



# Grain Transportation Report

A weekly publication of the Agricultural Marketing Service  
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March 24, 2022

## WEEKLY HIGHLIGHTS

### USACE Announced the Unofficial Start of the 2022 Navigation Season on the Upper Mississippi River

On March 21, the 2022 navigation season on the Upper Mississippi River began, as [announced](#) by the U.S. Army Corps of Engineers (USACE). Originating from St. Louis, MO, and pushing nine barges, the Motor Vessel W. Red Harris kicked off the season's unofficial start: that boat was the first of the season to break through the ice of Lake Pepin (between Mississippi River Lock and Dam 3 and Lock and Dam 4). Lake Pepin is the last major barrier for vessels reaching the head of the navigation channel in St. Paul, MN. For the past 30 years, the season's average opening date has been March 20, but the date varies from year to year, depending on water conditions.

### USDA Partners With NWSA To Enhance Agricultural Exports

On March 18, USDA [announced](#) a partnership with the Northwest Seaport Alliance (NWSA) to enhance access to a 49-acre "pop up" site at NWSA in Seattle. To reduce operational hurdles and costs, the site will start accepting both dry and refrigerated agricultural containers for temporary storage. From their new positions on the pop-up site, the containers can be more quickly loaded on ships at the export terminals. USDA's Farm Service Agency (FSA) will make payments to agricultural companies and cooperatives that use the NWSA pop-up site for containers filled with American-grown agricultural commodities. FSA payments of \$200 per dry container and \$400 per refrigerated container will help cover additional logistical costs—including drayage and storage—of using the site. Encompassing the marine cargo operations of the ports of Seattle and Tacoma, WA, NWSA is the second-largest container gateway for containerized agricultural exports from the United States.

### Canadian Pacific Resumes Operations

Ending a work stoppage that lasted 2 full days, the Canadian Pacific Railway (CP) and the Teamsters Canada Rail Conference (TCRC) agreed to settle their labor dispute through binding arbitration. Work across the railroad's Canadian operations had stopped on Sunday, March 20, and resumed at 2 pm EDT on Tuesday, March 22. CP is a major supplier of fertilizer, especially potash, to the United States and abroad. Global potash supplies have declined since producers in Russia and Belarus effectively stopped exporting the commodity following Russia's invasion of Ukraine. Because some producers prepositioned fertilizer before the stoppage and the stoppage lasted only 2 days, its impacts on potash production and delivery should be limited. Still, some disruptions should be expected. On Tuesday, [CP said](#) it would work with customers to resume normal train operations across Canada as soon as possible.

### FMC Announces Ocean Carrier Audit Program Will Focus on Export Service

On March 21, the Federal Maritime Commission (FMC) [announced](#) its Vessel-Operating Common Carrier (VOCC) audit program will expand to evaluate carriers' export performance and service. FMC will meet with 11 carriers to discuss their export programs and identify opportunities to improve or increase access to service offerings for exporters. In July 2021, the VOCC audit program was originally established to assess ocean carrier compliance with the FMC's rule on demurrage and detention. The program was also created to gather information to aid FMC's continuous monitoring of ocean cargo services.

## Snapshots by Sector

### Export Sales

For the week ending March 10, [unshipped balances](#) of wheat, corn, and soybeans for marketing year 2021/22 totaled 38.5 million metric tons (mmt), down 11 percent from the same time last year and up 3 percent from the previous week. Net [corn export sales](#) were 1.836 mmt, down 14 percent from the previous week. Net [soybean export sales](#) were 1.253 mmt, down 43 percent from the previous week. Net weekly [wheat export sales](#) were 0.146 mmt, down 53 percent from the previous week.

### Rail

U.S. Class I railroads originated 21,213 [grain carloads](#) during the week ending March 12. This was a 15-percent decrease from the previous week, 11 percent fewer than last year, and 1 percent more than the 3-year average.

Average April shuttle [secondary railcar](#) bids/offers (per car) were \$2,313 above tariff for the week ending March 17. This was \$1,238 more than last week and \$2,095 more than this week last year. There were no non-shuttle bids/offers this week.

### Barge

For the week ending March 19, [barged grain movements](#) totaled 693,000 tons. This was 22 percent more than the previous week and 4 percent less than the same period last year.

For the week ending March 19, 420 grain barges [moved down river](#)—54 more barges than the previous week. There were 639 grain barges [unloaded](#) in the New Orleans region, 6 percent fewer than last week.

### Ocean

For the week ending March 17, 34 [oceangoing grain vessels](#) were loaded in the Gulf—8 percent fewer than the same period last year. Within the next 10 days (starting March 18), 59 vessels were expected to be loaded—5 percent more than the same period last year.

As of March 10, the rate for shipping a metric ton (mt) of grain from the U.S. Gulf to Japan was \$74.50. This was 6 percent less than the previous week. The rate from the Pacific Northwest to Japan was \$42.75 per mt, 3 percent less than the previous week.

### Fuel

For the week ending March 21, the U.S. average [diesel fuel price](#) decreased 11.6 cents from the previous week to \$5.134 per gallon, 194 cents above the same week last year.

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# Feature Article/Calendar

## Spot Freight Rates for Downbound Barged Grain Skyrocket as Black Sea Traffic Halts

Since Russia invaded Ukraine on February 24, the ensuing war has impacted many segments of the world economy. On the Black Sea—a key corridor for commodities of agriculture and energy—traffic disruptions have stoked rising prices in both sectors. This article reports the recent sharp rises in barge freight rates and briefly explores some possible reasons behind the price surge, as the war in Ukraine reverberates through the markets.

