USDA United States Department of Agriculture

Grain Transportation Report

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

March 30, 2023

Contents

The next release is April 6, 2023

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WEEKLY HIGHLIGHTS

Unshipped Corn Export Sales to China Surge

For the week ending March 16, total unshipped export sales of corn to China, which indicate future transportation demand, totaled more than 2.4 million metric tons (mmt). This total marked a more than sixfold jump from the previous week's total of 375,000 metric tons (mt). According to USDA's Foreign Agricultural Service, from March 17 to March 29, reported unshipped corn export sales to China totaled 994,000 mt, signaling additional future transportation demand to China. The increased Chinese purchases of U.S. corn are due to a drop in U.S corn futures prices, uncertainty over future exports from Ukraine, and improved shipping conditions along the Mississippi River. Despite increased sales, year-to-date unshipped exports to China are still 58 percent below the same time last year.

Rail Grain Carloads Continue To Decline

As shown in ***GTR* fig. 2**, weekly grain carloads have generally declined since late January. According to data from the Surface Transportation Board, the seven Class I railroads originated 20,572 grain carloads in the week ending March 18—down 20-percent from the prior 5-year average for that week. Among the Class I railroads, the biggest decline came from BNSF Railway (BNSF), which originated only 8,332 grain carloads—just over two-thirds of the previous 5-year average for the same week. Some reductions may be due to record snow and rain totals in portions of the Western United States this winter. Examples of weather-related impacts to the railroads include a March 15 train derailment in Arizona on BNSF's Southern Transcon route (from Chicago to California), as well as two washouts on the BNSF mainline near Bakersfield, California. Despite the dip in grain carloads since January, the increase in unshipped balances and large export sales to China (per previous highlight) potentially signal more car loadings in the future.

Barge Breakaway Closes McAlpine Locks and Dam

On March 28, a vessel towing 11 barges "made contact with a stationary structure" at the entrance of the Portland Canal on the Ohio River near Louisville, KY. As a result of the impact, 10 of the 11 barges broke loose, and three of them lodged against the lower McAlpine Dam. A narrow, humanmade waterway, the Portland Canal connects the Ohio River to the McAlpine Locks and Dam and allows vessels to pass around the Ohio River's falls. The U.S. Army Corps of Engineers had closed the lock chambers at McAlpine Locks and Dam for 17 hours, but the chambers have since reopened under restrictions for southbound traffic to use a helper boat. One of the barges involved in the accident carried 1,400 tons of methanol, and several others contained corn and soybeans. In 2021, nearly 2.8 million tons of grain moved through the McAlpine Locks and Dam.

Diesel Price Falls for 8th Consecutive Week

According to the Energy Information Administration (EIA) data, for the week ending March 27, the U.S. average **diesel fuel price** was $4.128 per gallon—down 5.7 cents from the previous week and down 105.7 cents from the same week last year. This marked the 8th consecutive week of price declines. Since January 31, the U.S. average diesel price has dropped 49.4 cents. For the week ending March 27, diesel prices declined in all 10 EIA regions, but fell most sharply in the Rocky Mountains (down 11.9 cents per gallon). Diesel prices were the cheapest in the Gulf Coast (at $3.882 per gallon) and the Midwest (at $3.974 per gallon). The Midwest diesel price dropped 4.7 cents from last week and fell 102 cents from the same time last year.

Snapshots by Sector

Export Sales

For the week ending March 16, **unshipped balances** of wheat, corn, and soybeans for marketing year (MY) 2022/23 totaled 25.26 million metric tons (mmt), down 33 percent from the same time last year and up 4 percent from last week. Net **corn export sales** for MY 2022/23 were 3.096 mmt, up significantly from last week. Net **soybean export sales** were 0.152 mmt, down 77 percent from last week. Net weekly **wheat export sales** were 0.126 mmt, down 63 percent from last week.

Rail

U.S. Class I railroads originated 18,743 **grain carloads** during the week ending March 18. This was a 7-percent decrease from the previous week, 19 percent fewer than last year, and 21 percent fewer than the 3-year average.

Average April **shuttle secondary railcar bids/offers** (per car) were $150 below tariff for the week ending March 23. This was $22 more than last week and $2,906 lower than this week last year.

Barge

For the week ending March 25, **barged grain movements** totaled 650,800 tons. This was 13 percent higher than the previous week and 19 percent lower than the same period last year.

For the week ending March 25, 406 grain barges **moved down river**—14 more than last week. There were 656 grain barges **unloaded** in the New Orleans region, 6 percent fewer than last week.

Ocean

For the week ending March 23, 33 **oceangoing grain vessels** were loaded in the Gulf—3 percent more than the same period last year. Within the next 10 days (starting March 24), 46 vessels were expected to be loaded—2 percent fewer than the same period last year.

As of March 23, the rate for shipping a metric ton (mt) of grain from the U.S. Gulf to Japan was $52.00. This was 3 percent less than the previous week. The rate from the Pacific Northwest to Japan was $29.00 per mt, 5 percent less than the previous week.

Preferred citation: U.S. Department of Agriculture, Agricultural Marketing Service. *Grain Transportation Report.* March 30, 2023.
Web: **http://dx.doi.org/10.9752/TS056.03-30-2023**

Feature Article/Calendar

Fourth-Quarter 2022 Wheat Landed Costs

From third to fourth quarter 2022 (quarter to quarter), wheat shipping costs decreased from Kansas (KS) and North Dakota (ND) to Japan—via both the Pacific Northwest (PNW routes) and U.S. Gulf (Gulf routes) (tables 1 and 2). From fourth quarter 2021 to fourth quarter 2022 (year to year), wheat shipping costs decreased for most PNW and Gulf routes, except for shipping ND wheat to Japan through PNW by rail. Year to year, wheat inspections decreased 1 percent, and quarter to quarter, inspections decreased 1 percent (USDA, Federal Grain Inspection Service (FGIS)).

Transportation Costs

PNW routes. Fourth-quarter transportation costs for shipping wheat totaled $119/metric ton (mt) via the KS-PNW route and $117/mt via the ND-PNW route. Quarter to quarter, the costs were down 7 percent for the KS-PNW route and down 6 percent for the ND-PNW route, primarily because of lower truck and ocean vessel rates. Year to year, wheat shipping costs fell 1 percent for the KS-PNW route and rose 3 percent for the ND-PNW route. Fourth-quarter wheat transportation costs as a share of landed costs were 26 percent for both PNW routes (table 1).

Gulf routes. Fourth-quarter transportation costs totaled $121/mt by the KS-Gulf route and $136/mt by the ND-Gulf route. Quarter to quarter, the costs to ship wheat were down 9 percent for the KS-Gulf route and down 7 percent for the ND-Gulf route, reflecting declining rates across all transportation modes. Year to year, costs through the Gulf decreased 11 percent from Kansas and fell 8 percent from North Dakota. Fourth-quarter wheat transportation costs as a share of landed costs were 27 percent for the KS-Gulf route and 29 percent for the ND-Gulf route (table 2).

Table 1: Quarterly rate comparisons for shipping Kansas and North Dakota wheat to Japan through the PNW

	Kansas					North Dakota				
Mode	2021 4th qtr	2022 3rd qtr	2022 4th qtr	Year-to-year change	Quarterly change	2021 4th qtr	2022 3rd qtr	2022 4th qtr	Year-to-year change	Quarterly change
	$/metric ton			%	%	$/metric ton			%	%
Truck	13.51	19.07	16.31	20.73	-14.47	13.51	19.07	16.31	20.73	-14.47
Rail[1]	63.83	70.04	68.35	7.08	-2.41	58.10	68.38	67.08	15.46	-1.90
Ocean vessel	42.49	37.93	34.02	-19.93	-10.31	42.49	37.93	34.02	-19.93	-10.31
Transportation costs	119.83	127.04	118.68	-0.96	-6.58	114.10	125.38	117.41	2.90	-6.36
Farm value[2]	283.91	315.63	332.53	17.13	5.35	349.92	345.76	335.47	-4.13	-2.98
Total landed cost	403.74	442.67	451.21	11.76	1.93	464.02	471.14	452.88	-2.40	-3.88
Transport % of landed cost	29.68	28.70	26.30			24.59	26.61	25.93		

Table 2: Quarterly rate comparisons for shipping Kansas and North Dakota wheat to Japan through the U.S. Gulf

	Kansas					North Dakota				
Mode	2021 4th qtr	2022 3rd qtr	2022 4th qtr	Year-to-year change	Quarterly change	2021 4th qtr	2022 3rd qtr	2022 4th qtr	Year-to-year change	Quarterly change
	$/metric ton			%	%	$/metric ton			%	%
Truck	13.51	19.07	16.31	20.73	-14.47	13.51	19.07	16.31	20.73	-14.47
Rail[1]	43.80	49.82	45.96	4.93	-7.75	56.81	62.28	60.90	7.20	-2.22
Ocean vessel	78.50	64.90	59.07	-24.75	-8.98	78.50	64.90	59.07	-24.75	-8.98
Transportation costs	135.81	133.79	121.34	-10.65	-9.31	148.82	146.25	136.28	-8.43	-6.82
Farm value[2]	283.91	315.63	332.53	17.13	5.35	349.92	345.76	335.47	-4.13	-2.98
Total landed cost	419.72	449.42	453.87	8.14	0.99	498.74	492.01	471.75	-5.41	-4.12
Transport % of landed cost	32.36	29.77	26.73			29.84	29.73	28.89		

[1] Rail tariff rates include fuel surcharges and revisions for heavy-axle railcars and shuttle trains. The rail tariff rate is a base price of rail freight rates, but during periods of high rail demand or car shortages, high auction and secondary market rates could exceed the base rail tariffs per car.

