1.43 | 4 |
| | Amarillo, TX | Los Angeles, CA | \$5,121 | \$638 | \$57.19 | \$1.56 | 2 |
| Corn | Champaign-Urbana, IL | New Orleans, LA | \$4,000 | \$473 | \$44.42 | \$1.13 | 2 |
| | Toledo, OH | Raleigh, NC | \$8,551 | \$525 | \$90.13 | \$2.29 | 6 |
| | Des Moines, IA | Davenport, IA | \$2,655 | \$100 | \$27.36 | \$0.69 | 6 |
| | Indianapolis, IN | Atlanta, GA | \$6,593 | \$394 | \$69.38 | \$1.76 | 7 |
| | Indianapolis, IN | Knoxville, TN | \$5,564 | \$255 | \$57.79 | \$1.47 | 7 |
| | Des Moines, IA | Little Rock, AR | \$4,250 | \$294 | \$45.13 | \$1.15 | 7 |
| | Des Moines, IA | Los Angeles, CA | \$6,130 | \$857 | \$69.38 | \$1.76 | 6 |
| Soybeans | Minneapolis, MN | New Orleans, LA | \$3,856 | \$715 | \$45.39 | \$1.24 | 8 |
| | Toledo, OH | Huntsville, AL | \$7,037 | \$374 | \$73.59 | \$2.00 | 5 |
| | Indianapolis, IN | Raleigh, NC | \$7,843 | \$532 | \$83.17 | \$2.26 | 6 |
| | Indianapolis, IN | Huntsville, AL | \$5,689 | \$253 | \$59.00 | \$1.61 | 7 |
| | Champaign-Urbana, IL | New Orleans, LA | \$4,865 | \$473 | \$53.01 | \$1.44 | 6 |
| Shuttle train | | | | | | | |
| Wheat | Great Falls, MT | Portland, OR | \$4,393 | \$264 | \$46.25 | \$1.26 | 7 |
| | Wichita, KS | Galveston-Houston, TX | \$4,311 | \$206 | \$44.85 | \$1.22 | -1 |
| | Chicago, IL | Albany, NY | \$7,090 | \$495 | \$75.33 | \$2.05 | 7 |
| | Grand Forks, ND | Portland, OR | \$6,051 | \$456 | \$64.62 | \$1.76 | 6 |
| | Grand Forks, ND | Galveston-Houston, TX | \$5,399 | \$475 | \$58.33 | \$1.59 | 6 |
| | Colby, KS | Portland, OR | \$5,923 | \$752 | \$66.28 | \$1.80 | 2 |
| Corn | Minneapolis, MN | Portland, OR | \$5,660 | \$555 | \$61.72 | \$1.57 | 8 |
| | Sioux Falls, SD | Tacoma, WA | \$5,620 | \$509 | \$60.86 | \$1.55 | 8 |
| | Champaign-Urbana, IL | New Orleans, LA | \$4,170 | \$473 | \$46.11 | \$1.17 | 8 |
| | Lincoln, NE | Galveston-Houston, TX | \$4,360 | \$296 | \$46.24 | \$1.17 | 9 |
| | Des Moines, IA | Amarillo, TX | \$4,670 | \$370 | \$50.05 | \$1.27 | 7 |
| | Minneapolis, MN | Tacoma, WA | \$5,660 | \$551 | \$61.68 | \$1.57 | 8 |
| | Council Bluffs, IA | Stockton, CA | \$5,580 | \$570 | \$61.07 | \$1.55 | 8 |
| Soybeans | Sioux Falls, SD | Tacoma, WA | \$6,350 | \$509 | \$68.11 | \$1.85 | 7 |
| | Minneapolis, MN | Portland, OR | \$6,400 | \$555 | \$69.07 | \$1.88 | 7 |
| | Fargo, ND | Tacoma, WA | \$6,250 | \$452 | \$66.56 | \$1.81 | 7 |
| | Council Bluffs, IA | New Orleans, LA | \$5,095 | \$545 | \$56.01 | \$1.52 | 5 |
| | Toledo, OH | Huntsville, AL | \$5,277 | \$374 | \$56.12 | \$1.53 | 7 |
| | Grand Island, NE | Portland, OR | \$5,730 | \$769 | \$64.54 | \$1.76 | 10 |

¹A unit train refers to shipments of at least 25 cars. Shuttle train rates are generally available for qualified shipments of

75-120 cars that meet railroad efficiency requirements.

 2 Approximate load per car = 111 short tons (100.7 metric tons): corn 56 pounds per bushel (lbs/bu), wheat and soybeans 60 lbs/bu.

³Regional economic areas are defined by the Bureau of Economic Analysis (BEA).

 $^{4}\mbox{Percentage}$ change year over year (Y/Y) calculated using tariff rate plus fuel surcharge.