### *Crude Oil, Bunker Fuel Prices, and Ocean Freight Rates Increased*

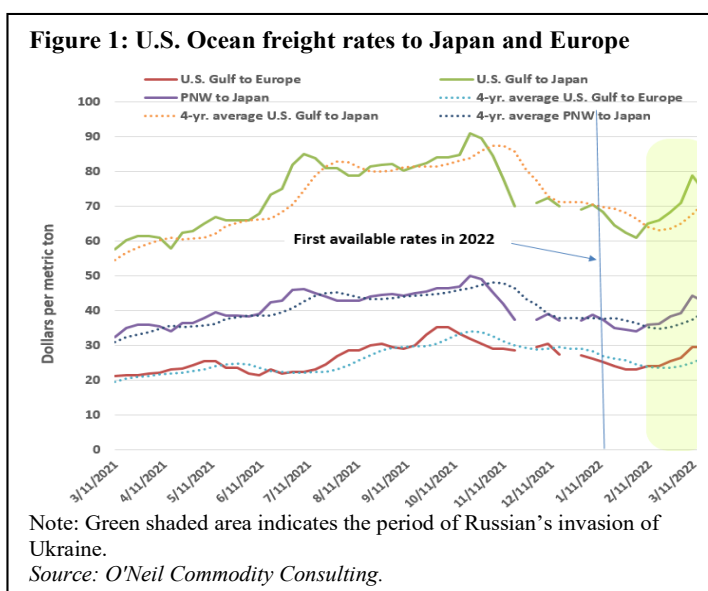
At least partly because of the conflict between Russia and Ukraine, the prices of crude oil and bunker fuel oil reached record levels in early March. Although prices have fallen since then, crude oil reached \$133.18 per barrel (b) on March 8—its highest reported price since summer 2008. The Energy Information Administration forecasts 6Brent crude oil spot prices [will average \\$117/b in March](#). According to Ship & Bunker, on March 9, the average price of very low sulfur fuel oil (at the 20 largest global bunkering ports), reached a high of \$1,040.50 per metric ton—the highest level in the past 3 years.<sup>1</sup>

Ocean freight rates for shipping bulk grains have also risen since the war in Ukraine began. As of March 17, the rate for shipping a metric ton (mt) of grain from the U.S. Gulf to Japan was \$74.50—24 percent higher than the same period last year and 5 percent higher than the 4-year average. The rate from the Pacific Northwest (PNW) to Japan was \$42.75 per mt—22 percent more than the same period last year and 8 percent above the 4-year average. The U.S.-to-Europe rate was \$29.50—37 percent higher than last year and 12 higher percent from the 4-year average (fig. 1).<sup>2</sup>

### *Interruption of Commodity Grain Exports from Russia and Ukraine*

Combined, Russia and Ukraine accounted for 15.4 percent of the total international corn trade in marketing year (MY) 2020/2021. At 4.5 million metric tons (mmt), USDA's [latest projections](#) for Russian corn exports in MY 2021/22 have not altered since February. In contrast, Ukraine's projected corn exports have been revised down from 33.5 mmt to 27.5 mmt since February. U.S. traders and barge companies expect some of Russia and Ukraine's world corn market share to accrue to U.S. exports. On the other hand, Ukraine and Russia are key exporters of sunflower seeds and sunflower seed oil. Major markets, such as India and the EU, may partly offset their lack of access to Ukrainian sunflower seed crush products by importing more soybean and rapeseed oils. If the global market seeks alternatives to sunflower oil, demand for U.S. soybean exports through the U.S. Gulf may rise.<sup>3</sup>

With 39.1 mmt of wheat exports in MY 2020/21, Russia is one of the world's largest wheat exporters. However, from February to March, USDA's [WASDE](#) report lowered its projection of Russia's MY 2021/22 wheat exports from 35.0 mmt to 32.0 mmt. Projected MY 2021/22 wheat exports from Ukraine were likewise revised down from February, from 24.0 mmt to 20.0 mmt. The notable drops in Russian and Ukrainian wheat exports partly explain U.S. wheat's sharp price jump since the war started. Nonetheless, higher demand for U.S. wheat exports may not substantially affect downbound barge rates because the Mississippi River's share of the U.S. wheat export market (via the U.S. Gulf) is typically only around 10 to 15 percent.



<sup>1</sup> See the [Fuel Dashboard](#) on USDA's Agricultural Transportation Open Data Platform for more detail.

<sup>2</sup> Generally, there is no consensus among economists about the exact relationship between barged-grain freight rates, fuel prices, and ocean freight rates. However, barge industry often includes fuel prices into consideration in making trading and pricing strategies.

<sup>3</sup> This view is a combination of information from the author Matt Chang's research and the insights of Sandor Toth, CEO and main contributor of the *River Transportation News*.

## The Rising Downbound Grain Barge Freight Rates

Although U.S. volumes of downbound barged grain have not yet diverged much from historical patterns, shippers expect global consumers may soon turn to U.S. agricultural and other commodities to fill the void left by Russia and Ukraine. Meanwhile, as global buyers seem poised to purchase more U.S. grain, high water conditions on the Ohio and Lower Mississippi Rivers have reduced the number of barges towboats can push by about 12-16 percent. This reduction means fewer barges are available to deliver the same volume of grains. This depletion of supply will only intensify demand for empty barges to fulfill nearby commitments. In addition, grain shippers continue to compete with shippers of other commodities, such as coal and steel, for available barges.

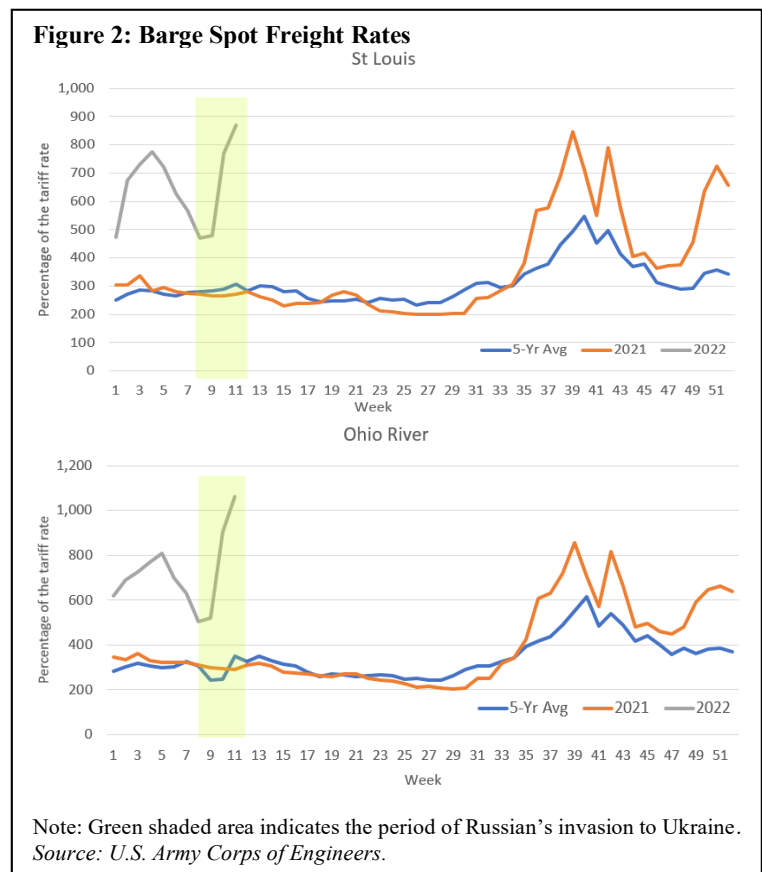
As a result of all these factors, freight rates on both the spot (nearby) and April market have risen sharply, as demand surges. From the last week of February to mid-March, the St. Louis spot rate (the cost to request for nearby services) rose from 470 percent of the benchmark tariff (\$18.8 per ton) to 871 percent (\$34.75 per ton) in mid-March. The March numbers were 220 percent higher than last year and 204 percent higher than 3-year average. At the same time, the Upper Ohio River freight rate jumped from 505 percent of the benchmark tariff (\$23.6 per ton) to 1,060 percent (\$49.7 per ton), 262 percent higher than last year and 225 percent higher than 3-year average (fig. 2).