[2] USDA, National Agricultural Statistics Service is the source for wheat prices for North Dakota (mainly hard red spring) and Kansas (mainly hard red winter).
Note: PNW = Pacific Northwest; qtr = quarter.
Source: USDA, Agricultural Marketing Service.

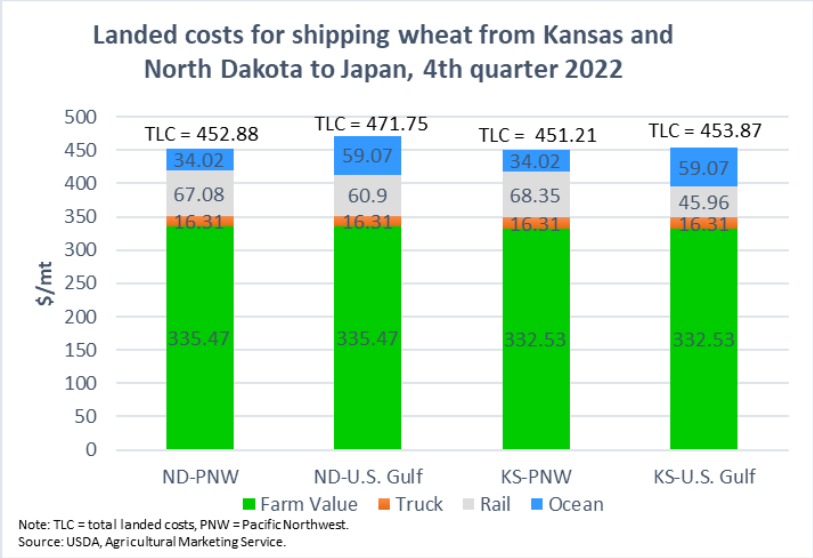
Total Landed Costs

With declining ND wheat farm values, total landed costs for shipping wheat decreased for ND routes, both quarter to quarter and year to year. In Kansas, wheat farm values rose substantially because of ongoing

drought conditions. As a result, total landed costs increased for the KS routes, from quarter to quarter and year to year. Landed costs ranged from $451/mt to $472/mt (see figure). Quarter to quarter, landed costs rose 2 percent for the KS-PNW route; fell 4 percent for the ND-PNW route; rose 1 percent for the KS-Gulf route; and declined 4 percent for the ND-Gulf route. Year to year, landed costs rose 12 percent for the KS-PNW route; fell 2 percent for the ND-PNW route; rose 8 percent for the KS-Gulf route; and fell 5 percent for the ND-Gulf route.

Ocean Freight Rates

Because of lower trade activity in grain, ocean freight rates were down slightly in PNW and the Gulf (*Grain Transportation Report*, February 9, 2023). For the PNW routes, ocean freight rates were down 10 percent quarter to quarter and down 20 percent year to year (table 1). For the Gulf routes, ocean freight rates were down 9 percent quarter to quarter and down 25 percent year to year (table 2).



Rail and Truck Rates

Quarter to quarter, rail rates (including fuel surcharges) for shipping wheat via the PNW routes fell 2 percent. Year to year, rail rates increased 7 percent for the KS-PNW route and rose 15 percent for the ND-PNW route. Quarter to quarter, rail rates decreased 8 percent for the KS-Gulf route and fell 2 percent for the ND-Gulf route. Year to year, rail rates were up 5 percent for the KS-Gulf route and up 7 percent for the ND-Gulf route.

In the fourth quarter, steady demand for wheat, along with falling diesel costs, pushed down each State's grain trucking rate—resulting in a 14-percent decrease from the third quarter, but still a 21-percent increase year to year.

Wheat Market Outlook

Fourth-quarter inspections of wheat destined to Japan reached 0.383 million metric tons (mmt) in 2022, according to FGIS. Fourth-quarter wheat exports to Japan—accounting for 11 percent of total U.S. wheat exports—decreased 19 percent from year to year. For all of 2022, annual exports of U.S. wheat to Japan totaled 2.1 mmt, 11 percent of total U.S. wheat exports. This total was down 9 percent from 2021.

In 2022, U.S. wheat inspected for export totaled about 20 mmt, down 13 percent from 2021, reflecting reduced shipments destined to Asia, according to FGIS. According to USDA's March *World Agricultural Supply and Demand Estimates*, wheat exports for marketing year (MY) 2022/23 are projected to be 775 million bushels—a 3-percent decrease from MY 2021/22. If this projection comes to pass, the wheat exports total for MY 2022/23 will be the lowest since MY 1971/72 (USDA, Economic Research Service (ERS)).

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Grain Transportation Indicators

Table 1

Grain transport cost indicators[1]

	Truck	Rail		Barge	Ocean	
For the week ending		Non-Shuttle	Shuttle		Gulf	Pacific
03/29/23	277	326	250	317	233	206
03/22/23	281	326	250	294	239	216

[1]Indicator: 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: U.S. origins to export position price spreads ($/bushel)

Commodity	Origin–destination	3/24/2023	3/17/2023
Corn	IL–Gulf	-0.95	-0.91
Corn	NE–Gulf	-0.70	-0.68
Soybean	IA–Gulf	-1.45	-1.42
HRW	KS–Gulf	-2.22	-2.13
HRS	ND–Portland	-1.98	-1.92

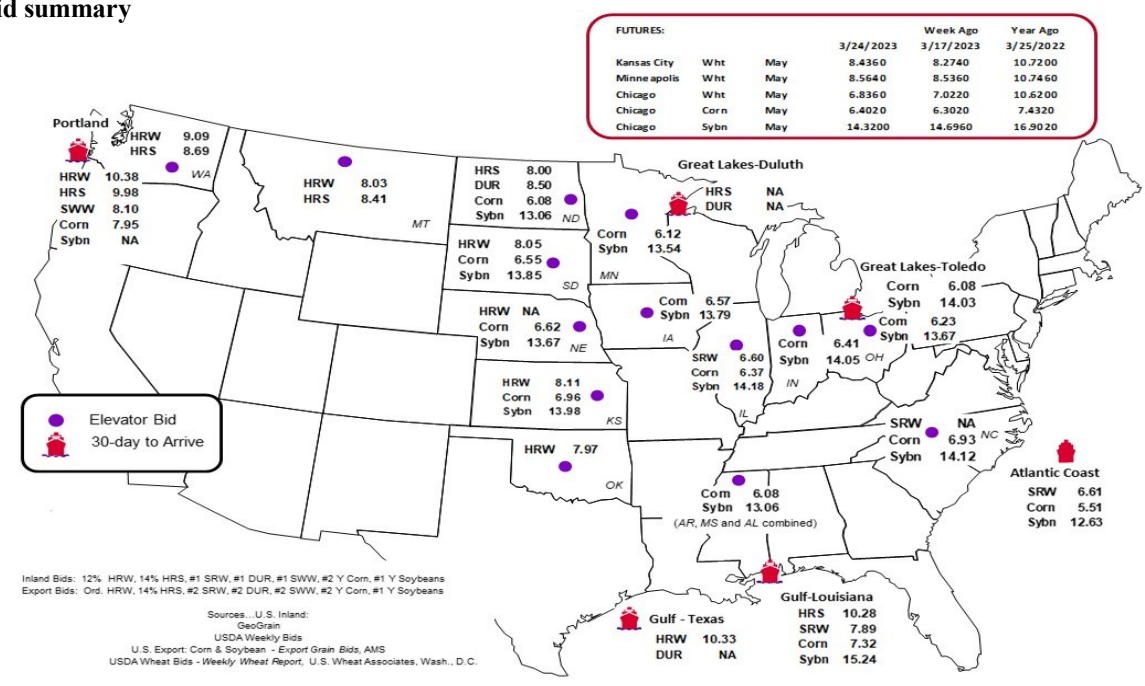
Note: nq = no quote; n/a = not available; HRW = hard red winter wheat; HRS = hard red spring wheat.

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 market supply and demand. The map may be used to monitor market and time differentials.