Source: BNSF Railway, Canadian National Railway, CSX Transportation, and Union Pacific Railroad.

| Table 7 | | | |
|-----------------------|-----------|-------------|----------------|
| Tariff rail rates for | U.S. bulk | grain shipm | ents to Mexico |

| Date | e: Decembe | r 2022 | | | Tari | ff rate plus | Percent |
|-----------|------------|----------------------|----------------------|----------------------|-------------------------|---------------------|---------|
| | Origin | | Tariff rate | Fuel surcharge | | charge per: | change |
| Commodity | state | Destination region | per car ¹ | per car ² | metric ton ³ | bushel ³ | Y/Y |
| Wheat | MT | Chihuahua, CI | \$7,699 | \$0 | \$78.67 | \$2.14 | 0 |
| | OK | Cuautitlan, EM | \$6,900 | \$537 | \$75.99 | \$2.07 | 4 |
| | KS | Guadalajara, JA | \$7,619 | \$2,672 | \$105.14 | \$2.86 | 1 |
| | ТΧ | Salinas Victoria, NL | \$4,420 | \$298 | \$48.21 | \$1.31 | 3 |
| Corn | IA | Guadalajara, JA | \$9,102 | \$2,299 | \$116.49 | \$2.96 | 2 |
| | SD | Celaya, GJ | \$8,300 | \$0 | \$84.81 | \$2.15 | 0 |
| | NE | Queretaro, QA | \$8,322 | \$919 | \$94.42 | \$2.40 | 5 |
| | SD | Salinas Victoria, NL | \$6,905 | \$0 | \$70.55 | \$1.79 | 0 |
| | MO | Tlalnepantla, EM | \$7,687 | \$891 | \$87.65 | \$2.22 | 6 |
| | SD | Torreon, CU | \$7,825 | \$0 | \$79.95 | \$2.03 | 0 |
| Soybeans | МО | Bojay (Tula), HG | \$8,647 | \$2,142 | \$110.24 | \$3.00 | 2 |
| | NE | Guadalajara, JA | \$9,207 | \$2,209 | \$116.64 | \$3.17 | 2 |
| | IA | El Castillo, JA | \$9,510 | \$0 | \$97.17 | \$2.64 | 0 |
| | KS | Torreon, CU | \$8,109 | \$1,527 | \$98.46 | \$2.68 | 2 |
| Sorghum | NE | Celaya, GJ | \$7,932 | \$2,019 | \$101.68 | \$2.58 | 3 |
| | KS | Queretaro, QA | \$8,108 | \$670 | \$89.68 | \$2.28 | 4 |
| | NE | Salinas Victoria, NL | \$6,713 | \$538 | \$74.08 | \$1.88 | 4 |
| | NE | Torreon, CU | \$7,225 | \$1,393 | \$88.05 | \$2.23 | 3 |

¹Rates are based upon published tariff rates for high-capacity shuttle trains. Shuttle trains are available for qualified

shipments of 75-110 cars that meet railroad efficiency requirements.

²Fuel surcharge adjusted to reflect the change in Ferrocarril Mexicano, S.A. de C.V railroad fuel surcharge policy as of 10/01/2009.

³Approximate load per car = 97.87 metric tons: Corn & Sorghum 56 lbs/bu, Wheat & Soybeans 60 lbs/bu.

⁴Percentage change calculated using tariff rate plus fuel surchage; Y/Y = year over year.

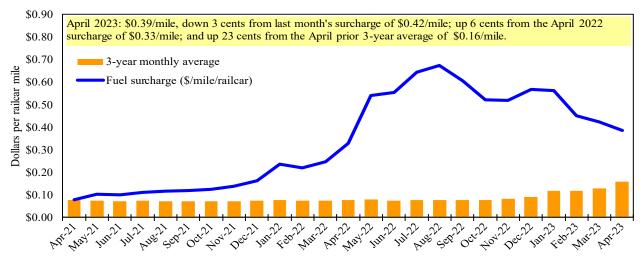
⁵ As of January 1, both BNSF and Union Pacific changed their billing and reporting of rates to Mexico.

As we incorporate the change, Table 8 updates will be delayed.

Sources: BNSF Railway, Union Pacific Railroad, Kansas City Southern.

Figure 6

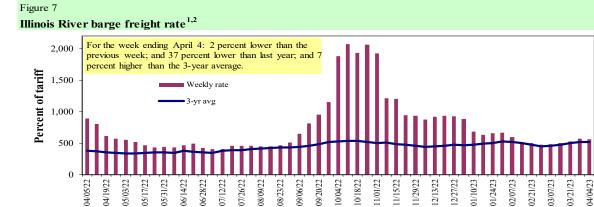
Railroad fuel surcharges, North American weighted average¹



¹Weighted by each Class I railroad's proportion of grain traffic for the prior year.

Sources: BNSF Railway, Canadian National Railway, CSX Transportation, Canadian Pacific Railway, Union Pacific Railroad, Kansas City Southern Railway, Norfolk Southern Corporation.

Barge Transportation



¹Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); ²4-week moving average of the 3-year average. Source: USDA, Agricultural Marketing Service.