Even before the war (since early fall 2021), freight rates have been elevated, reflecting a tight supply of empty barges. In New Orleans, Hurricane Ida halted northbound traffic for weeks, worsening the barge shortage. If conditions were more normal right now, a barge supply shortage would be less of a problem, because barge demand tends to sag in the first half of the year. However, the Black Sea traffic disruptions are expected to increase short-term demand for U.S. barges, thereby exacerbating the supply shortage. The U.S. barge industry is closely watching how PNW demand reacts to the surging demand in the Gulf. If more of the additional export demand is absorbed by the PNW market, the Mississippi Gulf will see less demand for barge services. Moreover, the industry is concerned whether the current old crop stock is enough to meet the potential new export demand, which might limit the increase in barge demand.

The barge industry expects northbound demand on the Mississippi River to fall if the war in Ukraine continues. According to the *River Transportation News*, the United States annually imports about 3.5 mmt of pig iron, which is delivered mostly by northbound barges on the Mississippi River. Typically, more than 60 percent of annual U.S. pig iron imports comes from Russia and Ukraine. If the Russian supply is interrupted, U.S. importers may be forced to find alternative sources, which in turn, may reduce demand for northbound Mississippi barges. In addition, in 2021, the United States imported more than 10 mmt of fertilizer—of which Russia provided about 20 percent (about 2.1 mmt)—shipping it through the lower Mississippi River to domestic users. Fertilizer importers may likewise find alternative sources, such as importing from Canada by rail, creating further impacts on barge demand.

### Conclusion

Global market uncertainty following Russia's invasion of Ukraine has further limited an already short supply of empty barges while generating unusually high demand for U.S. barge services during a normally slow season. As a result, downbound barged grain freight rates on the Mississippi River have skyrocketed and should remain affected in the near future. [Matt.Chang@usda.gov](mailto:Matt.Chang@usda.gov), [Surajudeen.Olowolayemo@usda.gov](mailto:Surajudeen.Olowolayemo@usda.gov)



# Grain Transportation Indicators

Table 1

## Grain transport cost indicators<sup>1</sup>

For the week ending	Truck	Rail		Barge	Ocean	
		Non-Shuttle	Shuttle		Gulf	Pacific
03/23/22	345	298	327	470	333	303
03/16/22	352	298	272	550	353	314

<sup>1</sup>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.

Source: USDA, Agricultural Marketing Service.

Table 2

## Market Update: U.S. origins to export position price spreads (\$/bushel)

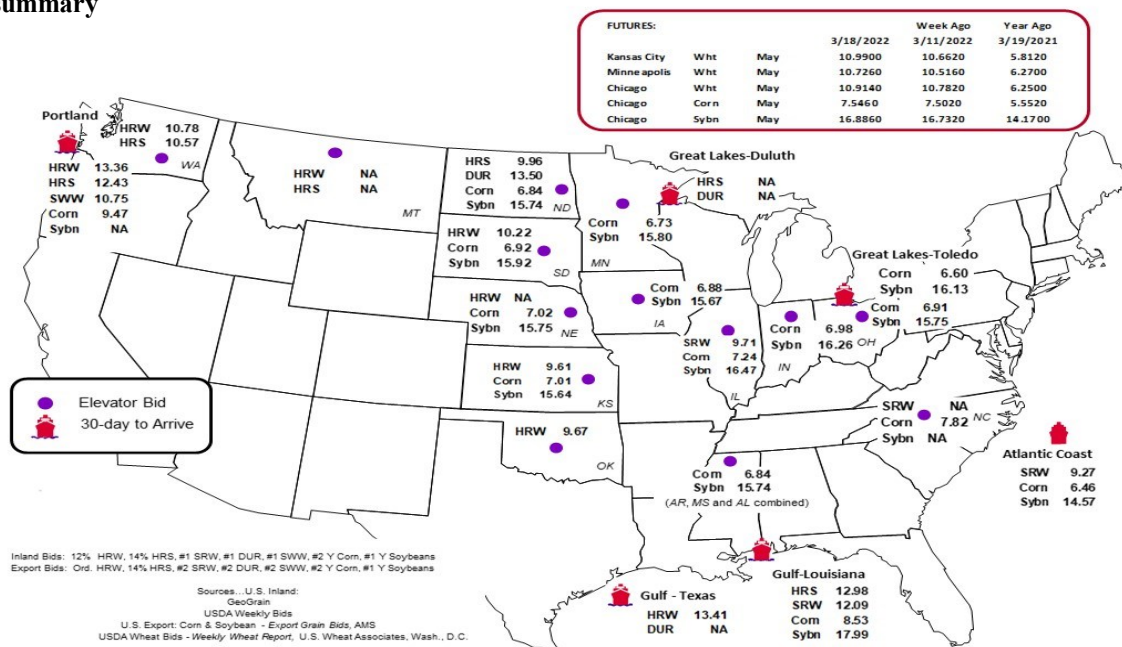
Commodity	Origin-destination	3/18/2022	3/11/2022
Corn	IL-Gulf	-1.29	-1.27
Corn	NE-Gulf	-1.51	-1.54
Soybean	IA-Gulf	-2.32	-2.26
HRW	KS-Gulf	-3.80	-3.61
HRS	ND-Portland	-2.47	-2.42