Figure 1

Grain bid summary



Rail Transportation

Table 3

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

For the week ending:	East		West			U.S. total	Canada	
3/18/2023	CSXT	NS	BNSF	KCS	UP		CN	CP
This week	1,708	2,376	8,332	1,321	5,006	18,743	4,218	3,955
This week last year	1,881	2,203	11,644	1,177	6,277	23,182	3,004	3,961
2023 YTD	22,441	30,326	112,195	14,584	62,657	242,203	57,500	49,379
2022 YTD	20,503	25,155	129,298	14,335	69,630	258,921	38,451	41,032
2023 YTD as % of 2022 YTD	109	121	87	102	90	94	150	120
Last 4 weeks as % of 2022*	102	111	74	110	95	87	137	101
Last 4 weeks as % of 3-yr. avg.**	106	111	71	116	99	87	127	89
Total 2022	93,313	130,259	570,232	66,338	296,945	1,157,087	214,298	214,010

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

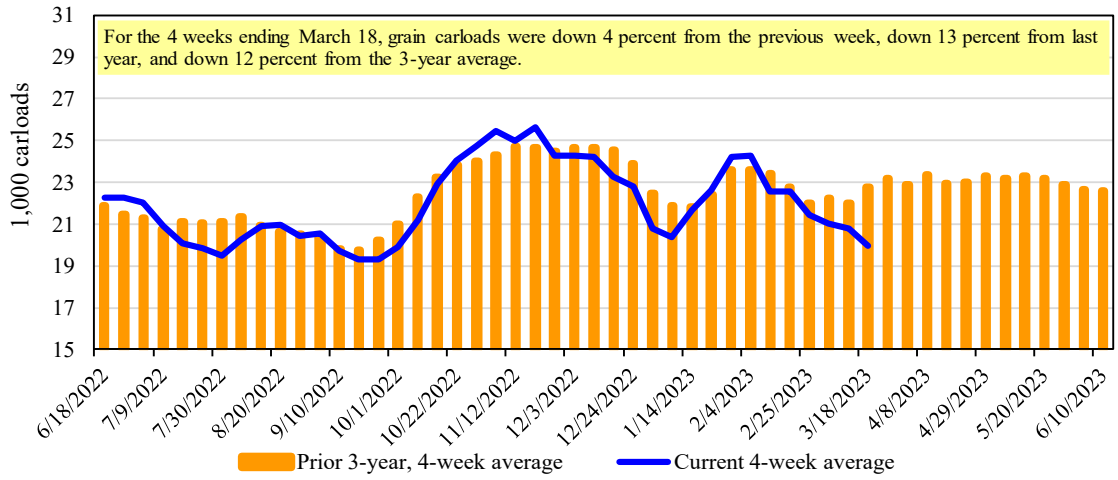
**The past 4 weeks as a percent of the same period from the prior 3-year average. YTD = year-to-date; avg. = average; yr. = year.

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

Source: Association of American Railroads.

Figure 2

Total weekly U.S. Class I railroad grain carloads



Source: Association of American Railroads.

Table 4

Railcar auction offerings[1] ($/car)[2]

For the week ending:		Delivery period							
3/23/2023		Apr-23	Apr-22	May-23	May-22	Jun-23	Jun-22	Jul-23	Jul-22
BNSF[3]	COT grain units	0	0	no bids	0	no bids	0	no bids	0
	COT grain single-car	no offer	363	no offer	16	53	0	7	0
UP[4]	GCAS/Region 1	n/a	no offer	n/a	no offer	n/a	no offer	n/a	n/a
	GCAS/Region 2	n/a	no offer	n/a	no offer	n/a	no offer	n/a	n/a

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

[2]Average 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.

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

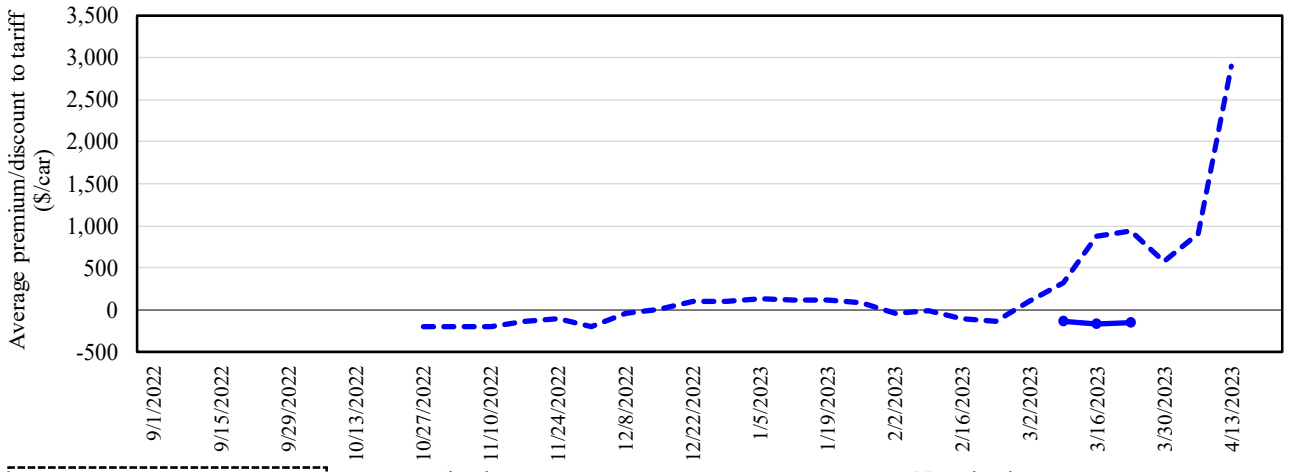
Region 1 includes: AR, IL, LA, MO, NM, OK, TX, WI, and Duluth, MN.

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.

Figure 3
Secondary market bids/offers for railcars to be delivered in April 2023

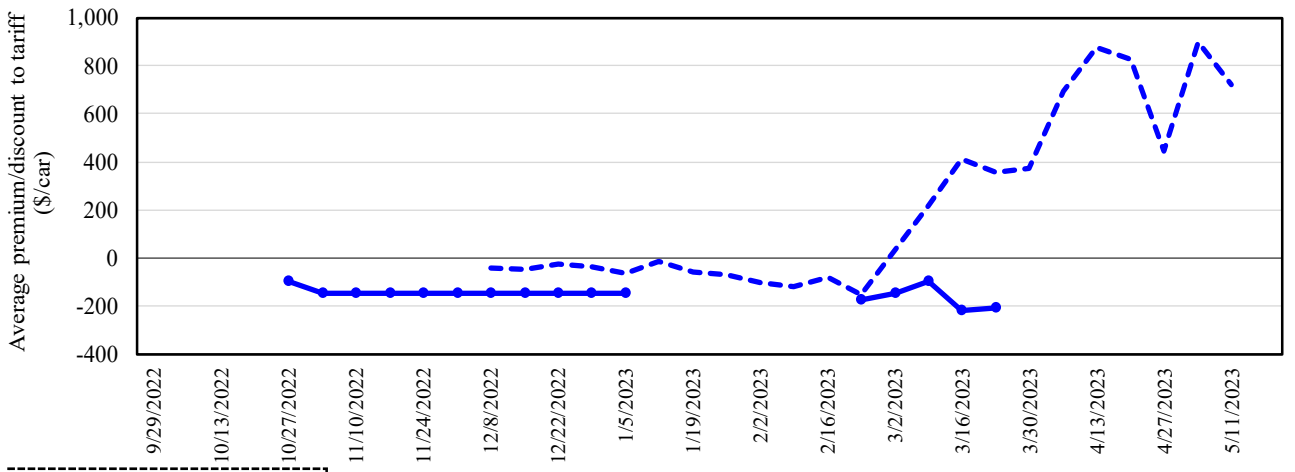


3/23/2023	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$88	-$213

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers rose $22 this week and are $8 below the peak.

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



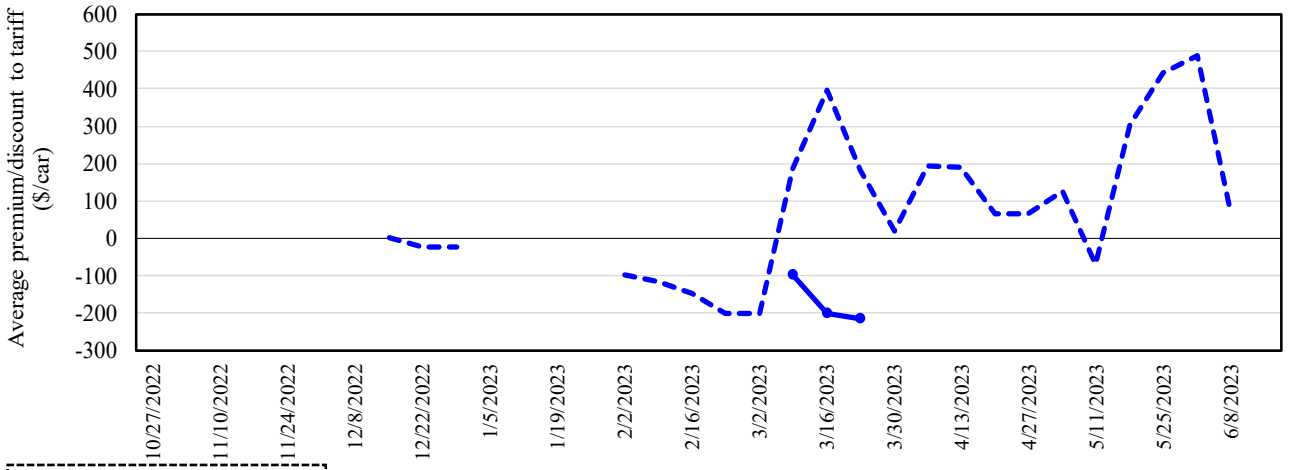
3/23/2023	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$188	-$225

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers rose $13 this week and are $106 below the peak.

