USDA United States Department of Agriculture

Grain Transportation Report

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

March 16, 2023

Contents

The next release is March 23, 2023

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WEEKLY HIGHLIGHTS

STB Approves First Class I Rail Merger in Over 20 Years—With Conditions

On March 15, 2023, the Surface Transportation Board (STB) approved the proposed Class I railroad merger between Canadian Pacific Railway (CP) and Kansas City Southern Railway (KCS). Canadian Pacific Kansas City (CPKC) will provide the first-ever single-line service spanning Canada, the United States, and Mexico. STB anticipates two benefits of note to grain shippers: the merger is expected to facilitate the flow of grain from the Midwest to the Gulf Coast and Mexico and to enhance competition for traffic with other Class I railroads. However, to mitigate concerns over potential negative effects on competition, STB placed conditions on its approval of the merger. The conditions include keeping gateways to other Class I railroads open on commercially reasonable terms, submitting certain service data to assist STB in monitoring the merger, and submitting "Service Action Plans" to STB to address specific service issues if they arise. Requests for stay (i.e., to stop some aspect of the merger) and petitions for reconsideration must be filed with STB by March 27 and April 4, respectively. STB's decision becomes effective on April 14, 2023.

Kansas To Invest in Nine Short Line Rail Projects

On February 28, the Kansas Governor announced that nine short line rail maintenance and rehabilitation projects will be awarded nearly $5 million as a part of the State's Short Line Rail Improvement Fund (SLRIF) program. The rail improvement projects are intended to strengthen Kansas's agricultural supply chain by connecting farmers to regional, national, and international markets. Six SLRIF recipients will use the funds for major track rehabilitation and rail replacement, and three recipients will use the funds for siding extensions and storage tracks. Each recipient will provide a 30-percent match, resulting in a total investment of nearly $6.5 million. Short lines provide rail access for rural grain producers and reduce overall reliance on trucks (resulting in lower emissions and less road/highway congestion and maintenance). However, government funding is often needed to provide adequate resources to maintain short line tracks.

First Segment of Houston Ship Channel Expansion Project Completed

On February 6, the Port of Houston announced the completion of the first section of the Houston Ship Channel expansion project, also known as Project 11. The newly completed section constitutes a deepening and widening of the 11.5 mile-channel and is expected to help increase safety, reduce congestion, and improve vessel transit times by approximately an hour, by reducing daylight restrictions. Project 11 was first announced in June of last year (*Grain Transportation Report,* June 16, 2022), and is scheduled for completion in 2025. The Port of Houston handled 5 percent of total U.S. exported bulk grains, soybeans, and grain products in 2020.

Snapshots by Sector

Export Sales

For the week ending March 2, **unshipped balances** of wheat, corn, and soybeans for marketing year (MY) 2022/23 totaled 24.29 million metric tons (mmt), down 35 percent from the same time last year and down 1 percent from last week. Net **corn export sales** for MY 2022/23 were 1.412 mmt, up significantly from last week. Net **soybean export sales** were -0.023 mmt, down significantly from last week. Net weekly **wheat export sales** were 0.267 mmt, down 6 percent from last week.

Rail

U.S. Class I railroads originated 20,521 **grain carloads** during the week ending March 4. This was unchanged from the previous week, 17 percent fewer than last year, and 15 percent fewer than the 3-year average.

Average March **shuttle secondary railcar bids/offers** (per car) were $159 below tariff for the week ending March 9. This was $60 more than last week and $1,609 lower than this week last year.

Barge

For the week ending March 11, **barged grain movements** totaled 438,250 tons. This was 9 percent higher than the previous week and 23 percent lower than the same period last year.

For the week ending March 11, 285 grain barges **moved down river**—23 more than last week. There were 666 grain barges **unloaded** in the New Orleans region, 14 percent fewer than last week.

Ocean

For the week ending March 9, 30 **oceangoing grain vessels** were loaded in the Gulf—6 percent fewer than the same period last year. Within the next 10 days (starting March 10), 46 vessels were expected to be loaded—21 percent fewer than the same period last year.

As of March 9, the rate for shipping a metric ton (mt) of grain from the U.S. Gulf to Japan was $52.50. This was unchanged from the previous week. The rate from the Pacific Northwest to Japan was $29.50 per mt, 2 percent more than the previous week.

Fuel

For the week ending March 13, the U.S. average **diesel fuel price** decreased 3.5 cents from the previous week to $4.247 per gallon, 100.3 cents below the same week last year.

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Feature Article/Calendar

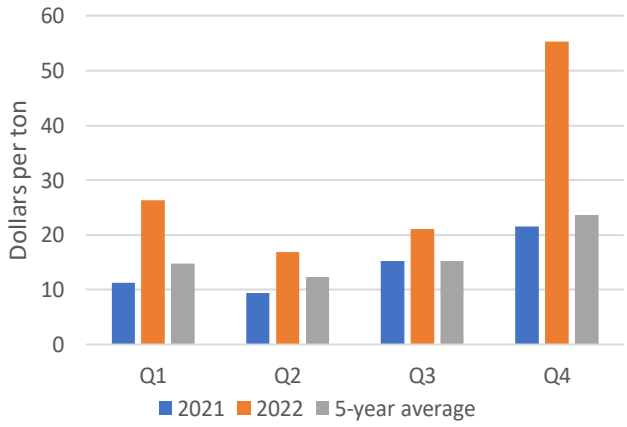
Review of 2022 Barged Grain Movements and Rates

In 2022, the barge industry encountered a spate of challenges—from a worker shortage and rising fuel costs to extreme weather (floods and droughts) and historically low water levels on the Mississippi River System (MRS). Low water, which resulted in draft and tow restrictions, led to below average weekly grain volumes from mid-August to mid-October. Volumes eventually rebounded toward the end of the year, but the total yearly tonnage was 8 percent below the 5-year average (***GTR* table 9**).[1] Because of a low supply of barges, shippers also paid record rates for service. In mid-October, the spot rate reached an all-time high, almost 400 percent higher than the same period in 2021. This article briefly explores the factors influencing barge movements and spot freight rates during 2022.

First Quarter

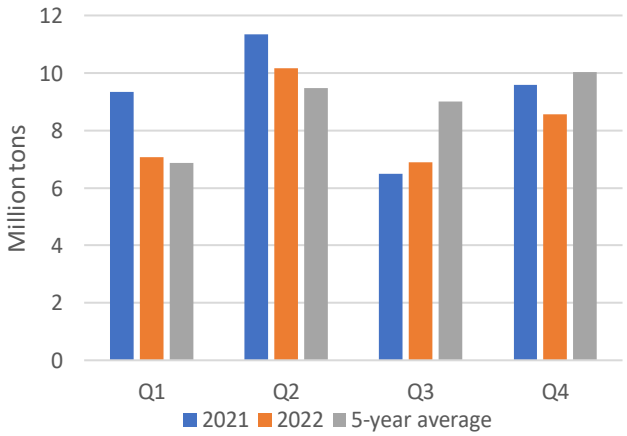
First-quarter barge rates were uncharacteristically high. The average St. Louis spot rate of $26.38/ton was 133 percent above the same period of 2021 and 79 percent above the prior 5-year, first-quarter average (fig. 1). Because of high water levels on the Ohio and Lower Mississippi Rivers, barges were in scarce supply, and towboats pushed upriver 12-16 percent fewer barges than usual. Despite barge-supply constraints, barged grain volumes were slightly elevated. In the first quarter, barges moved 7.1 million tons of grain—3 percent more than the 5-year average (fig. 2).

Figure 1. Quarterly spot rate, St. Louis



Source: USDA, Agricultural Marketing Service.

Figure 2. Quarterly grain volume



Source: U.S. Army Corps of Engineers Lock Performance Monitoring System.

Rising demand for barges and grain raised both barge rates and barged grain volumes. The demand was likely driven both by Russia's invasion of Ukraine and, indirectly, by Hurricane Ida (in fall 2021). Forced reductions in barged grain volumes (because of hurricane damage) likely deferred some barged grain demand from fall 2021 to the start of the new year. In turn, the deferred demand bolstered barged grain volumes amid supply challenges and already elevated rates.