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  
**Rail deliveries to port (carloads)<sup>1</sup>**

For the week ending	Mississippi		Pacific	Atlantic &	Total	Week ending	Cross-border Mexico <sup>3</sup>
	Gulf	Texas Gulf	Northwest	East Gulf			
3/16/2022 <sup>p</sup>	1,553	436	5,323	552	7,864	3/12/2022	3,027
3/9/2022 <sup>r</sup>	2,180	553	6,482	628	9,843	3/5/2022	2,865
2022 YTD <sup>r</sup>	17,263	10,795	64,224	6,786	99,068	2022 YTD	29,057
2021 YTD <sup>r</sup>	18,740	18,316	68,958	7,175	113,189	2021 YTD	23,354
2022 YTD as % of 2021 YTD	92	59	93	95	88	% change YTD	124
Last 4 weeks as % of 2021 <sup>2</sup>	121	18	91	135	86	Last 4wks. % 2021	120
Last 4 weeks as % of 4-year avg. <sup>2</sup>	247	22	99	193	104	Last 4wks. % 4 yr.	140
Total 2021	54,982	69,213	311,407	22,567	458,169	Total 2021	147,859
Total 2020	45,294	64,116	299,882	24,458	433,750	Total 2020	128,714

<sup>1</sup>Data is incomplete as it is voluntarily provided.

<sup>2</sup> Compared with same 4-weeks in 2021 and prior 4-year average.

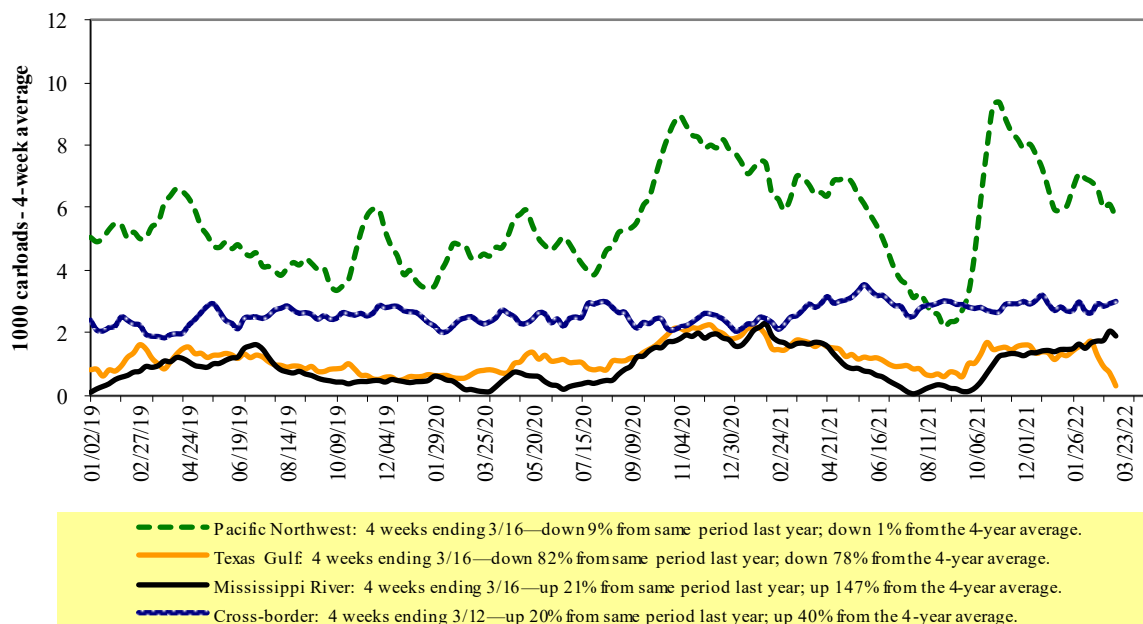
<sup>3</sup> Cross-border weekly data is approximately 15 percent below the Association of American Railroads' reported weekly carloads received by Mexican railroads to reflect switching between Kansas City Southern de Mexico (KCSM) and Grupo Mexico.

**YTD = year-to-date; p = preliminary data; r = revised data; n/a = not available; wks. = weeks; avg. = average.**

Source: USDA, Agricultural Marketing Service.

Railroads originate approximately 24 percent of U.S. grain shipments. Trends in these loadings are indicative of market conditions and expectations.

Figure 2  
**Rail deliveries to port**



Source: USDA, Agricultural Marketing Service.



Table 4

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

For the week ending: 3/12/2022	East		West			U.S. total	Canada	
	CSXT	NS	BNSF	KCS	UP		CN	CP
This week	2,094	2,177	10,427	1,027	5,488	21,213	3,438	3,969
This week last year	2,008	2,398	11,853	932	6,748	23,939	4,826	6,122
2022 YTD	18,622	22,787	117,654	13,158	63,353	235,574	35,696	37,071
2021 YTD	20,903	26,541	129,602	9,922	64,632	251,600	48,186	49,241
2022 YTD as % of 2021 YTD	89	86	91	133	98	94	74	75
Last 4 weeks as % of 2021*	95	103	97	125	105	101	91	78
Last 4 weeks as % of 3-yr. avg.**	101	100	108	109	121	109	100	95
Total 2021	93,935	120,912	609,890	64,818	318,002	1,207,557	210,324	242,533