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 5

Secondary market bids/offers for railcars to be delivered in June 2023



3/23/2023	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$233	-$200

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers fell $17 this week and are $117 below the peak.

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: 3/23/2023	Delivery period					
		Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23
Non-shuttle	**BNSF-GF**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
	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
	UP-Pool	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
	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
Shuttle	**BNSF-GF**	**(88)**	**(188)**	**(233)**	**(233)**	**(200)**	**(200)**
	Change from last week	56	26	(133)	(108)	(50)	n/a
	Change from same week 2022	(2,225)	(1,338)	(765)	(533)	(250)	(611)
	UP-Pool	**(213)**	**(225)**	**(200)**	**(233)**	**(100)**	**n/a**
	Change from last week	(13)	0	100	n/a	0	n/a
	Change from same week 2022	(3,588)	(1,475)	n/a	n/a	n/a	n/a

[1]Average 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 shipments[1]

March 2023	Origin region[3]	Destination region[3]	Tariff rate/car	Fuel surcharge per car	Tariff plus surcharge per: metric ton	Tariff plus surcharge per: bushel[2]	Percent change Y/Y[4]
Unit train							
Wheat	Wichita, KS	St. Louis, MO	$3,695	$253	$39.21	$1.07	2
	Grand Forks, ND	Duluth-Superior, MN	$3,858	$101	$39.32	$1.07	7
	Wichita, KS	Los Angeles, CA	$7,490	$520	$79.55	$2.16	7
	Wichita, KS	New Orleans, LA	$4,600	$445	$50.10	$1.36	7
	Sioux Falls, SD	Galveston-Houston, TX	$7,226	$427	$76.00	$2.07	7
	Colby, KS	Galveston-Houston, TX	$4,850	$488	$53.00	$1.44	6
	Amarillo, TX	Los Angeles, CA	$5,121	$679	$57.59	$1.57	4
Corn	Champaign-Urbana, IL	New Orleans, LA	$4,000	$503	$44.72	$1.14	4
	Toledo, OH	Raleigh, NC	$8,551	$559	$90.47	$2.30	7
	Des Moines, IA	Davenport, IA	$2,655	$107	$27.42	$0.70	7
	Indianapolis, IN	Atlanta, GA	$6,593	$420	$69.64	$1.77	8
	Indianapolis, IN	Knoxville, TN	$5,564	$272	$57.95	$1.47	7
	Des Moines, IA	Little Rock, AR	$4,250	$313	$45.31	$1.15	8
	Des Moines, IA	Los Angeles, CA	$6,130	$912	$69.93	$1.78	9
Soybeans	Minneapolis, MN	New Orleans, LA	$3,856	$774	$45.98	$1.25	13
	Toledo, OH	Huntsville, AL	$7,037	$398	$73.84	$2.01	6
	Indianapolis, IN	Raleigh, NC	$7,843	$567	$83.51	$2.27	8
	Indianapolis, IN	Huntsville, AL	$5,689	$269	$59.17	$1.61	7
	Champaign-Urbana, IL	New Orleans, LA	$4,865	$503	$53.31	$1.45	7
Shuttle train							
Wheat	Great Falls, MT	Portland, OR	$4,393	$299	$46.60	$1.27	9
	Wichita, KS	Galveston-Houston, TX	$4,311	$233	$45.12	$1.23	1
	Chicago, IL	Albany, NY	$7,090	$528	$75.65	$2.06	8
	Grand Forks, ND	Portland, OR	$6,051	$517	$65.22	$1.78	9
	Grand Forks, ND	Galveston-Houston, TX	$5,399	$538	$58.96	$1.60	10
	Colby, KS	Portland, OR	$5,923	$800	$66.76	$1.82	4
Corn	Minneapolis, MN	Portland, OR	$5,660	$629	$62.46	$1.59	12
	Sioux Falls, SD	Tacoma, WA	$5,620	$576	$61.53	$1.56	12
	Champaign-Urbana, IL	New Orleans, LA	$4,170	$503	$46.41	$1.18	10
	Lincoln, NE	Galveston-Houston, TX	$4,360	$336	$46.63	$1.18	12
	Des Moines, IA	Amarillo, TX	$4,670	$394	$50.28	$1.28	8
	Minneapolis, MN	Tacoma, WA	$5,660	$624	$62.41	$1.59	12
	Council Bluffs, IA	Stockton, CA	$5,580	$646	$61.82	$1.57	13
Soybeans	Sioux Falls, SD	Tacoma, WA	$6,350	$576	$68.78	$1.87	11
	Minneapolis, MN	Portland, OR	$6,400	$629	$69.80	$1.90	11
	Fargo, ND	Tacoma, WA	$6,250	$512	$67.15	$1.83	10
	Council Bluffs, IA	New Orleans, LA	$5,095	$580	$56.36	$1.53	8
	Toledo, OH	Huntsville, AL	$5,277	$398	$56.36	$1.53	9
	Grand Island, NE	Portland, OR	$5,730	$819	$65.03	$1.77	13

[1]A 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.

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

[4]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 shipments to Mexico

Date: December 2022							
					Tariff rate plus fuel surcharge per:		Percent change[4]
Commodity	Origin state	Destination region	Tariff rate per car[1]	Fuel surcharge 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
	TX	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	MO	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

[1]Rates 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.

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

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

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

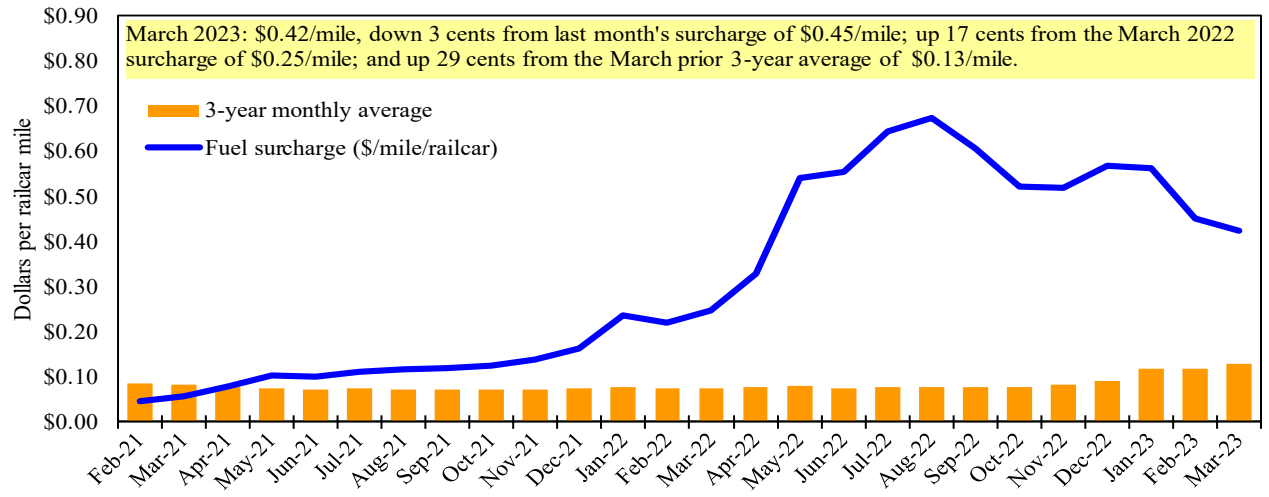
[5] As of January 1, both BNSF and Union Pacific changed their billing and reporting of rates to Mexico.

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 average[1]

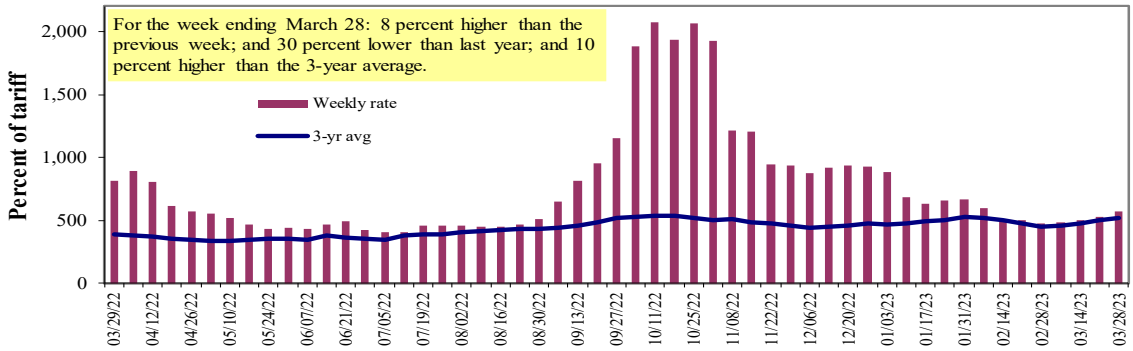


[1] Weighted by each Class I railroad's proportion of grain traffic for the prior year.

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

Barge Transportation

Figure 7
Illinois River barge freight rate[1,2]



[1]Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); [2]4-week moving average of the 3-year average.
Source: USDA, Agricultural Marketing Service.