Second Quarter

Typically, grain volumes rise in the second quarter as the Upper MRS opens and barges can move freely.[2] In second quarter 2022, grain volumes rose more than usual because of spiking demand for corn exports through the Gulf. Rising grain volumes (along with rising grain sales) were also driven by market uncertainty spawned by the Russia-Ukraine War. Early in the quarter, barge supply tightened in response to a rising demand for coal exports, increased domestic movements of fertilizer, and restrictions on draft and tow size due to high water levels on various portions of the MRS. However, once barges transporting fertilizer north finally

[1] The U.S. Army Corps of Engineers (USACE) supports commercial navigation on inland waterways by designing, building, and maintaining locks, dams, channels, and other infrastructure. Every week, USDA's Agricultural Marketing Service collects and reports weekly data on downbound barged grain movements along the Mississippi River system, collected from the USACE Lock Performance Monitoring System (LPMS). The movement statistics cited in this article are based on LPMS data.

[2] The upper portion of the MRS is typically closed during winter due to cold weather and icy conditions, so barge movements are usually limited, and moved grain volumes are usually lower in the first quarter than the rest of the year.

unloaded (despite delays), barge capacity increased. Toward the end of the quarter, both ebbing barge demand and growing barge supply resulted from declining sales of excess grain, waning demand for coal, and farmers' seasonal shift in focus from shipping to planting. Overall, in second quarter 2022, grain volumes rose 44 percent from the first quarter to 10.2 million tons—10 percent lower than 2021, but 7 percent higher than the 5-year average. The average spot rate in St. Louis for the second quarter was $16.92/ton—36 percent lower than the first quarter, 79 percent higher than the same period last year, and 37 percent higher than the 5-year average. Compared to second quarter 2021, the number of downbound barges and number of barges unloaded in New Orleans fell.

Third Quarter

In third quarter 2022, rising fuel costs and recession fears weakened demand. At the same time, low water levels on various parts of the MRS weakened supply. As water levels dropped from +10 feet in August to less than −7 feet in September at Memphis, TN, some overloaded barges became grounded and could not make it to the Gulf. To keep barges moving, the industry reduced draft and tow size and closed some portions of the MRS more than once, for 12-36 hours at a time (to allow for dredging). Because of substantial delays produced by low water levels, barges were not always where they were needed—a situation that further restricted barge supply and grain movements and raised spot rates.

Despite restricted barge movements in third quarter 2022, several key metrics were up from third quarter 2021 (when they had reflected Hurricane Ida's havoc). These rising metrics included the number of downbound barges, number of unloaded barges, and grain inspections in the Gulf. In third quarter 2022, barged grain volumes were 6.9 million tons—down 32 percent from the previous quarter, up 6 percent from 2021, and down 23 percent from the 5-year average. Historically, barged grain volumes tend to drop slightly from the second to third quarter, just before harvest. However, because of Hurricane Ida in 2021 and low water issues in 2022, the seasonal drop was sharper than average for both years. The average third quarter St. Louis spot rate was $21.05—24 percent higher than the second quarter and 38 percent higher than both third quarter 2021 and the 5-year average.

Fourth Quarter

Low water issues worsened from September to October. At the same time, barge demand increased significantly with the grain harvest. As navigation conditions on the river worsened, becoming more volatile, barge companies could offer little space beyond their previous commitments. On October 19, the river gauge at Memphis—just one of many affected places on the MRS—reached an all-time low of -10.81 feet. Among the restrictions put into place, tow size was reduced by 17 to 28 percent; per barge tonnage was reduced by 24 to 30 percent; and draft size was decreased to 9 feet. At one point, water levels were so low that some elevators were inaccessible by barge. In some cases, barge companies could not say when shipments would reach their destinations. These issues propelled the St. Louis spot rate to an all-time high of $105.85/ton during the week of October 11.

In early November, MRS conditions started to improve, and navigation restrictions were loosened. In December 2022, restrictions on draft and tow size were lifted along the MRS, as water levels continued to normalize and fuel costs dropped from their peak in June. Spot rates fell significantly, but remained elevated compared to 2021 and the 5-year average. Overall, in fourth quarter 2022, barge volumes were 8.6 million tons—up 24 percent from the previous quarter, down 15 percent from fourth quarter 2021, and down 11 percent from the 5-year average. The average fourth quarter St. Louis spot rate of $55.33/ton was up 163 percent from the third quarter, up 157 percent from fourth quarter 2021, and up 134 percent from the 5-year average.

Looking Forward

The St. Louis spot rate has fallen by 84 percent since the beginning of November 2022. In the first week of January 2023, the spot rate of $29.93 showed a year-to-year decline of 12 percent for the first time since early last September. Since the end of January, rates have been closer to average.

Like other industries, the barge industry continues to struggle with labor shortages, which can account for a 1-to-2-day shipment delay (American Commercial Barge Line, February 7, 2023). In 2022, the number of new jumbo barges added to fleets was only 226 (down 25 percent from 2021), which will further constrain barge supply this year. Record-high steel prices discouraged investment in additional barges, which may tighten barge supply this year, despite above-average barge rates. However, at least for now, navigation conditions on the MRS have returned to normal.

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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
03/15/23	285	326	250	277	235	209
03/08/23	287	326	247	271	235	206

[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	3/10/2023	3/3/2023
Corn	IL–Gulf	-0.98	-0.98
Corn	NE–Gulf	-0.74	-0.73
Soybean	IA–Gulf	-1.51	-1.56
HRW	KS–Gulf	-2.13	-2.13
HRS	ND–Portland	-2.05	-2.09

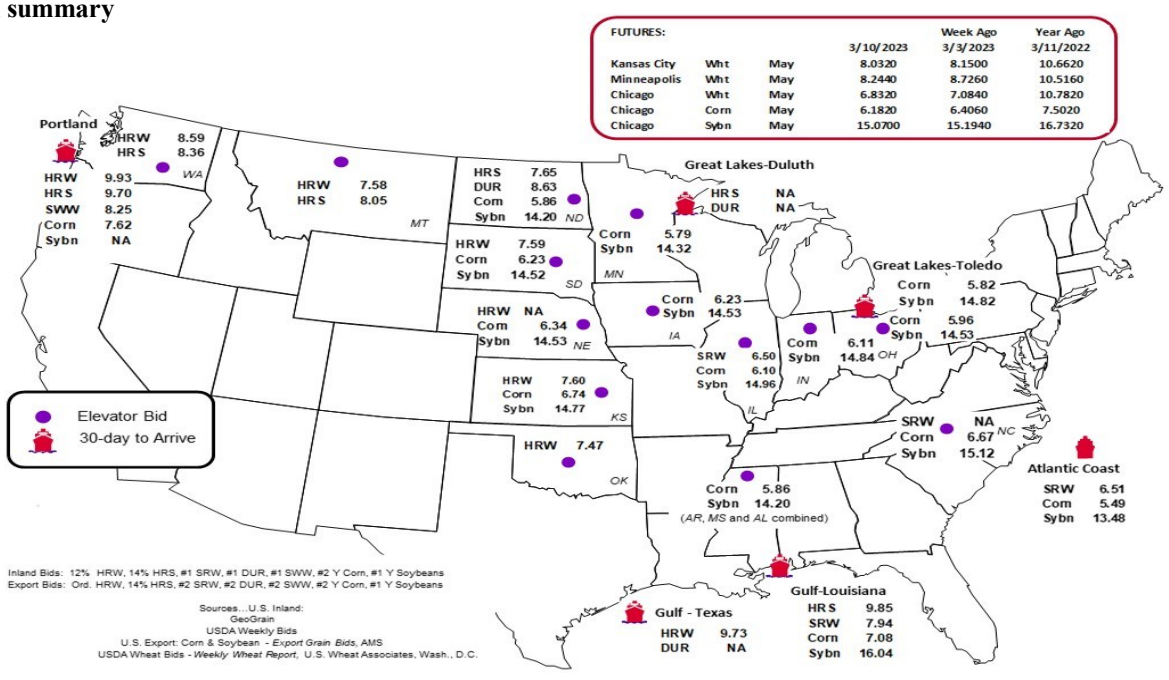
Note: nq = no quote; n/a = not available; HRW = hard red winter wheat; HRS = hard red spring wheat.