Table 8Weekly barge freight rates: Southbound only

| | | Twin Cities | Mid- Mississippi | Lower Illinois River | St. Louis | Cincinnati | Lower Ohio | Cairo- Memphis |
|-------------------|--------------------------|----------------|---------------------|----------------------------|-----------|------------|---------------|-------------------|
| Rate ¹ | 4/4/2023 | 585 | 566 | 561 | 404 | 436 | 436 | 332 |
| | 3/28/2023 | 593 | 584 | 571 | 439 | 435 | 435 | 362 |
| \$/ton | 4/4/2023 | 36.21 | 30.11 | 26.03 | 16.12 | 20.45 | 17.61 | 10.42 |
| | 3/28/2023 | 36.71 | 31.07 | 26.49 | 17.52 | 20.40 | 17.57 | 11.37 |
| Current | week % change | from the sam | e week: | | | | | |
| | Last year | -39 | -38 | -37 | -44 | -44 | -44 | -47 |
| | 3-year avg. ² | 0 | 4 | 7 | -1 | -6 | -6 | -9 |
| Rate ¹ | May | 549 | 526 | 509 | 381 | 399 | 399 | 308 |
| | July | 517 | 496 | 481 | 363 | 380 | 380 | 300 |

¹Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); ²4-week moving average; ton = 2,000 pounds; "-" data not available. Source: USDA, Agricultural Marketing Service.

Figure 8 Benchmark tariff rates

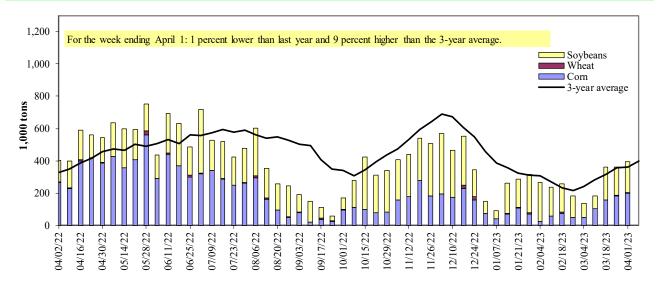
Calculating barge rate per ton: (Rate * 1976 tariff benchmark rate per ton)/100

Select applicable index from market quotes are included in tables on this page. The 1976 benchmark rates per ton are provided in map.

Map Credit: USDA, Agricultural Marketing Service



Figure 9 Barge movements on the Mississippi River¹ (Locks 27 - Granite City, IL)



¹ The 3-year average is a 4-week moving average.

Note: The U.S. Army Corps of Engineers has recently migrated its lock and vessel database and has noted the latest data may be revised in coming weeks.

Source: U.S. Army Corps of Engineers.

Table 9

Barge grain movements (1,000 tons)

| For the week ending 04/01/2023 | Corn | Wheat | Soybeans | Other | Total |
|--|--------|-------|----------|-------|--------|
| Mississippi River | | | | | |
| Rock Island, IL (L15) | 27 | 0 | 94 | 0 | 121 |
| Winfield, MO (L25) | 41 | 0 | 108 | 0 | 149 |
| Alton, IL (L26) | 177 | 5 | 209 | 6 | 397 |
| Granite City, IL (L27) | 199 | 5 | 192 | 6 | 402 |
| Illinois River (La Grange) | 58 | 0 | 84 | 6 | 148 |
| Ohio River (Olmsted) | 202 | 11 | 66 | 21 | 300 |
| Arkansas River (L1) | 0 | 11 | 1 | 0 | 13 |
| Weekly total - 2023 | 401 | 27 | 259 | 27 | 715 |
| Weekly total - 2022 | 406 | 40 | 194 | 21 | 661 |
| 2023 YTD ¹ | 3,022 | 313 | 3,763 | 118 | 7,216 |
| 2022 YTD ¹ | 4,276 | 369 | 3,019 | 79 | 7,743 |
| 2023 as % of 2022 YTD | 71 | 85 | 125 | 149 | 93 |
| Last 4 weeks as % of 2022 ² | 81 | 70 | 100 | 85 | 87 |
| Total 2022 | 16,437 | 1,594 | 14,464 | 232 | 32,727 |

¹ Weekly total, YTD (year-to-date), and calendar year total include MI/27, OH/Olmsted, and AR/1; Other refers to oats, barley, sorghum, and rye. Total may not add exactly due to rounding.

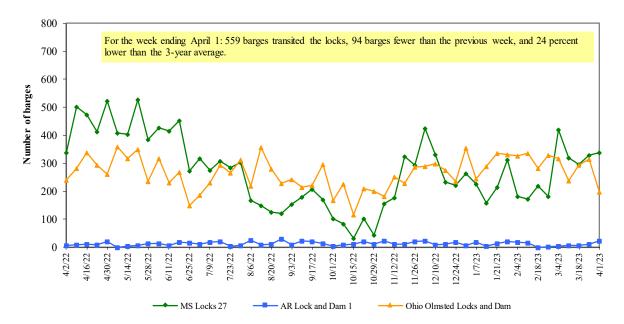
² As a percent of same period in 2022.