Table 8
Weekly barge freight rates: Southbound only

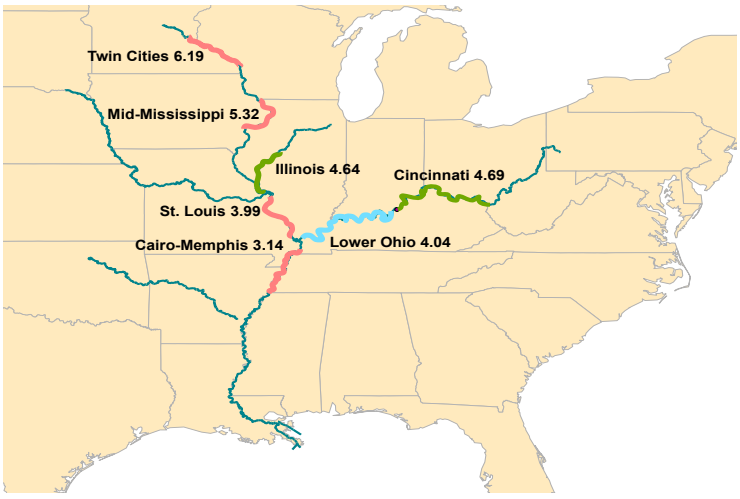
		Twin Cities	Mid-Mississippi	Lower Illinois River	St. Louis	Cincinnati	Lower Ohio	Cairo-Memphis
Rate[1]	3/28/2023	593	584	571	439	435	435	362
	3/21/2023	551	548	530	436	430	430	338
$/ton	3/28/2023	36.71	31.07	26.49	17.52	20.40	17.57	11.37
	3/21/2023	34.11	29.15	24.59	17.40	20.17	17.37	10.61
Current week % change from the same week:								
	Last year	-34	-31	-30	-37	-45	-45	-41
	3-year avg. [2]	1	8	10	6	-7	-7	-2
Rate[1]	April	571	563	545	405	411	411	331
	June	522	498	486	369	386	386	303

[1]Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); [2]4-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

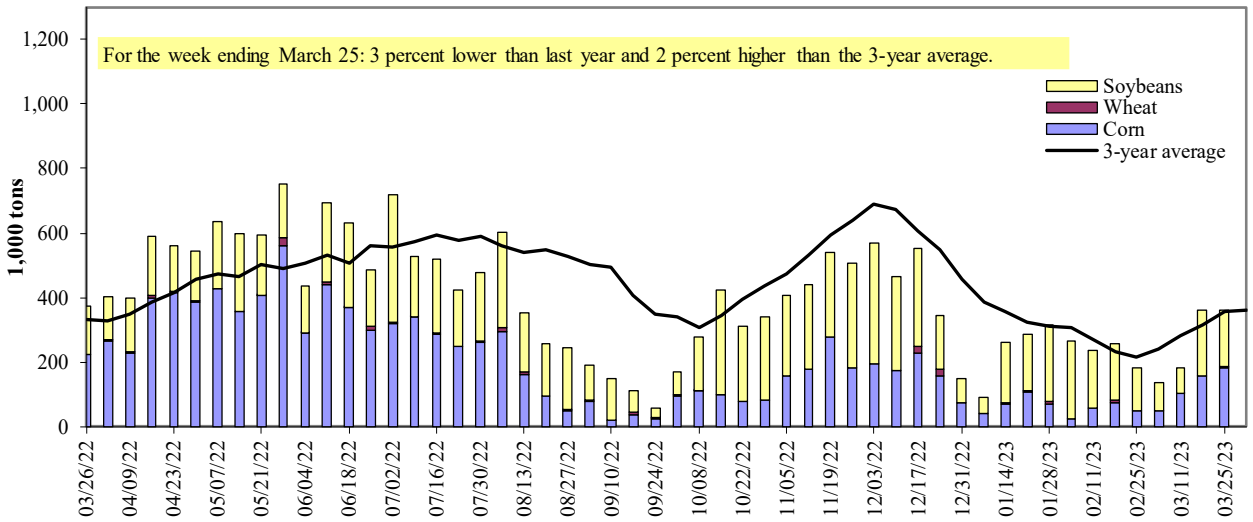
Select applicable index from market quotes are included in tables on this page. The 1976 benchmark rates per ton are provided in map.



Map Credit: USDA, Agricultural Marketing Service

Figure 9

Barge movements on the Mississippi River[1] (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 03/25/2023	Corn	Wheat	Soybeans	Other	Total
Mississippi River					
Rock Island, IL (L15)	11	0	8	0	19
Winfield, MO (L25)	94	5	93	0	192
Alton, IL (L26)	187	2	134	0	323
Granite City, IL (L27)	181	5	177	0	362
Illinois River (La Grange)	114	0	45	0	159
Ohio River (Olmsted)	187	0	70	11	268
Arkansas River (L1)	0	15	6	0	21
Weekly total - 2023	367	20	253	11	651
Weekly total - 2022	455	39	288	23	805
2023 YTD[1]	2,621	286	3,504	91	6,501
2022 YTD[1]	3,870	329	2,825	58	7,083
2023 as % of 2022 YTD	68	87	124	156	92
Last 4 weeks as % of 2022[2]	67	82	94	68	77
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.

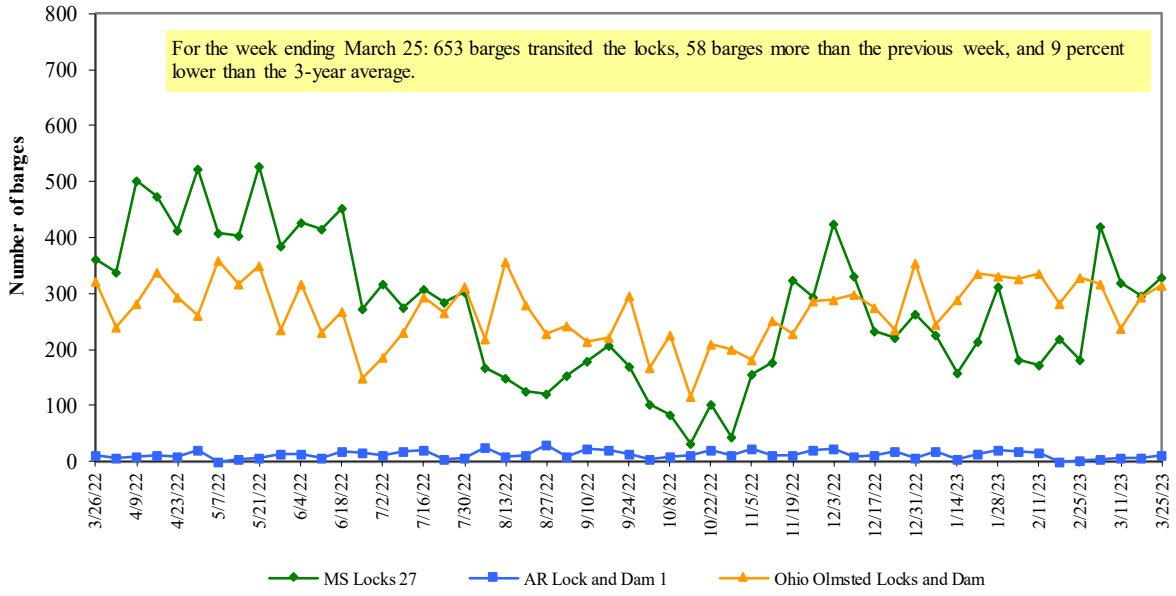
[2] As a percent of same period in 2022.

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

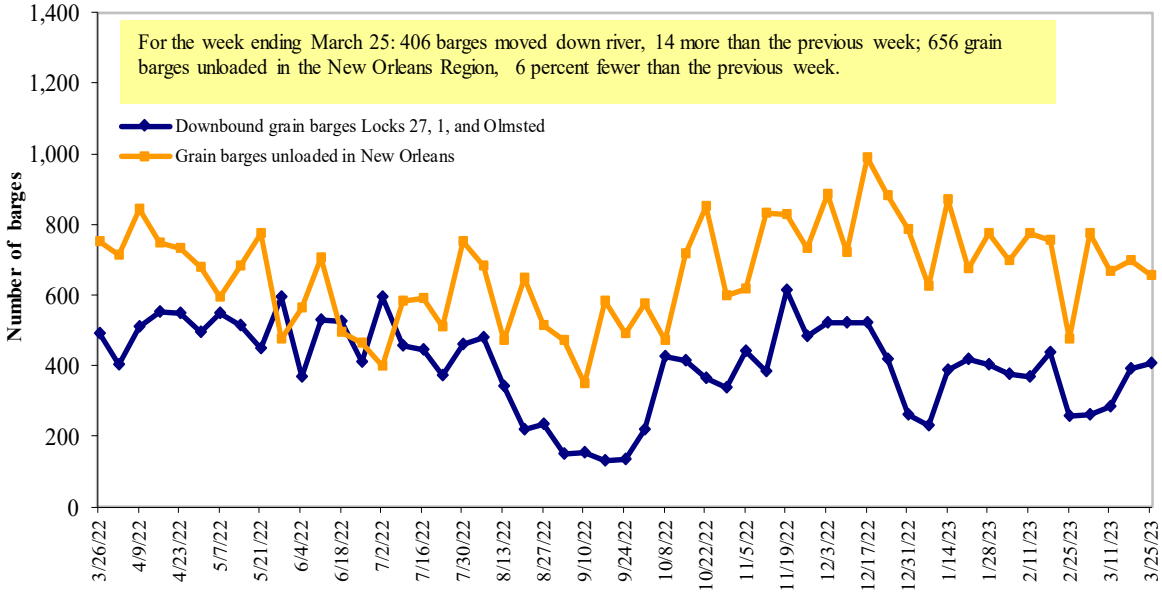


Note: The U.S. Army Corps of Engineers has recently migrated its lock and vessel database and has noted the latest data may be revised in coming weeks.