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	
3/4/2023	CSXT	NS	BNSF	KCS	UP		CN	CP
This week	1,774	2,909	8,285	1,392	6,161	20,521	5,345	4,376
This week last year	1,929	2,560	12,790	1,175	6,377	24,831	3,817	4,541
2023 YTD	18,647	25,329	95,137	11,989	52,202	203,304	47,732	40,789
2022 YTD	16,528	20,734	107,227	12,131	57,865	214,485	32,049	33,102
2023 YTD as % of 2022 YTD	113	122	89	99	90	95	149	123
Last 4 weeks as % of 2022*	109	111	77	102	88	87	130	100
Last 4 weeks as % of 3-yr. avg.**	114	118	80	120	103	95	140	98
Total 2022	93,313	130,353	570,232	66,338	296,945	1,157,181	214,359	214,010

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

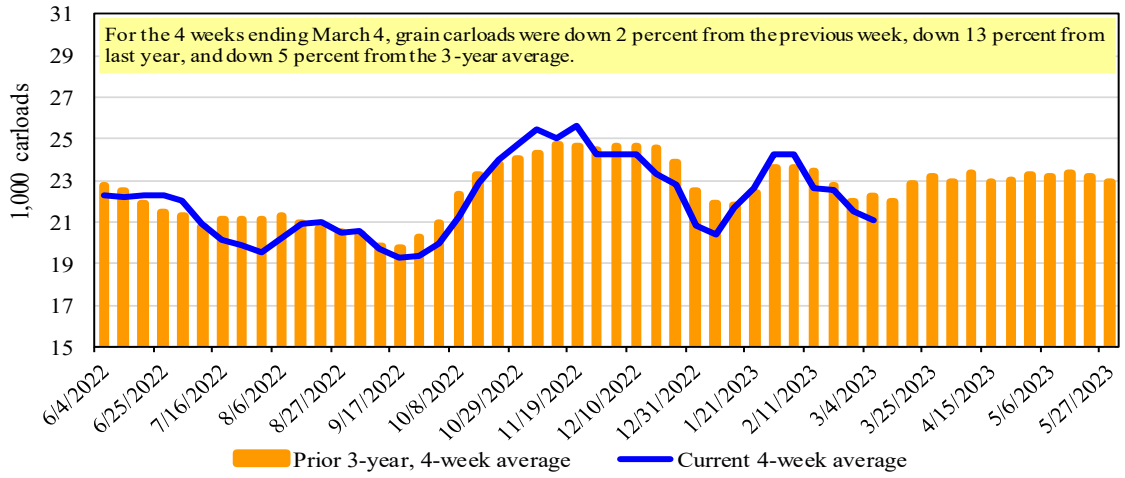
**The past 4 weeks as a percent of the same period from the prior 3-year average. YTD = year-to-date; avg. = average; yr. = year.

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							
3/9/2023		Mar-23	Mar-22	Apr-23	Apr-22	May-23	May-22	Jun-23	Jun-22
BNSF[3]	COT grain units	no offer	no bids	0	0	0	no bids	0	no bids
	COT grain single-car	no offer	no bids	18	4	0	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

[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.

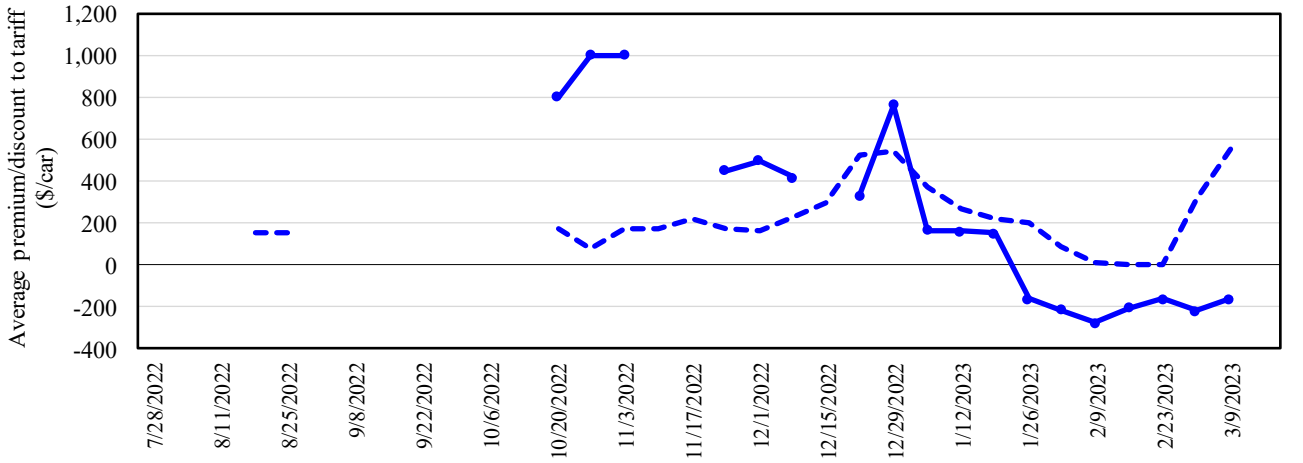
Region 1 includes: AR, IL, LA, MO, NM, OK, TX, WI, and Duluth, MN.

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 March 2023



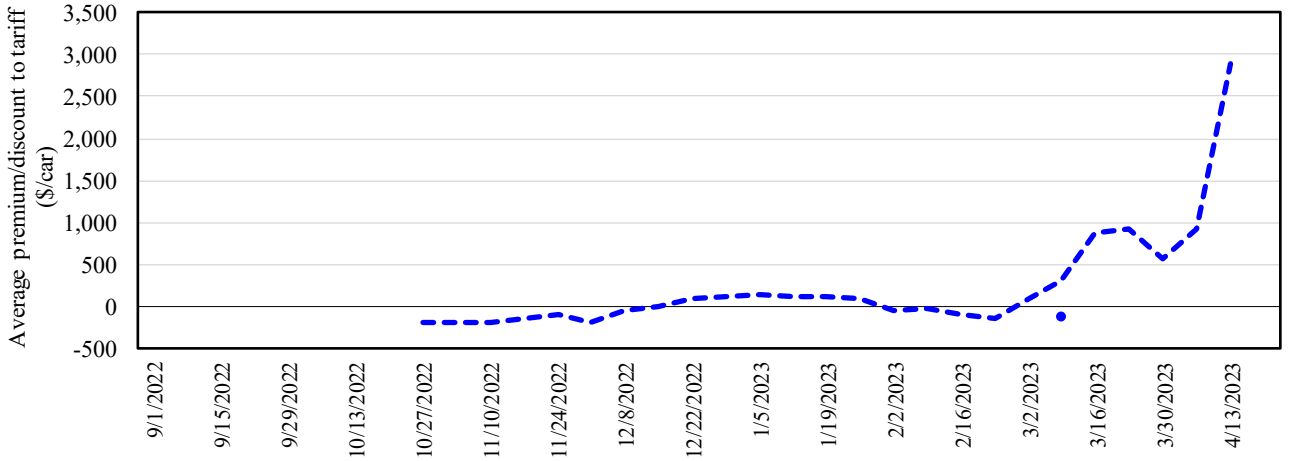
3/9/2023	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$31	-$288

Shuttle
Non-shuttle
Shuttle prior 3-yr. avg. (same week)
Non-shuttle prior 3-yr. avg. (same week)

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers rose $60 this week and are $1,159 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 April 2023