Note: L (as in "L15") refers to a lock, locks, or locks and dam facility. The U.S. Army Corps of Engineers has recently migrated its lock and vessel database

database and has noted the latest data may be revised in coming weeks.

Source: U.S. Army Corps of Engineers.

Figure 10 Upbound empty barges transiting Mississippi River Locks 27, Arkansas River Lock and Dam 1, and Ohio River Olmsted Locks and Dam



Note: The U.S. Army Corps of Engineers has recently migrated its lock and vessel database and has noted the latest data may be revised in coming weeks.

Source: U.S. Army Corps of Engineers.

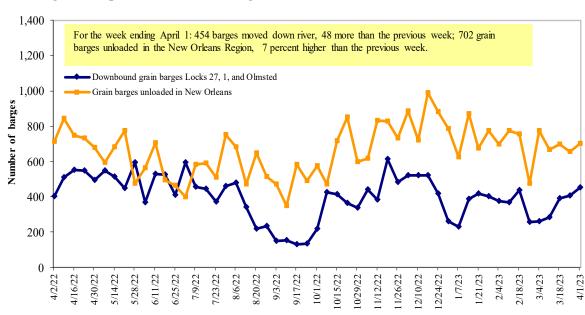


Figure 11 Grain barges for export in New Orleans region

Note: Olmsted = Olmsted Locks and Dam. The U.S. Army Corps of Engineers has recently migrated its lock and vessel database and has noted the latest data may be revised in coming weeks.

Source: U.S. Army Corps of Engineers and USDA, Agricultural Marketing Service.

The weekly diesel price provides a proxy for trends in U.S. truck rates as diesel fuel is a significant expense for truck grain movements.

Table 10

| Retail | on-highway | diesel prices. | week ending | 4/3/2023 (| U.S. \$/gallon) |
|--------|------------|----------------|-------------|------------|-----------------|
| | | | | | |

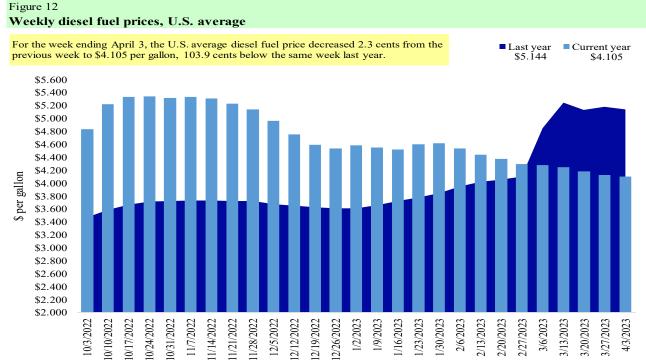
| | | | Change from | |
|--------|----------------------------|-------|-------------|----------|
| Region | Location | Price | Week ago | Year ago |
| Ι | East Coast | 4.226 | -0.015 | -0.980 |
| | New England | 4.580 | -0.031 | -0.703 |
| | Central Atlantic | 4.527 | -0.024 | -0.836 |
| | Lower Atlantic | 4.078 | -0.009 | -1.017 |
| II | Midwest | 3.952 | -0.022 | -0.995 |
| III | Gulf Coast | 3.887 | 0.005 | -1.042 |
| IV | Rocky Mountain | 4.150 | -0.081 | -0.905 |
| V | West Coast | 4.724 | -0.079 | -1.108 |
| | West Coast less California | 4.442 | -0.046 | -0.870 |
| | California | 5.047 | -0.118 | -1.242 |
| Total | United States | 4.105 | -0.023 | -1.039 |

¹Diesel fuel prices include all taxes. Prices represent an average of all types of diesel fuel.

Note: On June 13, the Energy Information Administration implemented a new methodology to estimate

weekly on-highway diesel fuel prices.

Source: U.S. Department of Energy, Energy Information Administration.



Note: On June 13, the Energy Information Administration implemented a new methodology to estimate weekly on-highway diesel fuel prices.

Source: U.S. Department of Energy, Energy Information Administration, Retail On-Highway Diesel Prices.

Grain Exports

Table 11

U.S. export balances and cumulative exports (1,000 metric tons)