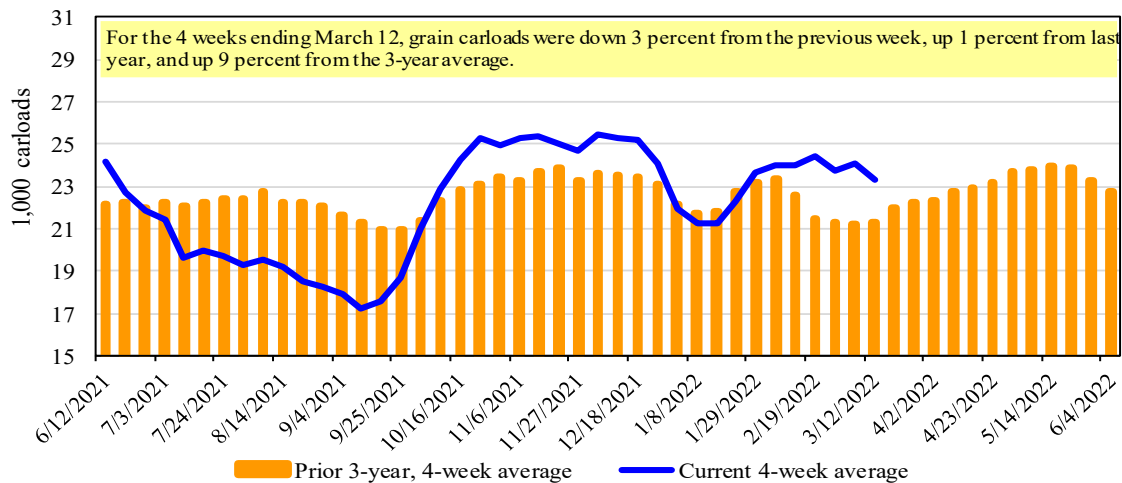
\*The past 4 weeks of this year as a percent of the same 4 weeks last year.

\*\*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 3

**Total weekly U.S. Class I railroad grain carloads**

Source: Association of American Railroads.

Table 5

**Railcar auction offerings<sup>1</sup> (\$/car)<sup>2</sup>**

For the week ending: 3/17/2022		Delivery period							
		Apr-22	Apr-21	May-22	May-21	Jun-22	Jun-21	Jul-22	Jul-21
BNSF <sup>3</sup>	COT grain units	0	no bids	no bids	0	no bids	no bids	no bids	0
	COT grain single-car	240	26	0	15	0	0	0	0
UP <sup>4</sup>	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

<sup>1</sup>Auction offerings are for single-car and unit train shipments only.

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

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

<sup>4</sup>UP - GCAS = Union Pacific Railroad Grain Car Allocation System.

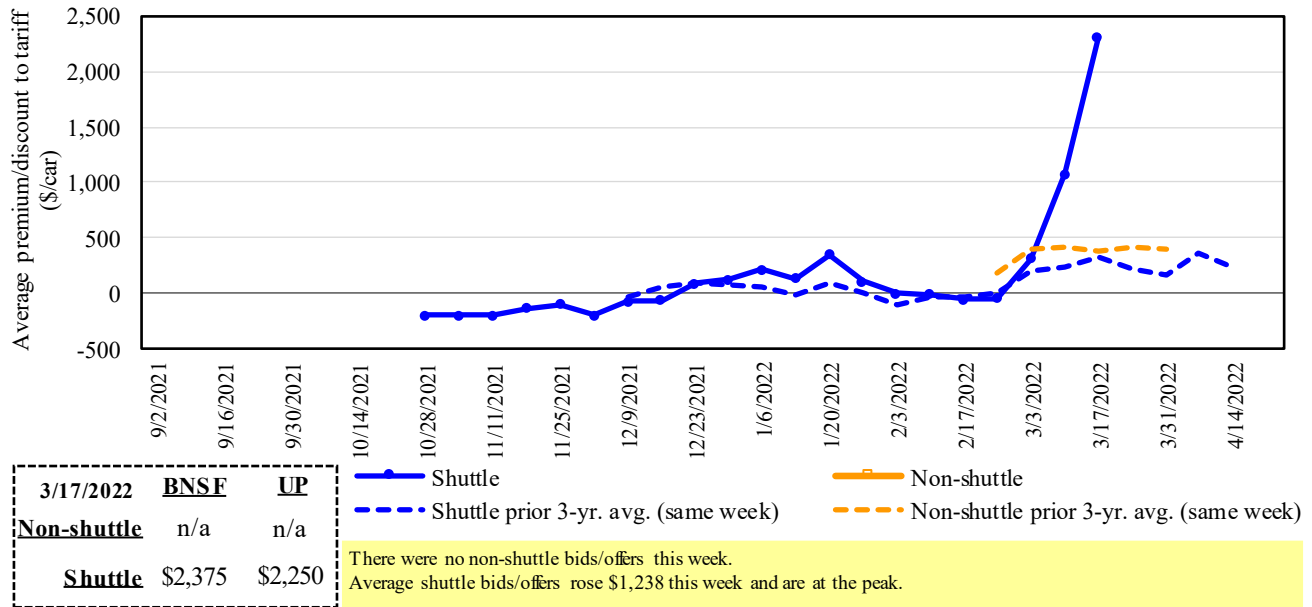
Region 1 includes: AR, IL, LA, MO, NM, OK, TX, WI, and Duluth, MN.

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

Source: USDA, Agricultural Marketing Service.

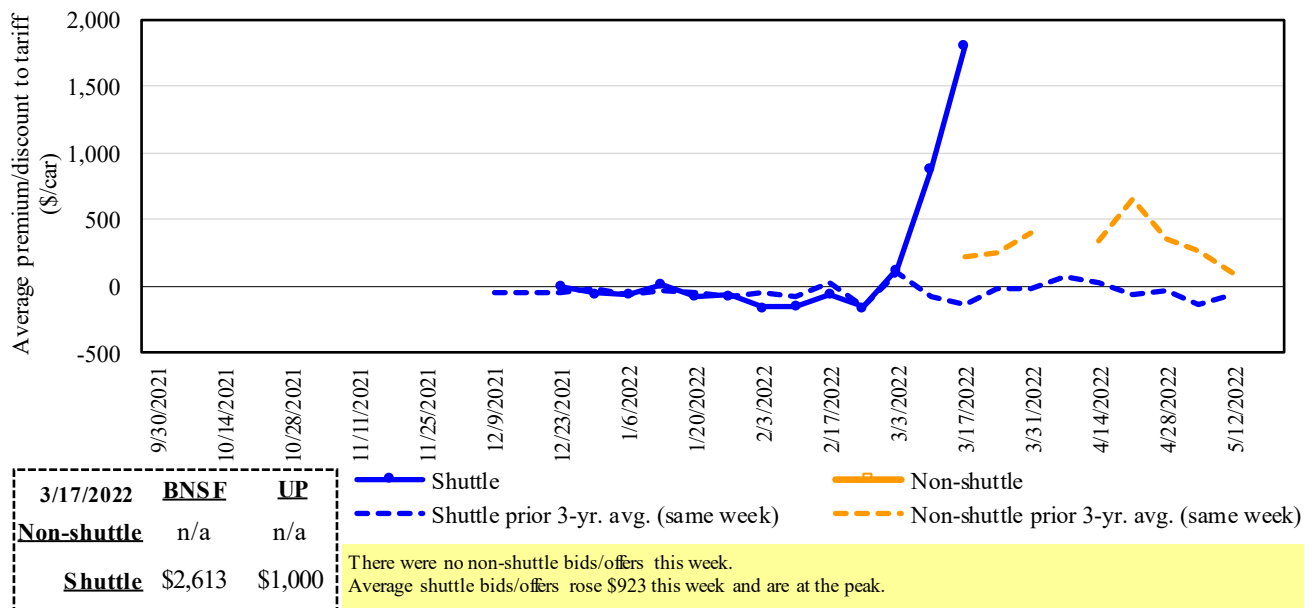
The **secondary rail market** information reflects trade values for service that was originally purchased from the railroad carrier as some form of guaranteed freight. The **auction and secondary rail** values are indicators of rail service quality and demand/supply.