3/9/2023	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$59	-$225

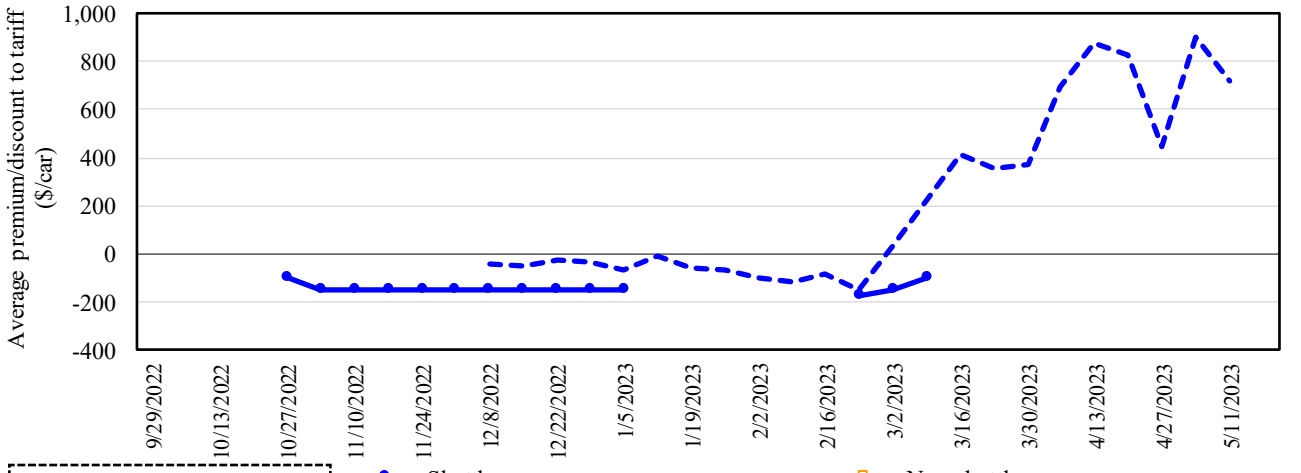
Shuttle
Non-shuttle
Shuttle prior 3-yr. avg. (same week)
Non-shuttle prior 3-yr. avg. (same week)

There were no non-shuttle bids/offers this week.
There were no shuttle bids/offers last week. Average shuttle bids/offers this week are at 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 May 2023



3/9/2023	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$100	n/a

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers rose $50 this week and are at 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: 3/9/2023	Delivery period					
		Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-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**	**(31)**	**(59)**	**(100)**	**(100)**	**n/a**	**(150)**
	Change from last week	217	n/a	50	n/a	n/a	0
	Change from same week 2022	(1,481)	(1,409)	(1,367)	(675)	n/a	(350)
	UP-Pool	**(288)**	**(225)**	**n/a**	**n/a**	**n/a**	**n/a**
	Change from last week	(96)	n/a	n/a	n/a	n/a	n/a
	Change from same week 2022	(1,738)	(1,025)	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							
Commodity	Origin state	Destination region	Tariff rate per car[1]	Fuel surcharge per car[2]	Tariff rate plus fuel surcharge per: metric ton[3]	bushel[3]	Percent change[4] 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.

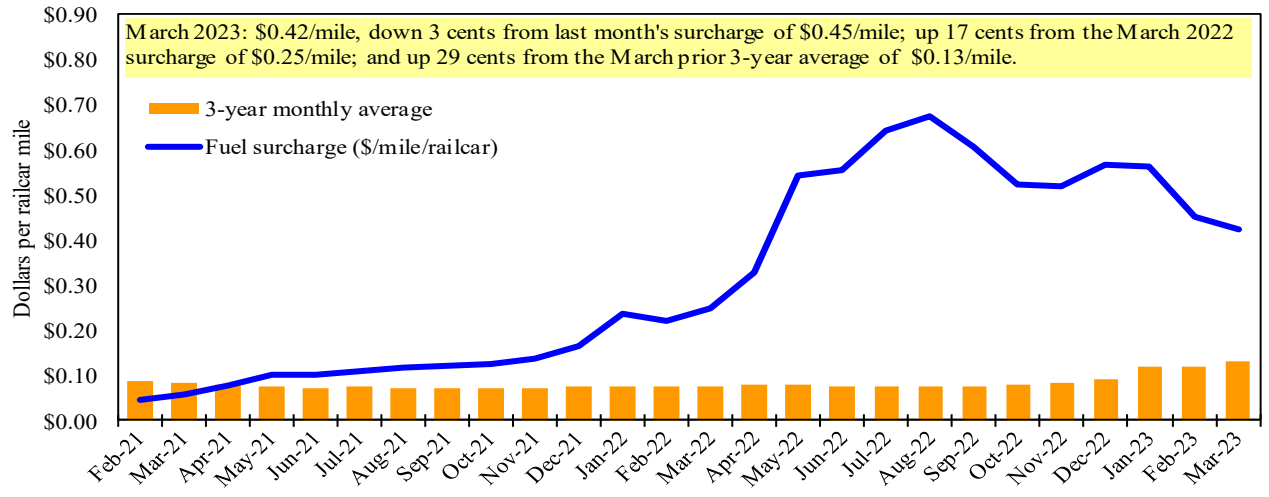
[4]Percentage change calculated using tariff rate plus fuel surchage; Y/Y = year over year.

[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]

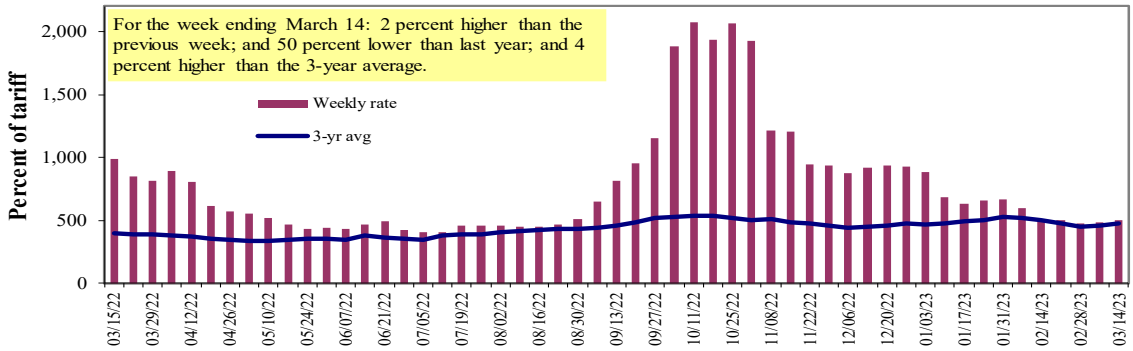


[1] Weighted by each Class I railroad's proportion of grain traffic for the prior year.

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

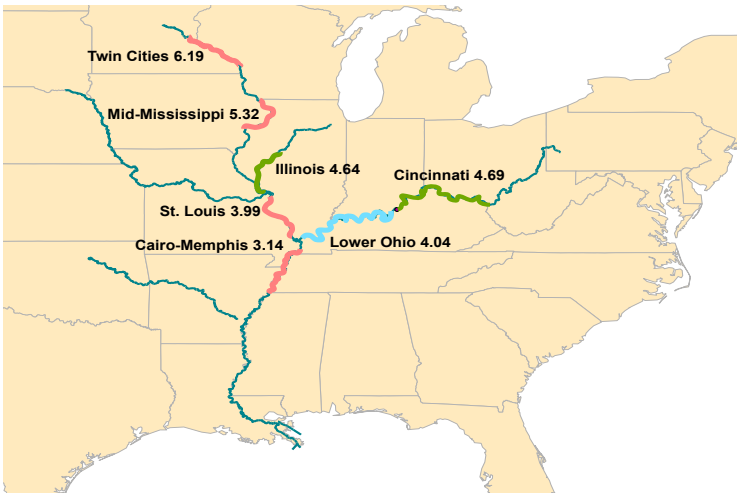
		Twin Cities	Mid-Mississippi	Lower Illinois River	St. Louis	Cincinnati	Lower Ohio	Cairo-Memphis
Rate[1]	3/14/2023	-	510	498	392	410	410	301
	3/7/2023	-	519	487	353	410	410	290
$/ton	3/14/2023	-	27.13	23.11	15.64	19.23	16.56	9.45
	3/7/2023	-	27.61	22.60	14.08	19.23	16.56	9.11
Current week % change from the same week:								
	Last year	-	-49	-50	-55	-61	-61	-61
	3-year avg. [2]	-	-	4	7	-1	-1	-9
Rate[1]	April	519	495	479	367	389	389	278
	June	501	478	466	358	395	395	282