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.

Truck Transportation

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 3/27/2023 (U.S. $/gallon)

Region	Location	Price	Change from Week ago	Change from Year ago
I	East Coast	4.241	-0.068	-1.008
	New England	4.611	-0.046	-0.698
	Central Atlantic	4.551	-0.096	-0.849
	Lower Atlantic	4.087	-0.061	-1.058
II	Midwest	3.974	-0.047	-1.020
III	Gulf Coast	3.882	-0.048	-1.090
IV	Rocky Mountain	4.231	-0.119	-0.813
V	West Coast	4.803	-0.059	-1.071
	West Coast less California	4.488	-0.027	-0.914
	California	5.165	-0.095	-1.124
Total	United States	4.128	-0.057	-1.057

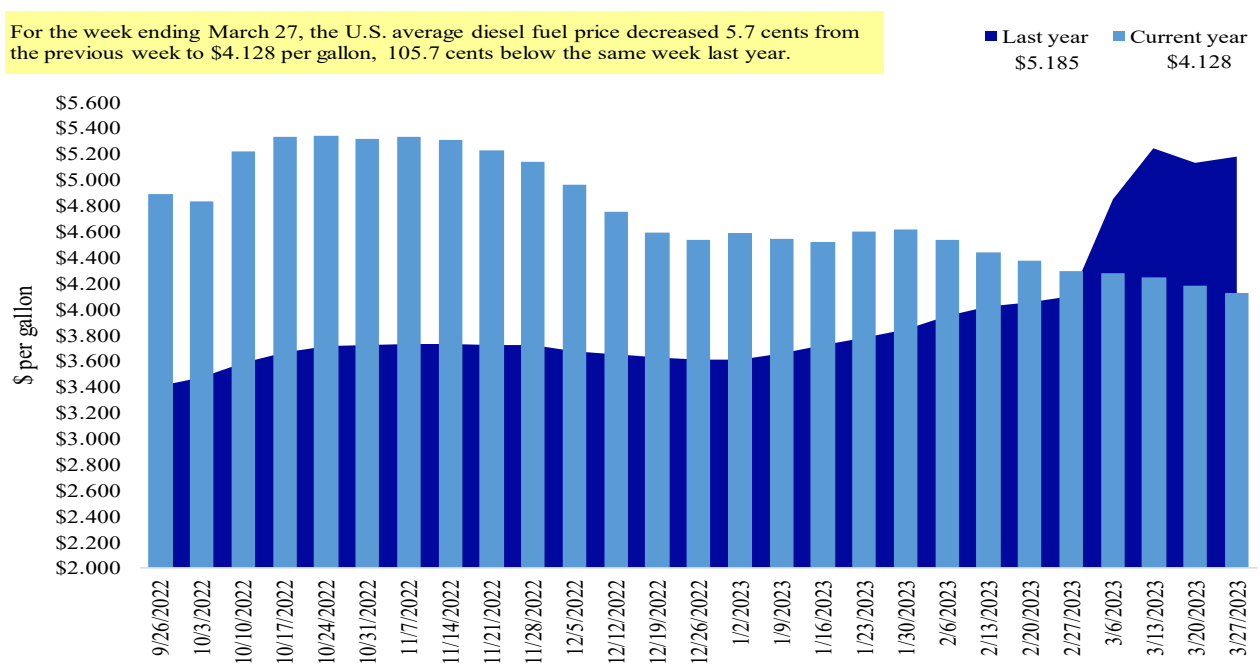
[1]Diesel fuel prices include all taxes. Prices represent an average of all types of diesel fuel.

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.

Figure 12

Weekly diesel fuel prices, U.S. average



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)

	Wheat						Corn	Soybeans	Total
For the week ending	HRW	SRW	HRS	SWW	DUR	All wheat			
Export balances[1]									
3/16/2023	697	491	925	772	78	2,963	16,354	5,944	25,261
This week year ago	1,587	568	1,067	504	19	3,744	22,719	11,162	37,625
Cumulative exports-marketing year[2]									
2022/23 YTD	4,162	2,244	4,487	3,718	291	14,901	18,587	43,534	77,021
2021/22 YTD	5,873	2,188	4,112	2,803	170	15,147	30,298	42,875	88,319
YTD 2022/23 as % of 2021/22	71	103	109	133	171	98	61	102	87
Last 4 wks. as % of same period 2021/22	43	96	90	172	312	83	66	59	65
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 importers[1] of U.S. corn

For the week ending 3/16/2023	Total commitments[2] 2022/23 current MY	2021/22 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2019-21
		1,000 mt -		
Mexico	13,316	14,648	(9)	15,227
China	6,805	12,142	(44)	12,616
Japan	4,612	8,131	(43)	10,273
Columbia	1,529	3,644	(58)	4,398
Korea	766	474	62	2,563
Top 5 importers	**27,029**	**39,039**	(31)	**45,077**
Total U.S. corn export sales	**34,941**	**53,017**	(34)	**56,665**
% of projected exports	74%	84%		
Change from prior week[2]	**3,096**	**979**		
Top 5 importers' share of U.S. corn export sales	77%	74%		80%
USDA forecast March 2023	**47,074**	**62,875**	(25)	
Corn use for ethanol USDA forecast, March 2023	**133,350**	**135,281**	(1)	

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

[2]Cumulative 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.

[3]FAS marketing year ranking reports (carryover plus accumulated export); yr. = year; avg. = average.

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

Source: USDA, Foreign Agricultural Service.

Table 13

Top 5 importers[1] of U.S. soybeans

For the week ending 3/16/2023	Total commitments[2] 2022/23 current MY	2021/22 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2019-21
				- 1,000 mt -
China	30,676	27,719	11	27,283
Mexico	4,197	4,881	(14)	4,929
Egypt	1,007	3,426	(71)	3,553
Japan	1,822	1,830	(0)	2,266
Indonesia	1,093	1,268	(14)	2,116
Top 5 importers	**38,795**	**39,123**	(1)	**40,147**
Total U.S. soybean export sales	**49,478**	**54,036**	(8)	**54,231**
% of projected exports	90%	92%		
change from prior week[2]	**152**	**412**		
Top 5 importers' share of U.S. soybean export sales	78%	72%		**74%**
USDA forecast, March 2023	**54,905**	**58,801**	(7)	

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

[2]Cumulative 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 previous week's outstanding sales and/or accumulated sales.

[3]FAS marketing year ranking reports (carryover plus accumulated export); yr. = year; avg. = average.

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

Source: USDA, Foreign Agricultural Service.

Table 14

Top 10 importers[1] of all U.S. wheat

For the week ending 3/16/2023	Total Commitments[2] 2022/23 current MY	2021/22 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2019-21
		1,000 mt -		- 1,000 mt -
Mexico	3,076	3,439	(11)	3,566
Philippines	2,169	2,720	(20)	2,985
Japan	2,091	2,353	(11)	2,453
China	1,029	848	21	1,537
Nigeria	752	1,987	(62)	1,528
Korea	1,256	1,200	5	1,459
Taiwan	754	873	(14)	1,106
Indonesia	335	67	401	711
Thailand	624	542	15	703
Colombia	501	673	(26)	621
Top 10 importers	**12,587**	**14,702**	(14)	**16,669**
Total U.S. wheat export sales	**17,864**	**18,891**	(5)	**22,763**
% of projected exports	85%	87%		
change from prior week[2]	**126**	**156**		
Top 10 importers' share of U.S. wheat export sales	70%	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.

[2] Cumulative 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 final reports (carryover plus accumulated export); yr. = year; avg. = average.

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

Source: USDA, Foreign Agricultural Service.