**Figure 4**  
**Secondary market bids/offers for railcars to be delivered in April 2022**



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.

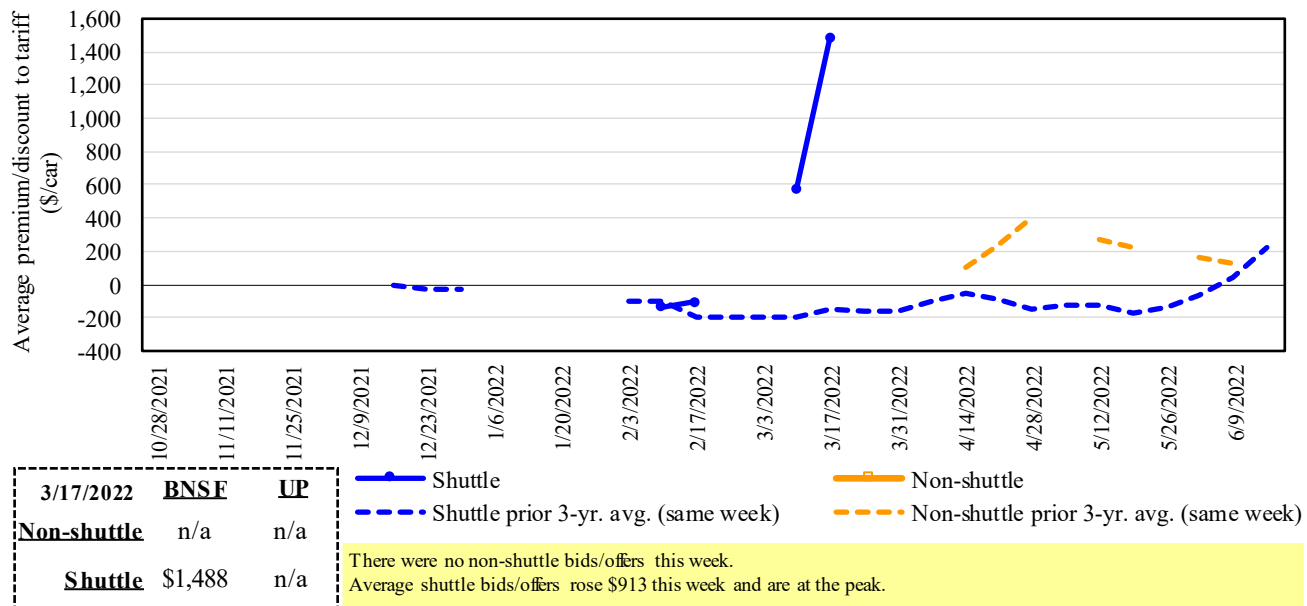
**Figure 5**  
**Secondary market bids/offers for railcars to be delivered in May 2022**



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 6

Secondary market bids/offers for railcars to be delivered in June 2022



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 6

Weekly secondary railcar market (\$/car)<sup>1</sup>

For the week ending: 3/17/2022		Delivery period					
		Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22
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 2021	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 same week 2021	n/a	n/a	n/a	n/a	n/a	n/a
Shuttle	BNSF-GF	2,375	2,613	1,488	550	150	383
	Change from last week	1,025	1,346	913	283	(50)	333
	Change from same week 2021	2,141	2,688	1,638	700	300	533
	UP-Pool	2,250	1,000	n/a	n/a	n/a	n/a
	Change from same week 2021	2,050	1,075	n/a	n/a	n/a	n/a

<sup>1</sup> 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.



The **tariff rail rate** is the base price of freight rail service. Together with **fuel surcharges** and any **auction and secondary rail** values, the tariff rail rate constitutes the full cost of shipping by rail. Typically, auction and secondary rail values are a small fraction of the full cost of shipping by rail relative to the tariff rate. However, during times of high rail demand or short supply, high auction and secondary rail values can exceed the cost of the tariff rate plus fuel surcharge.