[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

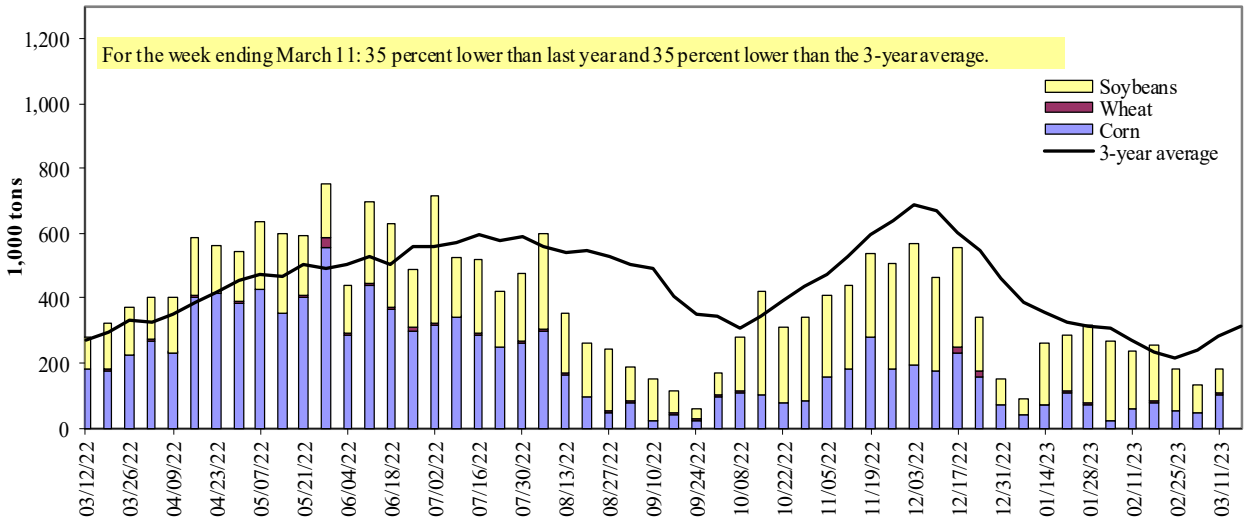
Select applicable index from market quotes are included in tables on this page. The 1976 benchmark rates per ton are provided in map.



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 03/11/2023	Corn	Wheat	Soybeans	Other	Total
Mississippi River					
Rock Island, IL (L15)	6	0	9	0	16
Winfield, MO (L25)	36	0	43	0	79
Alton, IL (L26)	111	2	97	0	209
Granite City, IL (L27)	103	2	79	0	184
Illinois River (La Grange)	96	2	71	0	169
Ohio River (Olmsted)	179	4	56	4	242
Arkansas River (L1)	0	10	3	0	13
Weekly total - 2023	282	15	138	4	438
Weekly total - 2022	350	18	198	2	568
2023 YTD[1]	1,979	239	2,975	80	5,272
2022 YTD[1]	3,000	259	2,294	32	5,584
2023 as % of 2022 YTD	66	92	130	252	94
Last 4 weeks as % of 2022[2]	68	122	118	309	86
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.

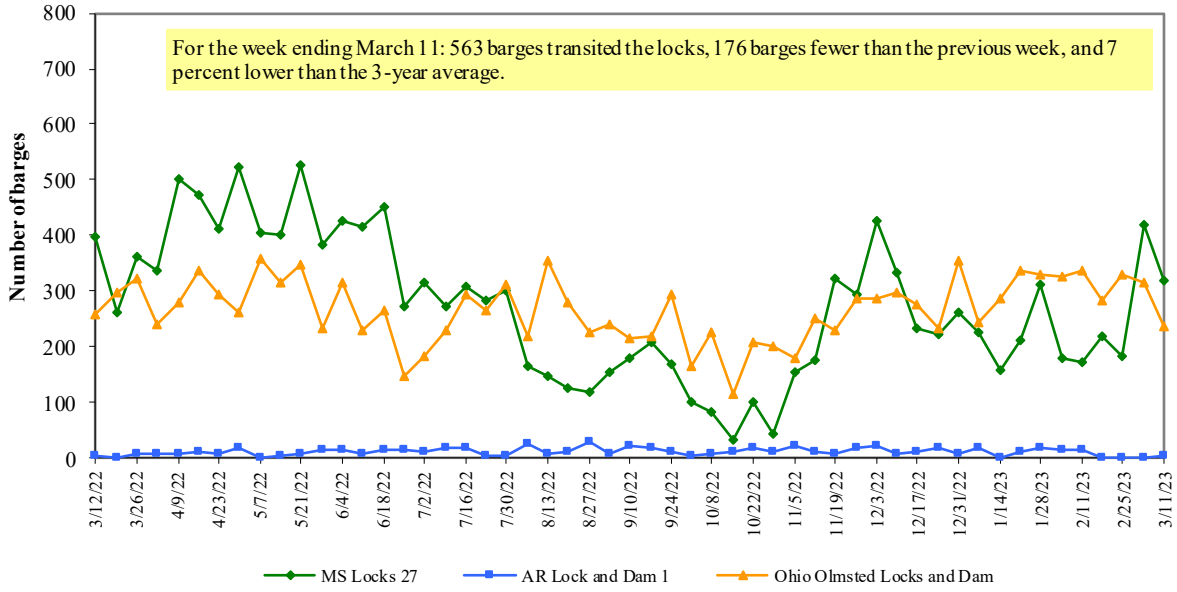
[2] As a percent of same period in 2022.

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 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

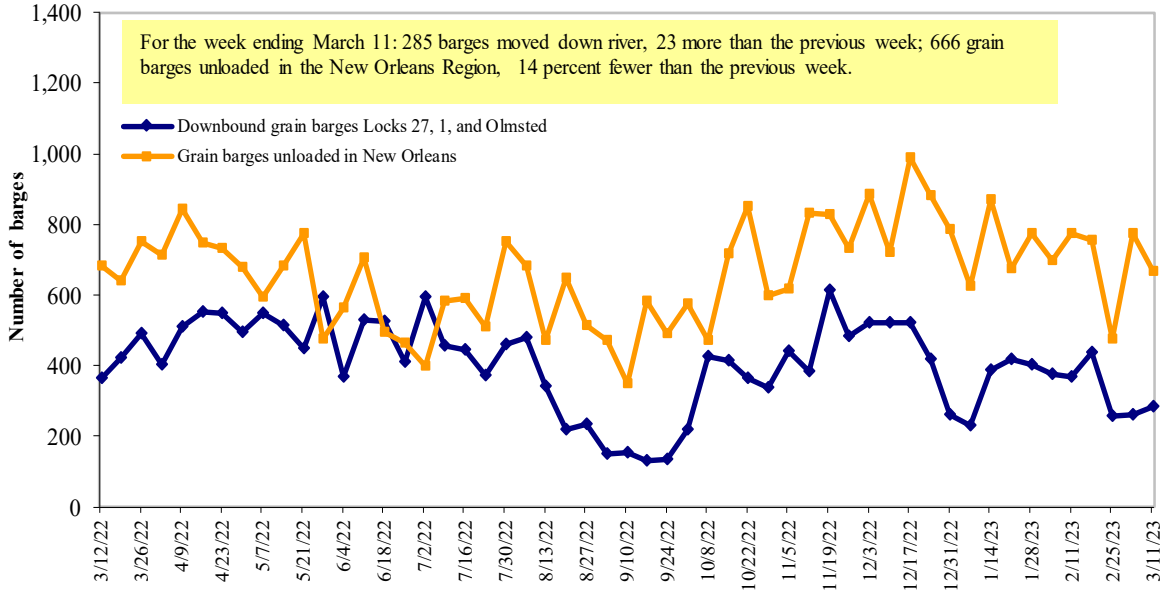


Note: The U.S. Army Corps of Engineers has recently migrated its lock and vessel database and has noted the latest data may be revised in coming weeks.