| | | | Wh | eat | | | Corn | Soybeans | Total |
|--|-------|-------|-------|-------|-----|-----------|--------|----------|---------|
| For the week ending | HRW | SRW | HRS | SWW | DUR | All wheat | | | |
| Export balances ¹ | | | | | | | | | |
| 3/23/2023 | 619 | 486 | 866 | 690 | 77 | 2,737 | 16,722 | 5,253 | 24,713 |
| This week year ago | 1,422 | 516 | 1,020 | 512 | 19 | 3,490 | 21,474 | 11,797 | 36,761 |
| Cumulative exports-marketing year ² | | | | | | | | | |
| 2022/23 YTD | 4,279 | 2,304 | 4,565 | 3,839 | 291 | 15,278 | 19,244 | 44,508 | 79,030 |
| 2021/22 YTD | 6,053 | 2,243 | 4,214 | 2,817 | 170 | 15,496 | 32,180 | 43,489 | 91,165 |
| YTD 2022/23 as % of 2021/22 | 71 | 103 | 108 | 136 | 171 | 99 | 60 | 102 | 87 |
| Last 4 wks. as % of same period 2021/22 | 47 | 101 | 92 | 157 | 320 | 86 | 73 | 51 | 67 |
| Total 2021/22 | 7,172 | 2,786 | 5,254 | 3,261 | 196 | 18,669 | 59,764 | 57,189 | 135,622 |
| Total 2020/21 | 8,422 | 1,790 | 7,500 | 6,438 | 656 | 24,807 | 66,958 | 60,571 | 152,335 |

¹ Current unshipped (outstanding) export sales to date.

² Shipped export sales to date.

Note: marketing year: wheat = 6/01-5/31, corn and soybeans = 9/01-8/31. YTD = year-to-date; wks. = weeks; HRW= hard red winter; SRW = soft red winter; HRS= hard red spring; SWW= soft white wheat; DUR= durum.

Source: USDA, Foreign Agricultural Service.

Table 12

Top 5 importers¹ of U.S. corn

| For the week ending 3/23/2023 | Total commitments ² | | % change | Exports |
|---|--------------------------------|---------|--------------|-------------|
| | 2022/23 | 2021/22 | current MY | 3-yr. avg. |
| | current MY | last MY | from last MY | 2019-21 |
| | 1,00 | 0 mt - | | -1,000 mt - |
| Mexico | 13,408 | 14,735 | (9) | 15,227 |
| China | 7,515 | 12,124 | (38) | 12,616 |
| Japan | 4,775 | 8,349 | (43) | 10,273 |
| Columbia | 1,651 | 3,748 | (56) | 4,398 |
| Korea | 766 | 534 | 44 | 2,563 |
| Top 5 importers | 28,115 | 39,489 | (29) | 45,077 |
| Total U.S. corn export sales | 35,966 | 53,654 | (33) | 56,665 |
| % of YTD current month's export projection ⁴ | 76% | 85% | | |
| Change from prior week ² | 1,037 | 637 | | |
| Top 5 importers' share of U.S. corn export sales | 78% | 74% | | 80% |
| USDA forecast March 2023 | 47,074 | 62,875 | (25) | |
| Corn use for ethanol USDA forecast, March 2023 | 133,350 | 135,281 | (1) | |

¹Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2021/22; marketing year (MY) = Sep 1 - Aug 31.

²Cumulative exports (shipped) + outstanding sales (unshipped), FAS weekly export sales report, or export sales query. Total commitments change (net sales) from prior week could include revisions from previous week's outstanding sales or accumulated sales.

³FAS marketing year ranking reports (carry over plus accumulated export); yr. = year; avg. = average; YTD = year to date.

Note: A red number in parentheses indicates a negative number; mt = metric ton.

Source: USDA, Foreign Agricultural Service.

Table 13

| For the week ending 3/23/2023 | Total co | mmitments ² | % change | Exports ³ |
|-------------------------------------|------------|------------------------|--------------|----------------------|
| | 2022/23 | 2021/22 | current MY | 3-yr. avg. |
| | current MY | last MY | from last MY | 2019-21 |
| | 1 | ,000 mt - | | -1,000 mt - |
| China | 30,830 | 28,312 | 9 | 27,283 |
| Mexico | 4,200 | 4,881 | (14) | 4,929 |
| Egypt | 1,072 | 3,428 | (69) | 3,553 |
| Japan | 1,830 | 1,886 | (3) | 2,266 |
| Indonesia | 1,160 | 1,288 | (10) | 2,116 |
| Top 5 importers | 39,092 | 39,795 | (2) | 40,147 |
| Total U.S. soybean export sales | 49,761 | 55,286 | (10) | 54,231 |
| % of projected exports | 91% | 94% | | |
| change from prior week ² | 348 | 1,250 | | |
| Top 5 importers' share of U.S. | 79% | 72% | | 74% |
| soybean export sales | / 7 /0 | / 2 /0 | | / 4 /0 |
| USDA forecast, March 2023 | 54,905 | 58,801 | (7) | |

Top 5 importers¹ of U.S. soybeans

¹Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2021/22; marketing year (MY) = Sep 1 - Aug 31. ²Cumulative exports (shipped) + outstanding sales (unshipped), FAS weekly export sales report, or export sales query. Total commitments change (net sales) from prior week could include revisions from previous week's outstanding sales or accumulated sales.

³FAS marketing year ranking reports (carryover plus accumulated export); yr. = year; avg. = average; YTD = year to date.

Note: A red number in parentheses indicates a negative number; mt = metric ton.

Source: USDA, Foreign Agricultural Service.