Table 7

**Tariff rail rates for unit and shuttle train shipments<sup>1</sup>**

March 2022	Origin region <sup>3</sup>	Destination region <sup>3</sup>	Tariff rate/car	Fuel surcharge per car	Tariff plus surcharge per:		Percent change Y/Y <sup>4</sup>
					metric ton	bushel <sup>2</sup>	
<b>Unit train</b>							
Wheat	Wichita, KS	St. Louis, MO	\$3,695	\$167	\$38.35	\$1.04	3
	Grand Forks, ND	Duluth-Superior, MN	\$3,658	\$0	\$36.33	\$0.99	-13
	Wichita, KS	Los Angeles, CA	\$7,290	\$0	\$72.39	\$1.97	2
	Wichita, KS	New Orleans, LA	\$4,436	\$294	\$46.97	\$1.28	2
	Sioux Falls, SD	Galveston-Houston, TX	\$7,026	\$0	\$69.77	\$1.90	3
	Colby, KS	Galveston-Houston, TX	\$4,712	\$322	\$49.99	\$1.36	2
	Amarillo, TX	Los Angeles, CA	\$5,121	\$448	\$55.30	\$1.51	5
Corn	Champaign-Urbana, IL	New Orleans, LA	\$4,000	\$332	\$43.02	\$1.09	8
	Toledo, OH	Raleigh, NC	\$8,130	\$0	\$80.73	\$2.05	4
	Des Moines, IA	Davenport, IA	\$2,505	\$70	\$25.57	\$0.65	4
	Indianapolis, IN	Atlanta, GA	\$6,227	\$0	\$61.84	\$1.57	4
	Indianapolis, IN	Knoxville, TN	\$5,247	\$0	\$52.11	\$1.32	4
	Des Moines, IA	Little Rock, AR	\$4,000	\$207	\$41.77	\$1.06	6
	Des Moines, IA	Los Angeles, CA	\$5,880	\$602	\$64.37	\$1.63	8
Soybeans	Minneapolis, MN	New Orleans, LA	\$3,631	\$479	\$40.82	\$1.11	10
	Toledo, OH	Huntsville, AL	\$6,714	\$0	\$66.67	\$1.81	2
	Indianapolis, IN	Raleigh, NC	\$7,422	\$0	\$73.70	\$2.01	4
	Indianapolis, IN	Huntsville, AL	\$5,367	\$0	\$53.30	\$1.45	2
Champaign-Urbana, IL	New Orleans, LA	\$4,665	\$332	\$49.62	\$1.35	5	
<b>Shuttle train</b>							
Wheat	Great Falls, MT	Portland, OR	\$4,193	\$0	\$41.64	\$1.13	4
	Wichita, KS	Galveston-Houston, TX	\$4,411	\$0	\$43.80	\$1.19	4
	Chicago, IL	Albany, NY	\$6,670	\$0	\$66.24	\$1.80	5
	Grand Forks, ND	Portland, OR	\$5,851	\$0	\$58.10	\$1.58	3
	Grand Forks, ND	Galveston-Houston, TX	\$5,199	\$0	\$51.63	\$1.41	-13
	Colby, KS	Portland, OR	\$5,923	\$528	\$64.06	\$1.74	4
Corn	Minneapolis, MN	Portland, OR	\$5,380	\$0	\$53.43	\$1.36	4
	Sioux Falls, SD	Tacoma, WA	\$5,340	\$0	\$53.03	\$1.35	4
	Champaign-Urbana, IL	New Orleans, LA	\$3,920	\$332	\$42.22	\$1.07	8
	Lincoln, NE	Galveston-Houston, TX	\$4,080	\$0	\$40.52	\$1.03	5
	Des Moines, IA	Amarillo, TX	\$4,420	\$260	\$46.47	\$1.18	6
	Minneapolis, MN	Tacoma, WA	\$5,380	\$0	\$53.43	\$1.36	4
	Council Bluffs, IA	Stockton, CA	\$5,300	\$0	\$52.63	\$1.34	4
Soybeans	Sioux Falls, SD	Tacoma, WA	\$6,050	\$0	\$60.08	\$1.64	3
	Minneapolis, MN	Portland, OR	\$6,100	\$0	\$60.58	\$1.65	3
	Fargo, ND	Tacoma, WA	\$5,950	\$0	\$59.09	\$1.61	3
	Council Bluffs, IA	New Orleans, LA	\$4,895	\$383	\$52.41	\$1.43	5
	Toledo, OH	Huntsville, AL	\$4,954	\$0	\$49.20	\$1.34	0
Grand Island, NE	Portland, OR	\$5,280	\$540	\$57.80	\$1.57	7	

<sup>1</sup>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.

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

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

<sup>4</sup>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 8

**Tariff rail rates for U.S. bulk grain shipments to Mexico**

Date: December 2021			Tariff rate per car <sup>1</sup>	Fuel surcharge per car <sup>2</sup>	Tariff rate plus fuel surcharge per:		Percent change <sup>4</sup> Y/Y
Commodity	Origin state	Destination region			metric ton <sup>3</sup>	bushel <sup>3</sup>	
Wheat	MT	Chihuahua, CI	\$7,699	\$0	\$78.67	\$2.14	4
	OK	Cuautitlan, EM	\$6,900	\$230	\$72.85	\$1.98	6
	KS	Guadalajara, JA	\$7,619	\$719	\$85.19	\$2.32	7
	TX	Salinas Victoria, NL	\$4,420	\$138	\$46.57	\$1.27	4
Corn	IA	Guadalajara, JA	\$9,102	\$663	\$99.77	\$2.53	6
	SD	Celaya, GJ	\$8,300	\$0	\$84.81	\$2.15	2
	NE	Queretaro, QA	\$8,322	\$462	\$89.75	\$2.28	5
	SD	Salinas Victoria, NL	\$6,905	\$0	\$70.55	\$1.79	0
	MO	Tlalnepantla, EM	\$7,687	\$450	\$83.14	\$2.11	5
	SD	Torreón, CU	\$7,825	\$0	\$79.95	\$2.03	2
Soybeans	MO	Bojay (Tula), HG	\$8,647	\$614	\$94.63	\$2.57	5
	NE	Guadalajara, JA	\$9,207	\$646	\$100.67	\$2.74	5
	IA	El Castillo, JA	\$9,510	\$0	\$97.17	\$2.64	1
	KS	Torreón, CU	\$8,109	\$466	\$87.61	\$2.38	5
Sorghum	NE	Celaya, GJ	\$7,932	\$597	\$87.15	\$2.21	6
	KS	Queretaro, QA	\$8,108	\$287	\$85.77	\$2.18	3
	NE	Salinas Victoria, NL	\$6,713	\$231	\$70.94	\$1.80	3
	NE	Torreón, CU	\$7,225	\$438	\$78.29	\$1.99	6

<sup>1</sup>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.