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 3/13/2023 (U.S. $/gallon)

Region	Location	Price	Change from Week ago	Change from Year ago
I	East Coast	4.360	-0.049	-0.974
	New England	4.731	-0.005	-0.500
	Central Atlantic	4.699	-0.039	-0.775
	Lower Atlantic	4.196	-0.058	-1.068
II	Midwest	4.094	-0.037	-0.950
III	Gulf Coast	3.998	-0.029	-1.112
IV	Rocky Mountain	4.431	-0.067	-0.535
V	West Coast	4.898	0.003	-0.969
	West Coast less California	4.538	0.010	-0.878
	California	5.312	-0.004	-0.952
Total	United States	4.247	-0.035	-1.003

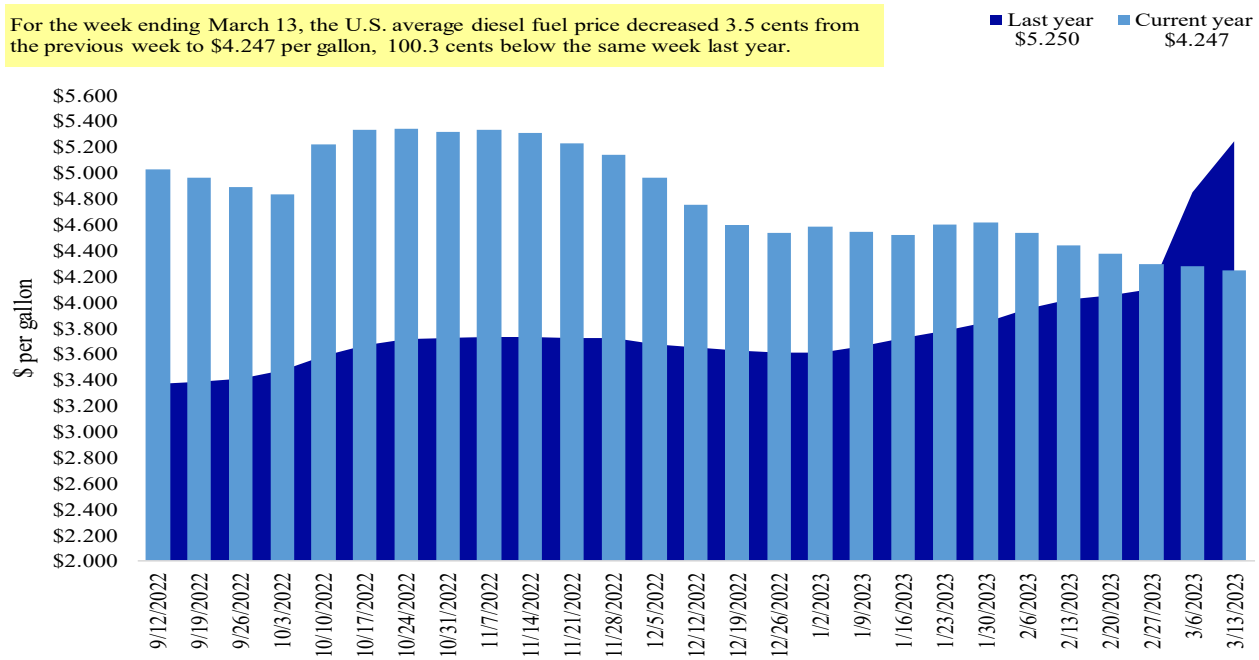
[1]Diesel fuel prices include all taxes. Prices represent an average of all types of diesel fuel.

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]									
3/2/2023	683	581	954	852	44	3,113	14,568	6,604	24,286
This week year ago	1,775	585	1,128	551	19	4,058	22,669	10,760	37,487
Cumulative exports-marketing year[2]									
2022/23 YTD	4,058	2,117	4,313	3,529	272	14,289	16,082	42,118	72,488
2021/22 YTD	5,655	2,102	3,895	2,709	170	14,531	27,533	41,611	83,675
YTD 2022/23 as % of 2021/22	72	101	111	130	160	98	58	101	87
Last 4 wks. as % of same period 2021/22	40	103	89	176	352	83	63	71	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 importers[1] of U.S. corn

For the week ending 3/2/2023	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	12,892	14,149	(9)	15,227
China	4,487	12,102	(63)	12,616
Japan	3,430	7,531	(54)	10,273
Columbia	1,306	3,310	(61)	4,398
Korea	644	213	202	2,563
Top 5 importers	**22,759**	**37,305**	(39)	**45,077**
Total U.S. corn export sales	**30,650**	**50,202**	(39)	**56,665**
% of projected exports	65%	80%		
Change from prior week[2]	**1,412**	**2,144**		
Top 5 importers' share of U.S. corn export sales	74%	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 3/2/2023	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	30,331	27,291	11	27,283
Mexico	4,116	4,749	(13)	4,929
Egypt	978	3,108	(69)	3,553
Japan	1,763	1,811	(3)	2,266
Indonesia	1,017	1,118	(9)	2,116
Top 5 importers	**38,204**	**38,077**	0	**40,147**
Total U.S. soybean export sales	**48,722**	**52,371**	(7)	**54,231**
% of projected exports	89%	89%		
change from prior week[2]	**-23**	**2,204**		
Top 5 importers' share of U.S. soybean export sales	78%	73%		**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 3/2/2023	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	2,952	3,367	(12)	3,566
Philippines	2,020	2,719	(26)	2,985
Japan	2,009	2,243	(10)	2,453
China	956	848	13	1,537
Nigeria	765	1,999	(62)	1,528
Korea	1,252	1,196	5	1,459
Taiwan	751	823	(9)	1,106
Indonesia	324	67	384	711
Thailand	624	537	16	703
Colombia	501	624	(20)	621
Top 10 importers	**12,153**	**14,422**	(16)	**16,669**
Total U.S. wheat export sales	**17,402**	**18,589**	(6)	**22,763**
% of projected exports	82%	85%		
change from prior week[2]	**267**	**307**		
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 03/09/23	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	108	235	46	2,561	2,219	115	107	83	9,836
Corn	56	1	n/a	548	2,292	24	6	6	9,615
Soybeans	0	0	n/a	3,298	3,399	97	58	72	14,178
Total	**164**	**236**	**69**	**6,407**	**7,910**	**81**	**54**	**52**	**33,629**
Mississippi Gulf									
Wheat	89	25	350	519	739	70	80	97	4,053
Corn	766	733	105	4,033	8,265	49	59	63	30,781
Soybeans	419	381	110	8,674	6,224	139	130	146	31,283
Total	**1,274**	**1,139**	**112**	**13,226**	**15,228**	**87**	**81**	**89**	**66,116**
Texas Gulf									
Wheat	20	28	71	449	591	76	101	87	3,421
Corn	0	0	n/a	53	120	44	390	69	648
Soybeans	0	0	n/a	52	2	n/a	0	0	685
Total	**20**	**28**	**71**	**554**	**714**	**78**	**108**	**80**	**4,754**
Interior									
Wheat	34	70	48	529	605	87	60	78	2,912
Corn	149	183	81	1,804	1,763	102	96	105	8,961
Soybeans	160	119	134	1,686	1,512	111	87	96	7,109
Total	**343**	**372**	**92**	**4,018**	**3,881**	**104**	**86**	**97**	**18,982**
Great Lakes									
Wheat	11	0	n/a	50	22	229	221	578	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	**11**	**0**	**n/a**	**52**	**22**	**239**	**221**	**578**	**1,312**
Atlantic									
Wheat	0	1	n/a	36	4	803	n/a	9	169
Corn	11	0	n/a	39	35	111	179	536	309
Soybeans	72	78	92	904	677	133	134	216	2,867
Total	**83**	**79**	**105**	**979**	**717**	**137**	**136**	**211**	**3,345**
U.S. total from ports*									
Wheat	262	359	73	4,144	4,181	99	95	86	20,786
Corn	982	917	107	6,476	12,476	52	55	57	50,471
Soybeans	651	579	113	14,616	11,815	124	105	123	56,882
Total	**1,895**	**1,854**	**102**	**25,237**	**28,472**	**89**	**77**	**82**	**128,139**