Table 15

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

Port regions	For the week ending 03/23/23	Previous week*	Current week as % of previous	2023 YTD*	2022 YTD*	2023 YTD as % of 2022 YTD	Last 4-weeks as % of: Last year	Last 4-weeks as % of: Prior 3-yr. avg.	2022 total*
Pacific Northwest									
Wheat	237	255	93	3,053	2,528	121	110	77	9,836
Corn	1	199	0	748	3,011	25	25	20	9,615
Soybeans	0	0	n/a	3,298	3,612	91	0	0	14,178
Total	**238**	**454**	**52**	**7,099**	**9,152**	**78**	**48**	**39**	**33,629**
Mississippi Gulf									
Wheat	99	40	247	658	907	73	83	105	4,053
Corn	509	766	66	5,308	10,191	52	71	76	30,781
Soybeans	702	553	127	9,929	6,889	144	134	153	31,283
Total	**1,309**	**1,358**	**96**	**15,894**	**17,987**	**88**	**89**	**97**	**66,116**
Texas Gulf									
Wheat	0	69	0	518	750	69	69	40	3,421
Corn	0	15	0	68	141	48	57	34	648
Soybeans	0	0	n/a	52	2	n/a	0	0	685
Total	**0**	**85**	**0**	**638**	**893**	**71**	**67**	**38**	**4,754**
Interior									
Wheat	77	31	248	645	682	95	99	105	2,912
Corn	140	191	73	2,151	2,147	100	89	91	8,961
Soybeans	164	128	129	1,994	1,793	111	97	106	7,109
Total	**381**	**349**	**109**	**4,790**	**4,622**	**104**	**93**	**99**	**18,982**
Great Lakes									
Wheat	1	0	n/a	51	24	213	207	489	395
Corn	0	0	n/a	0	0	n/a	n/a	n/a	158
Soybeans	0	0	n/a	2	0	n/a	n/a	n/a	760
Total	**1**	**0**	**n/a**	**53**	**24**	**222**	**207**	**489**	**1,312**
Atlantic									
Wheat	0	0	n/a	36	4	803	n/a	8	169
Corn	5	0	n/a	44	43	103	92	275	309
Soybeans	69	77	89	1,050	770	136	115	197	2,867
Total	**73**	**77**	**95**	**1,130**	**817**	**138**	**114**	**186**	**3,345**
U.S. total from ports*									
Wheat	413	395	105	4,961	4,896	101	98	78	20,786
Corn	655	1,171	56	8,318	15,533	54	65	65	50,471
Soybeans	935	757	124	16,325	13,066	125	101	120	56,882
Total	**2,003**	**2,323**	**86**	**29,604**	**33,494**	**88**	**80**	**81**	**128,139**

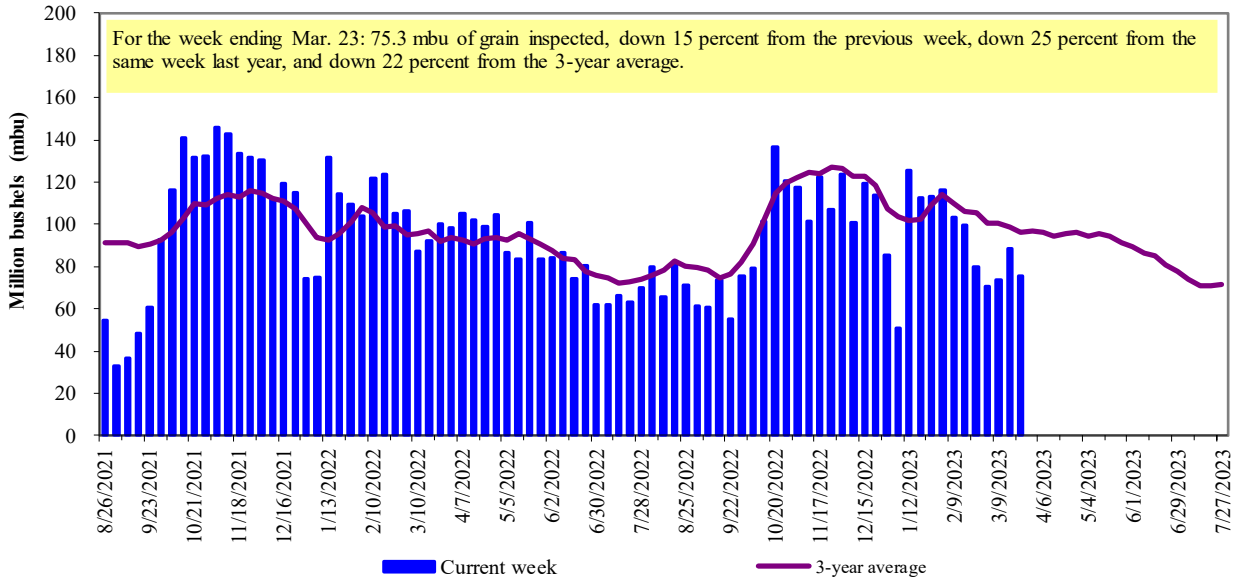
*Data includes revisions from prior weeks; some regional totals may not add exactly due to rounding.

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.

Figure 13

U.S. grain inspected for export (wheat, corn, and soybeans)

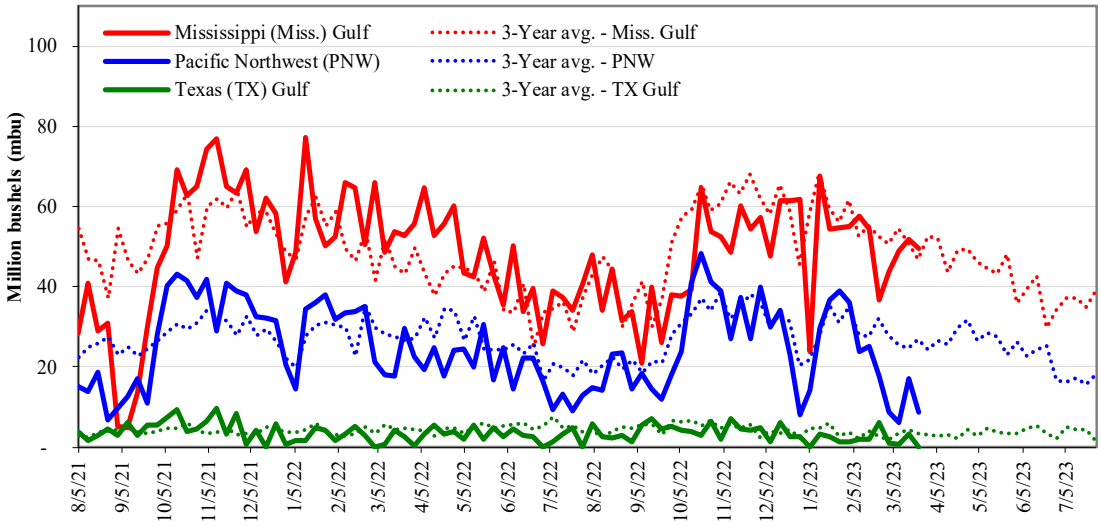


Note: 3-year average consists of 4-week running average.

Source: USDA, Federal Grain Inspection Service.

Figure 14

U.S. Grain inspections: U.S. Gulf and PNW[1] (wheat, corn, and soybeans)



Week ending 03/23/23 inspections (mbu):	
MS Gulf:	49.5
PNW:	8.7
TX Gulf:	0.0

Percent change	MS Gulf	TX	U.S. Gulf	PNW
Last wk:	down 5	down 100	down 10	down 49
Last Year (same wk):	down 6	down 100	down 11	down 71
3-yr avg. (4-wk. mov. Avg):	down 2	down 100	down 8	down 67

Source: USDA, Federal Grain Inspection Service.

Table 16

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

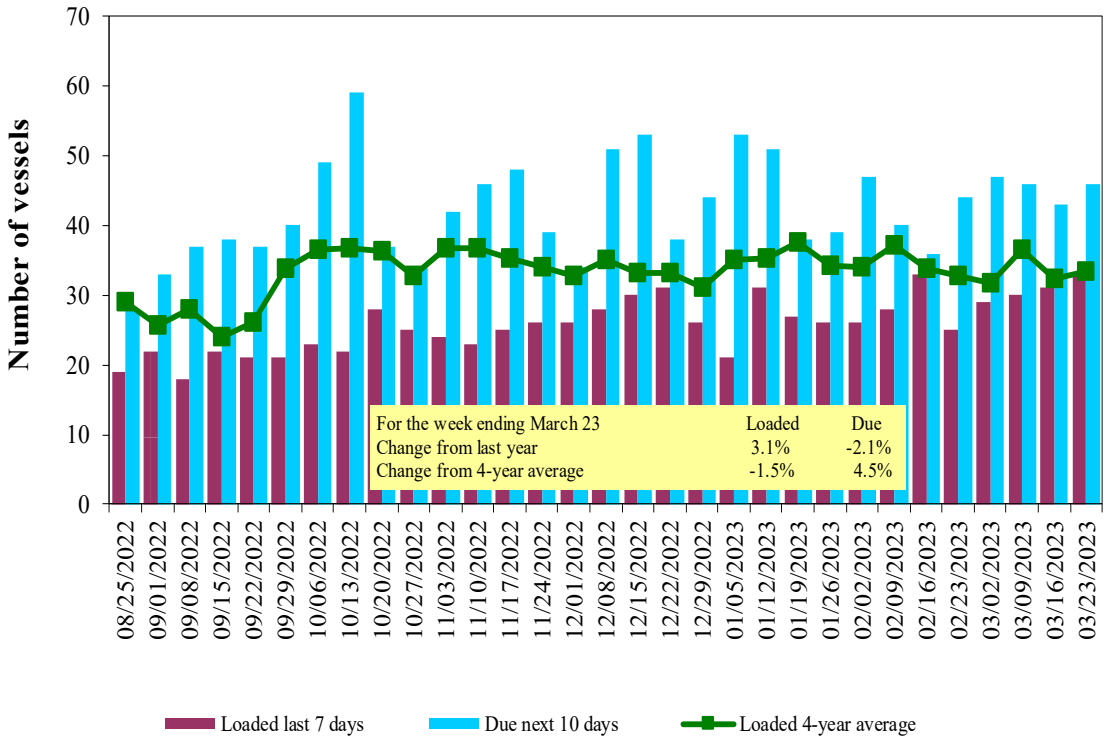
	Gulf			Pacific Northwest
Date	In port	Loaded 7-days	Due next 10-days	In port
3/23/2023	21	33	46	4
3/16/2023	19	31	43	6
2022 range	(14…61)	(18…39)	(28...62)	(5…23)
2022 average	30	28	44	13

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

Source: USDA, Agricultural Marketing Service.