Table 14

Top 10 importers¹ of all U.S. wheat

| For the week ending 3/23/2023 | Total commi 2022/23 | Total commitments ² 2022/23 2021/22 | | Exports ³ 3-yr. avg. | |
|-------------------------------------|------------------------|---|----------------------------|------------------------------------|--|
| | current MY | last MY | current MY from last MY | 3-yr. avg. 2019-21 | |
| | |)00 mt - | | -1,000 mt - | |
| Mexico | 3,143 | 3,470 | (9) | 3,566 | |
| Philippines | 2,203 | 2,725 | (19) | 2,985 | |
| Japan | 2,095 | 2,355 | (11) | 2,453 | |
| China | 1,029 | 848 | 21 | 1,537 | |
| Nigeria | 752 | 1,971 | (62) | 1,528 | |
| Korea | 1,259 | 1,245 | 1 | 1,459 | |
| Taiwan | 754 | 873 | (14) | 1,106 | |
| Indonesia | 345 | 67 | 416 | 711 | |
| Thailand | 624 | 542 | 15 | 703 | |
| Colombia | 514 | 700 | (27) | 621 | |
| Top 10 importers | 12,720 | 14,796 | (14) | 16,669 | |
| Total U.S. wheat export sales | 18,015 | 18,986 | (5) | 22,763 | |
| % of projected exports | 85% | 87% | | | |
| change from prior week ² | 152 | 95 | | | |
| U.S. wheat export sales | 71% | 78% | | 73% | |
| USDA forecast, March 2023 | 21,117 | 21,798 | (3) | | |

¹ Based on USDA, Foreign Agricultural Service(FAS) marketing year ranking reports for 2020/21; Marketing year (MY) = Jun 1 - May 31.

²Cumulative exports (shipped) + outstanding sales (unshipped), FAS weekly export sales report, or export sales query. The total commitments change (net sales) from prior week could include revisions from the previous week's outstanding and/or accumulated sales.

³ FAS marketing year ranking reports (carry over plus accumulated export); yr. = year; avg. = average.

Note: A red number in parentheses indicates a negative number.

Source: USDA, Foreign Agricultural Service.

Grain Transportation Report

Table 15 Grain inspections for export by U.S. port region (1,000 metric tons)

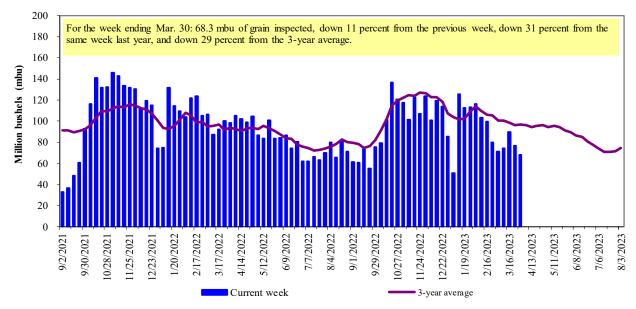
| | For the week ending | Previous | Current week | | | 2023 YTD as | Last 4-w | eeks as % of: | |
|----------------------|---------------------|----------|------------------|-----------|---|---------------|-----------|------------------|-------------|
| Port regions | 03/30/23 | week* | as % of previous | 2023 YTD* | 2022 YTD* | % of 2022 YTD | Last year | Prior 3-yr. avg. | 2022 total* |
| Pacific Northwest | | | | | | | | | |
| Wheat | 68 | 237 | 29 | 3,121 | 2,660 | 117 | 112 | 68 | 9,836 |
| Corn | 193 | 1 | n/a | 940 | 3,262 | 29 | 39 | 32 | 9,615 |
| Soybeans | 0 | 0 | n/a | 3,298 | 3,828 | 86 | 0 | 0 | 14,178 |
| Total | 261 | 238 | 110 | 7,360 | 9,750 | 75 | 48 | 42 | 33,629 |
| Mississippi Gulf | 201 | | 110 | 1,000 | ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,, | 10 | 10 | | 00,027 |
| Wheat | 55 | 99 | 56 | 713 | 991 | 72 | 84 | 112 | 4,053 |
| Corn | 689 | 509 | 135 | 5,997 | 11,278 | 53 | 72 | 71 | 30,781 |
| Soybeans | 437 | 702 | 62 | 10,366 | 7,154 | 145 | 155 | 173 | 31,283 |
| Total | 1,182 | 1,309 | 90 | 17,076 | 19,423 | 88 | 94 | <u> </u> | 66,116 |
| Texas Gulf | 1,102 | 1,007 | 20 | 17,070 | 17,120 | 00 | 71 | | 00,110 |
| Wheat | 38 | 0 | n/a | 556 | 759 | 73 | 72 | 39 | 3,421 |
| Corn | 0 | 0 | n/a | 68 | 141 | 48 | 57 | 35 | 648 |
| Soybeans | 0 | 0 | n/a | 52 | 2 | n/a | 0 | 0 | 685 |
| Total | 38 | 0 | n/a | 677 | 901 | 75 | 70 | 37 | 4,754 |
| Interior | | 0 | 10.4 | 0/1 | 701 | 10 | 10 | UT | 1,701 |
| Wheat | 15 | 77 | 19 | 660 | 790 | 84 | 65 | 70 | 2,912 |
| Corn | 196 | 162 | 121 | 2,424 | 2,309 | 105 | 104 | 99 | 8,961 |
| Soybeans | 69 | 168 | 41 | 2,067 | 1,950 | 106 | 88 | 99 | 7,109 |
| Total | 280 | 407 | 69 | 5,150 | 5,048 | 102 | 92 | 94 | 18,982 |
| Great Lakes | | | | | | | | | |
| Wheat | 1 | 12 | 7 | 63 | 25 | 253 | 357 | 996 | 395 |
| Corn | 0 | 0 | n/a | 0 | 0 | n/a | n/a | n/a | 158 |
| Soybeans | 0 | 0 | n/a | 2 | 19 | 12 | 0 | 0 | 760 |
| Total | 1 | 12 | 7 | 65 | 44 | 149 | 95 | 278 | 1,312 |
| Atlantic | | | | | | | | | |
| Wheat | 0 | 0 | n/a | 36 | 4 | 812 | n/a | 5 | 169 |
| Corn | 0 | 5 | 0 | 44 | 59 | 74 | 60 | 180 | 309 |
| Soybeans | 18 | 69 | 26 | 1,068 | 841 | 127 | 94 | 144 | 2,867 |
| Total | 19 | 73 | 25 | 1,148 | 904 | 127 | 91 | 137 | 3,345 |
| U.S. total from port | ts* | | | | | | | | |
| Wheat | 177 | 425 | 42 | 5,150 | 5,229 | 98 | 92 | 70 | 20,786 |
| Corn | 1,078 | 676 | 159 | 9,473 | 17,048 | 56 | 70 | 66 | 50,471 |
| Soybeans | 525 | 939 | 56 | 16,854 | 13,793 | 122 | 102 | 130 | 56,882 |
| Total | 1,781 | 2,040 | 87 | 31,476 | 36,070 | 87 | 82 | 81 | 128,139 |