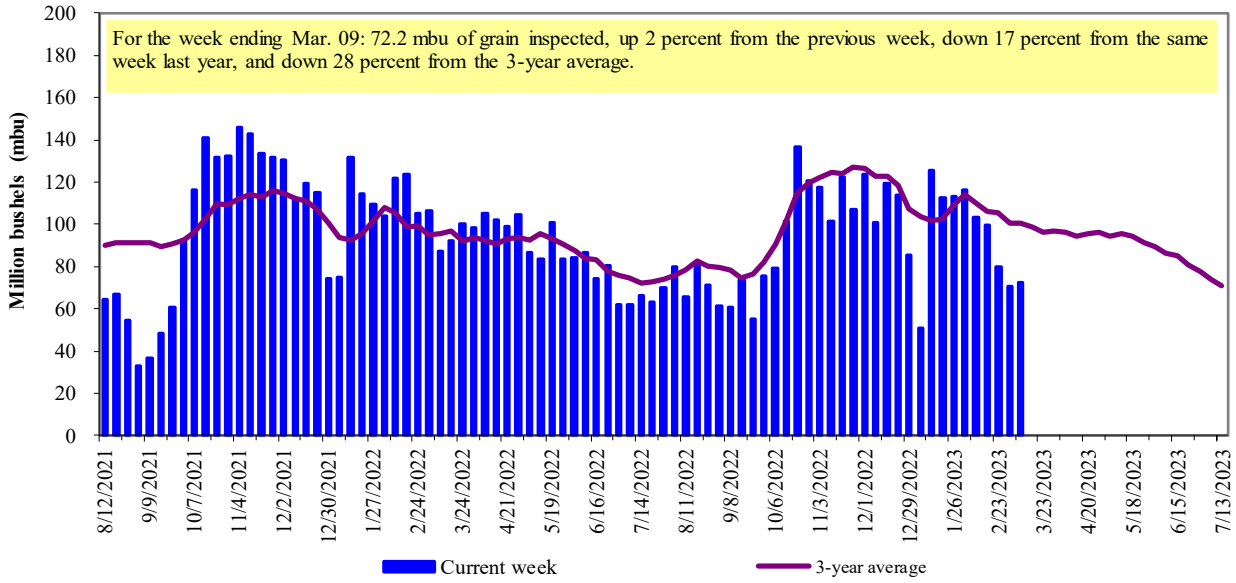
*Data includes revisions from prior weeks; some regional totals may not add exactly due to rounding.

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)

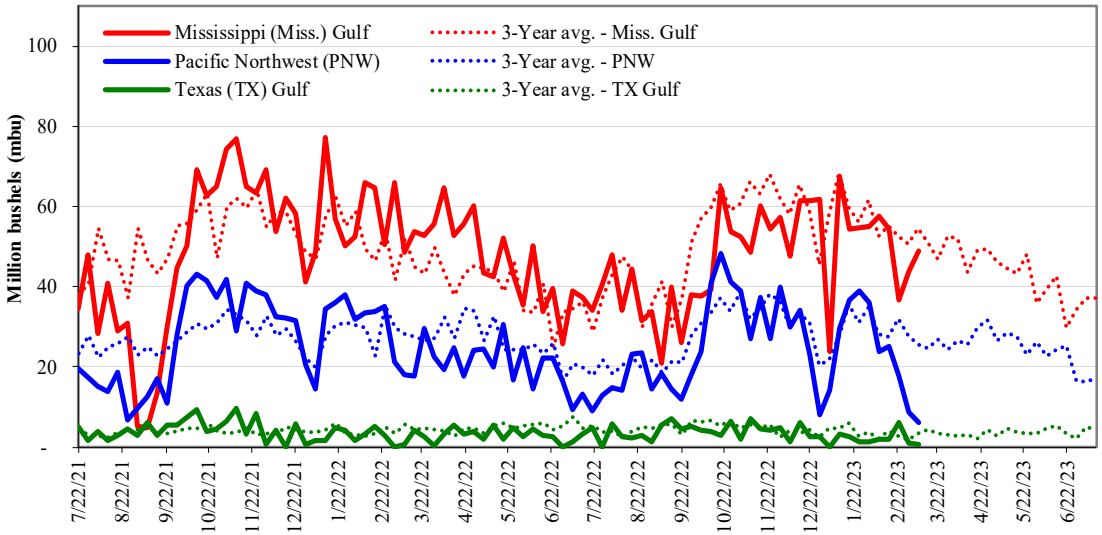


Note: 3-year average consists of 4-week running average.

Source: USDA, Federal Grain Inspection Service.

Figure 14

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



Week ending 03/09/23 inspections (mbu):	
MS Gulf:	48.8
PNW:	6.2
TX Gulf:	0.7

Percent change	MS Gulf	TX	U.S. Gulf	PNW
Last wk:	up 12	down 29	up 11	down 29
Last Year (same wk):	unchanged	up 17	unchanged	down 66
3-yr avg. (4-wk. mov. Avg):	down 8	down 76	down 12	down 78

Source: USDA, Federal Grain Inspection Service.

Table 16

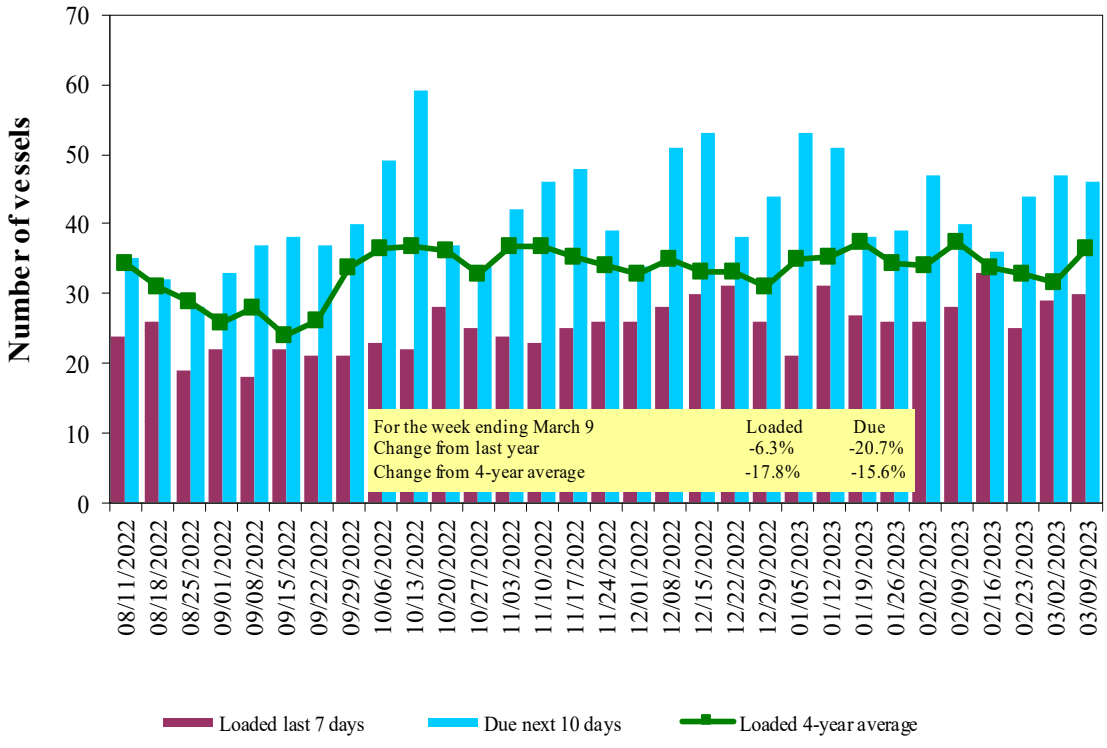
Weekly port region grain ocean vessel activity (number of vessels)

	Gulf			Pacific Northwest
Date	In port	Loaded 7-days	Due next 10-days	In port
3/9/2023	22	30	46	6
3/2/2023	18	29	47	3
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