Figure 15

U.S. Gulf[1] vessel loading activity

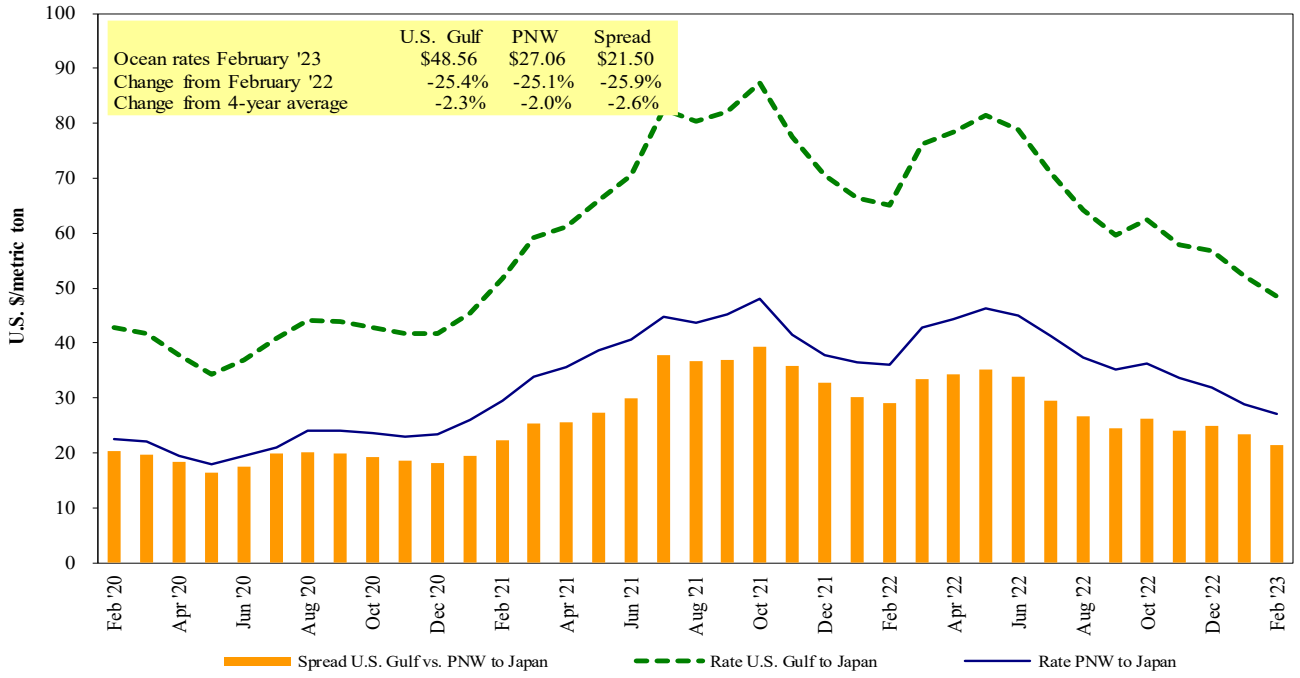


[1]U.S. Gulf includes Mississippi, Texas, and East Gulf.

Source: USDA, Agricultural Marketing Service.

Figure 16

Grain vessel rates, U.S. to Japan



Note: PNW = Pacific Northwest.

Source: O'Neil Commodity Consulting.

Table 17

Ocean freight rates for selected shipments, week ending 03/25/2023

Export region	Import region	Grain types	Loading date	Volume loads (metric tons)	Freight rate (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
Australia	Vietnam	Heavy grain	Feb 24/Apr 9, 2023	60,000	20.80

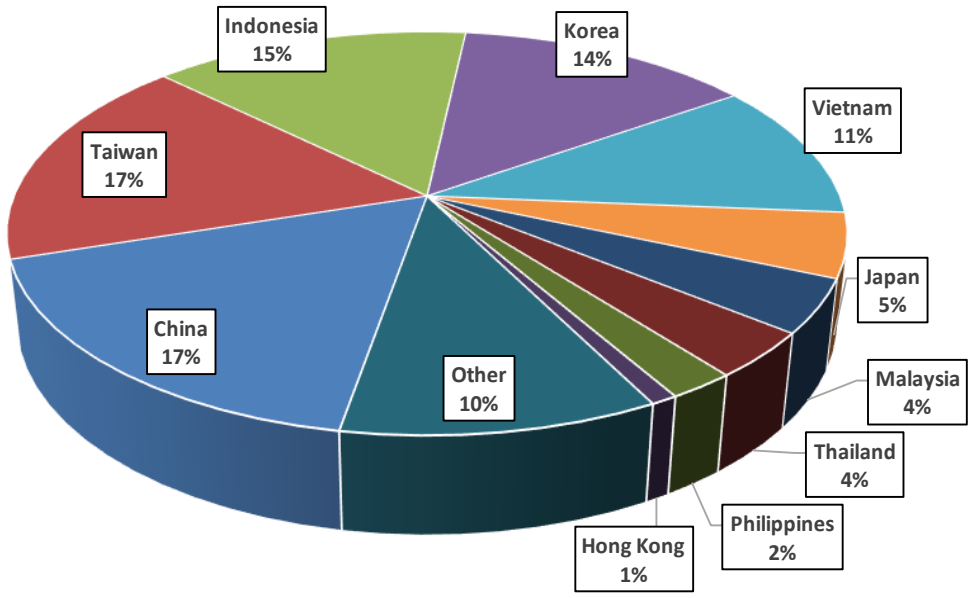
*50 percent of food aid from the United States is required to be shipped on U.S.-flag vessels.

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.

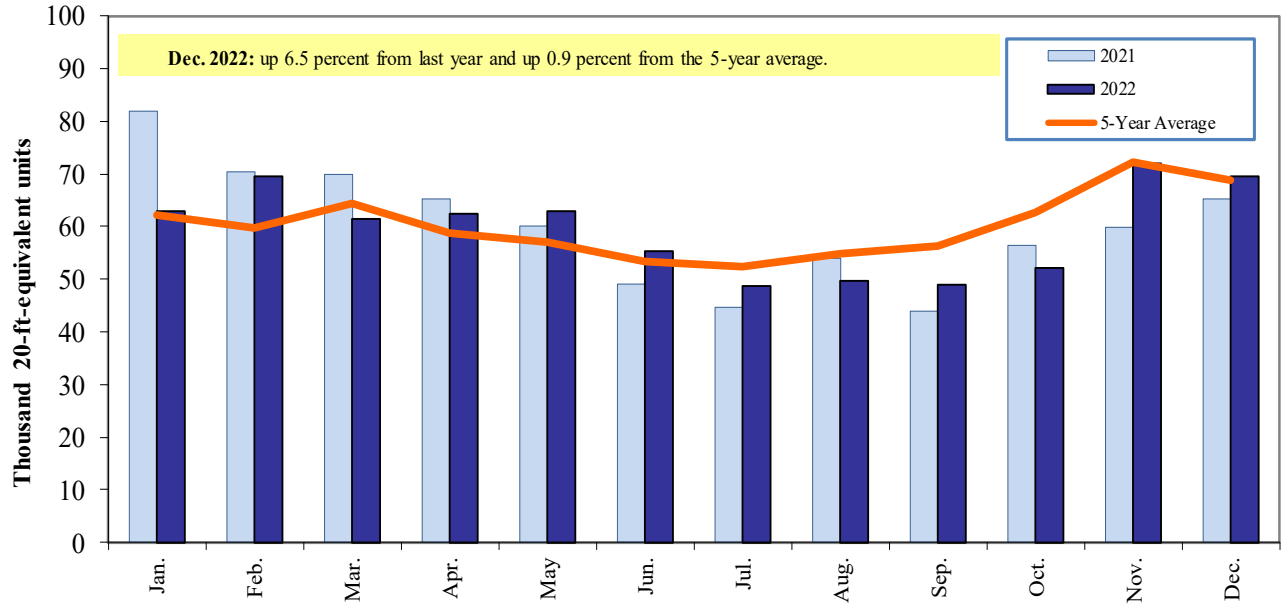
Figure 17
Top 10 destination markets for U.S. containerized grain exports, Jan-Dec 2022



Note: The following Harmonized Tariff Codes are used to calculate containerized grains movements: '1001', '100190', '1002', '100200', '1003', '100300', '1004', '100400', '1005', '100590', '1007', '100700', '110100', '1102', '110220', '110290', '1201', '120100', '120190', '120810', '230210', '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', '1002', '100200', '1003', '100300', '1004', '100400', '1005', '100590', '1007', '100700', '110100', '1102', '110220', '110290', '1201', '120100', '120190', '120810', '230210', '230310', '230330', '2304', and '230990'.

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

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Preferred citation: U.S. Department of Agriculture, Agricultural Marketing Service. *Grain Transportation Report.* March 30, 2023. Web: **http://dx.doi.org/10.9752/TS056.03-30-2023**