*Data includes revisions from prior weeks; some regional totals may not add exactly due to rounding.

Source: USDA, Federal Grain Inspection Service; YTD= year-to-date; n/a = not applicable or no change.

The United States exports approximately one-quarter of the grain it produces. On average, this includes nearly 45 percent of U.S.-grown wheat, 50 percent of U.S.-grown soybeans, and 20 percent of the U.S.-grown corn. Approximately 55 percent of the U.S. export grain shipments departed through the U.S. Gulf region in 2019.

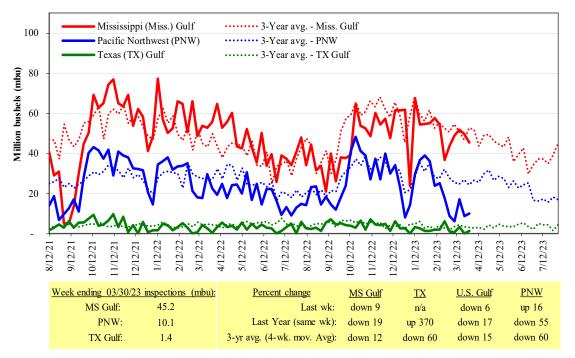




Note: 3-year average consists of 4-week running average.

Source: USDA, Federal Grain Inspection Service.





Source: USDA, Federal Grain Inspection Service.

Table 16

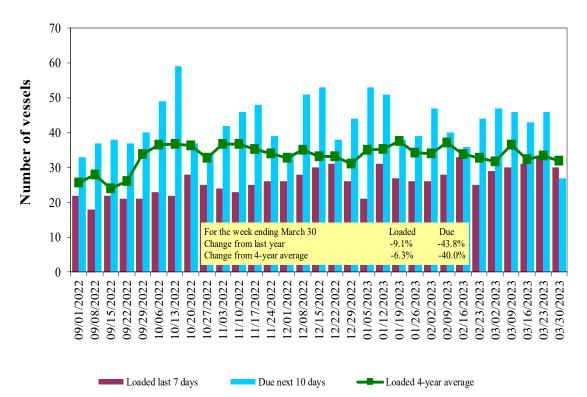
Weekly port region grain ocean vessel activity (number of vessels)

| | | | | Pacific |
|--------------|---------|--------|----------|-----------|
| | | Gulf | | Northwest |
| | | Loaded | Due next | |
| Date | In port | 7-days | 10-days | In port |
| 3/30/2023 | 24 | 30 | 27 | 4 |
| 3/23/2023 | 21 | 33 | 46 | 4 |
| 2022 range | (1461) | (1839) | (2862) | (523) |
| 2022 average | 30 | 28 | 44 | 13 |

Note: The data is voluntarily collected and may not be complete.

Source: USDA, Agricultural Marketing Service.