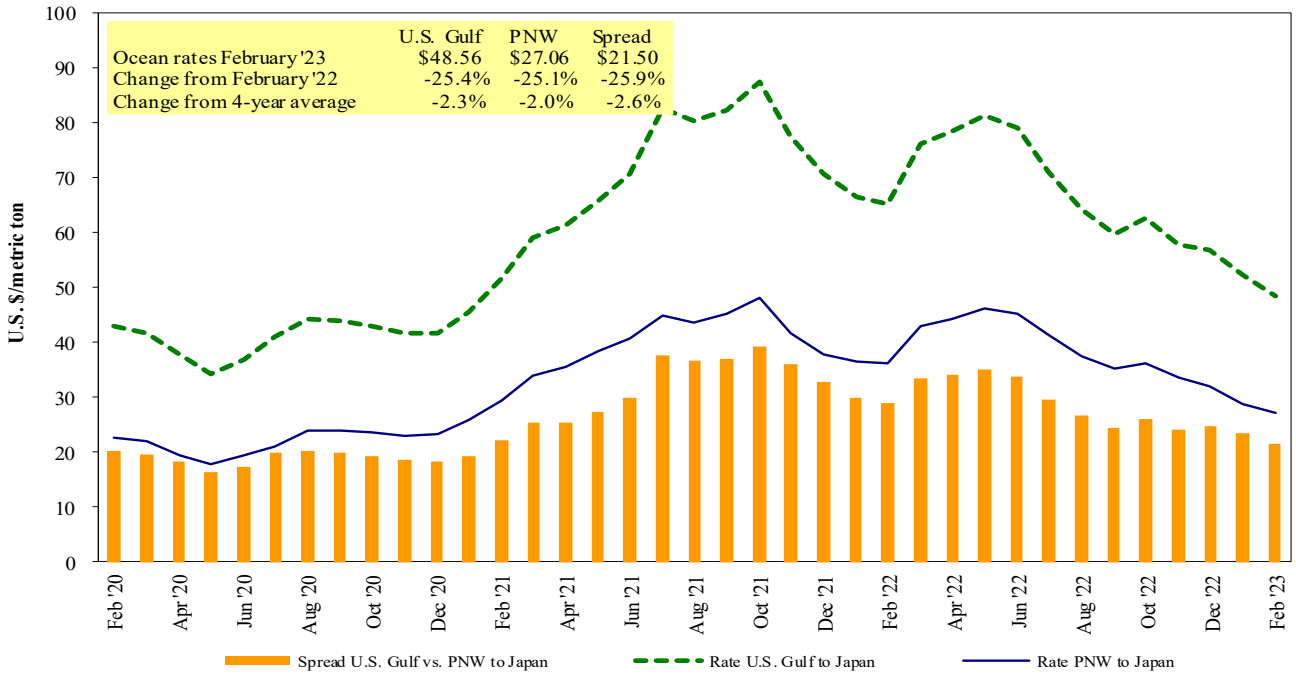
U.S. Gulf[1] vessel loading activity



[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

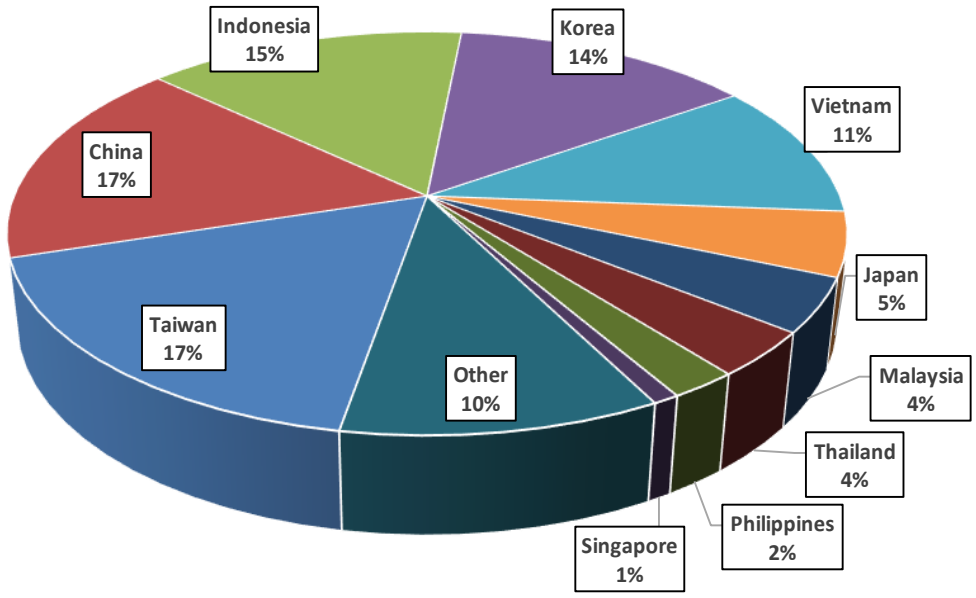
Ocean freight rates for selected shipments, week ending 03/11/2023

Export region	Import region	Grain types	Loading date	Volume loads (metric tons)	Freight rate (US$/metric ton)
U.S. Gulf	Japan	Heavy grain	Nov 1/10, 2022	50,000	79.25
U.S. Gulf	Japan	Heavy grain	Jul 20/30, 2022	50,000	81.50
U.S. Gulf	Japan	Heavy grain	Jun 1/10, 2022	50,000	89.65
U.S. Gulf	Japan	Heavy grain	May 1/20, 2022	50,000	78.90
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*
U.S. Gulf	S. Korea	Heavy grain	Jun 1/Jul, 2022	55,000	82.75
WC US	Japan	Wheat	Feb 1/Mar 1, 2023	34,500	47.75
Brazil	China	Heavy grain	Feb 4/11	63,000	36.00
Brazil	N. China	Heavy grain	Mar 18/27, 2022	64,000	56.85
Argentina	Taiwan	Corn	May 1/Jun, 2022	65,000	85.00
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.

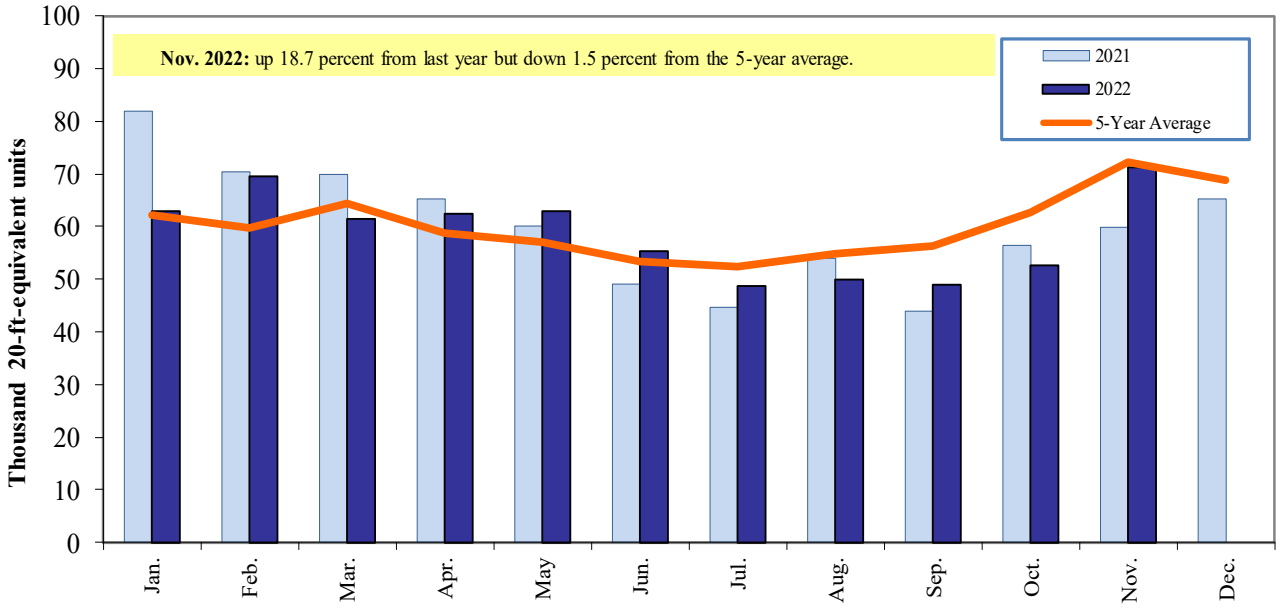
Figure 17
Top 10 destination markets for U.S. containerized grain exports, Jan-Nov 2022



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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