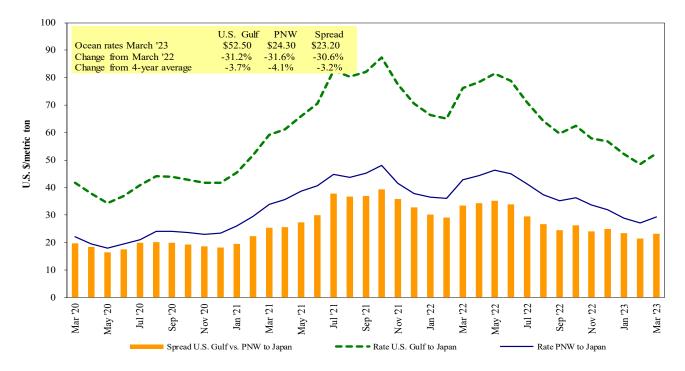
Figure 15 U.S. Gulf¹ vessel loading activity



¹U.S. Gulf includes Mississippi, Texas, and East Gulf. Source: USDA, Agricultural Marketing Service.

Figure 16





Note: PNW = Pacific Northwest. Source: O'Neil Commodity Consulting.

Table 17

Ocean freight rates for selected shipments, week ending 04/01/2023

| Export | Import | Grain | Loading | Volume loads | Freight rate | |
|-----------|----------|-------------|--------------------|---------------|-------------------|--|
| region | region | types | date | (metric tons) | (US\$/metric ton) | |
| U.S. Gulf | Japan | Heavy grain | May 2, 2023 | 50,000 | 56.70 | |
| U.S. Gulf | Japan | Heavy grain | May 1, 2023 | 50,000 | 54.80 | |
| U.S. Gulf | Japan | Heavy grain | Nov 1/10, 2022 | 50,000 | 79.25 | |
| U.S. Gulf | S. China | Corn | Aug 1/10, 2022 | 68,000 | 71.00 | |
| U.S. Gulf | Kenya | Sorghum | Feb 15/25, 2023 | 22,820 | 63.30* | |
| U.S. Gulf | Djibouti | Wheat | Nov 5/15, 2022 | 22,500 | 102.88* | |
| PNW | N. China | Heavy grain | Apr 21/27, 2023 | 63,000 | 28.00 | |
| PNW | N. China | Heavy grain | May 1/4, 2023 | 66,000 | 29.00 | |
| WC US | Japan | Wheat | Feb 1/Mar 1, 2023 | 34,500 | 47.75 | |
| Brazil | N. China | Heavy grain | Apr 21/30, 2023 | 66,000 | 40.60 | |
| Brazil | Vietnam | Heavy grain | Apr 11/29, 2023 | 66,000 | 37.00 | |
| Australia | Vietnam | Heavy grain | Feb 24/Apr 9, 2023 | 60,000 | 20.80 | |

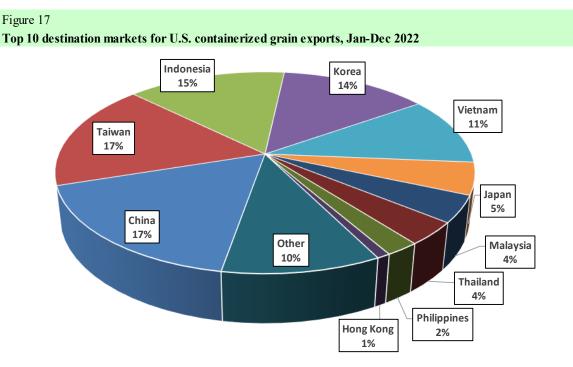
*50 percent of food aid from the United States is required to be shipped on U.S.-flag vessels.

Note: Rates shown are per metric ton (2,204.62 lbs. = 1 metric ton), free on board (F.O.B), except where otherwise indicated;

op = option.

Source: Maritime Research, Inc.

In 2020, containers were used to transport 10 percent of total U.S. waterborne grain exports. Approximately 66 percent of U.S. waterborne grain exports in 2020 went to Asia, of which 14 percent were moved in containers. Approximately 95 percent of U.S. waterborne containerized grain exports were destined for Asia.



Note: The following Harmonized Tariff Codes are used to calculate containerized grains movements: '1001', '10010', '1002', '10020', '10030', '100300', '10040', '100400', '1005', '100590', '10070', '110100', '1102', '110220', '110290', '12010', '120190', '120810', '230210', '230310', '230310', '230330', '2304', and '230990'.

Source: USDA, Agricultural Marketing Service, Transportation Services Division analysis of PIERS data.



Figure 18 Monthly shipments of U.S. containerized grain exports

Note: The following Harmonized Tariff Codes are used to calculate containerized grains movements: '1001', '100190', '10020', '10020', '10030', '1004', '100400', '1005', '100590', '1007', '100700', '110100', '110220', '110290', '1201', '120100', '120190', '120810', '230210', '230310', '230310', '2304', and '230990'.

Source: USDA, Agricultural Marketing Service, Transportation Services Division analysis of PIERS data.

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