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

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

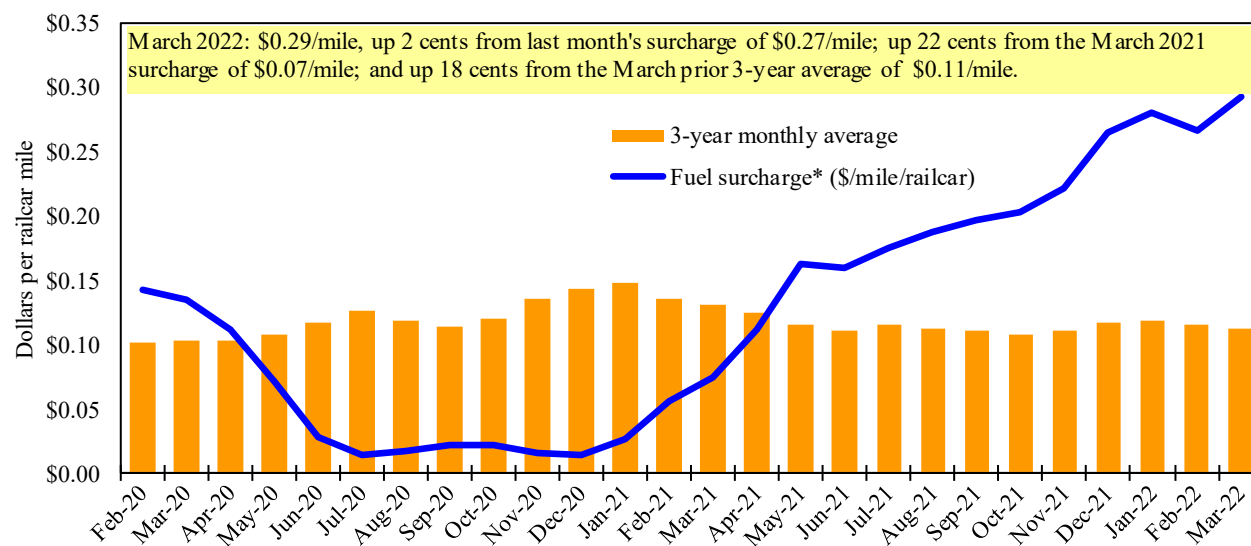
<sup>4</sup>Percentage change calculated using tariff rate plus fuel surcharge; Y/Y = year over year.

<sup>5</sup> 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 7

**Railroad fuel surcharges, North American weighted average<sup>1</sup>**

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

\* Beginning January 2009, the Canadian Pacific fuel surcharge is computed by a monthly average of the bi-weekly fuel surcharge.

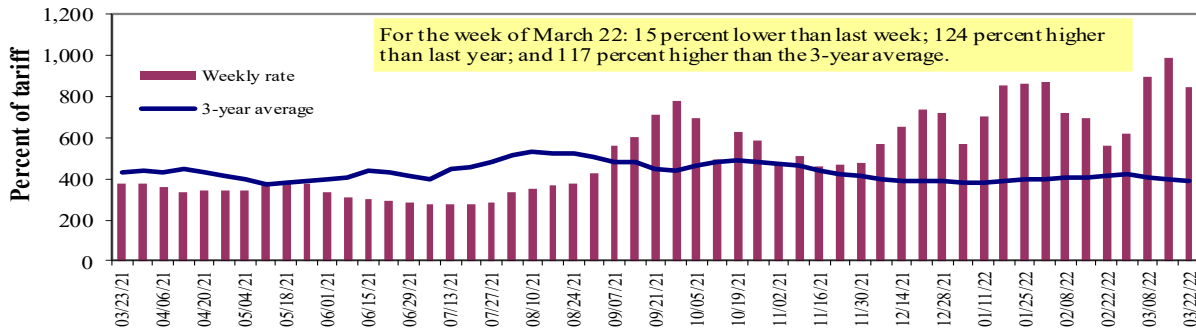
\*\*CSX strike price changed from \$2.00/gal. to \$3.75/gal. starting January 1, 2015.

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

# Barge Transportation

Figure 8

## Illinois River barge freight rate<sup>1,2</sup>



<sup>1</sup>Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); <sup>2</sup>4-week moving average of the 3-year average.  
\*Source: USDA, Agricultural Marketing Service.

Table 9

## Weekly barge freight rates: Southbound only

		Twin Cities	Mid-Mississippi	Lower Illinois River	St. Louis	Cincinnati	Lower Ohio	Cairo-Memphis
<b>Rate<sup>1</sup></b>	3/22/2022	850	883	846	738	858	858	663
	3/15/2022	-	1000	990	871	1060	1060	765
<b>\$/ton</b>	3/22/2022	52.62	46.98	39.25	29.45	40.24	34.66	20.82
	3/15/2022	-	53.20	45.94	34.75	49.71	42.82	24.02
<b>Current week % change from the same week:</b>								
	Last year	-	-	124	165	176	176	175
	3-year avg. <sup>2</sup>	-	-	117	155	163	163	147
<b>Rate<sup>1</sup></b>	April	854	813	771	675	733	733	588
	June	682	608	578	492	554	554	417

<sup>1</sup>Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); <sup>2</sup>4-week moving average; ton = 2,000 pounds; "-" data not available.  
Source: USDA, Agricultural Marketing Service.

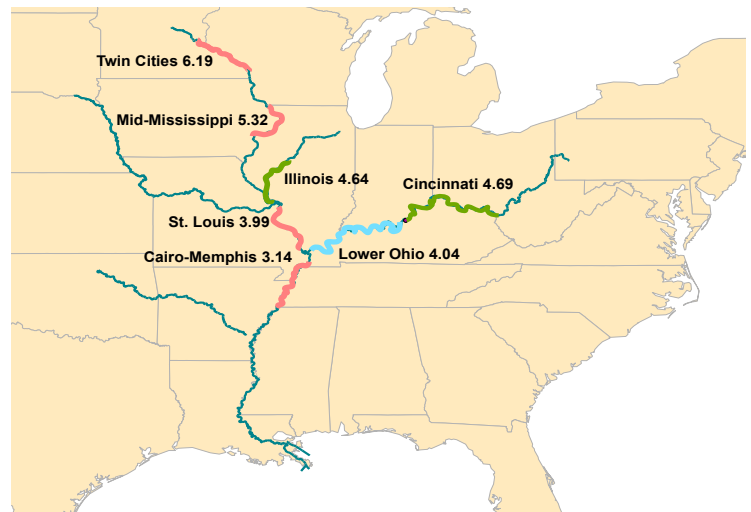
Figure 9

## Benchmark tariff rates

### Calculating barge rate per ton:

$(\text{Rate} * 1976 \text{ tariff benchmark rate per ton}) / 100$

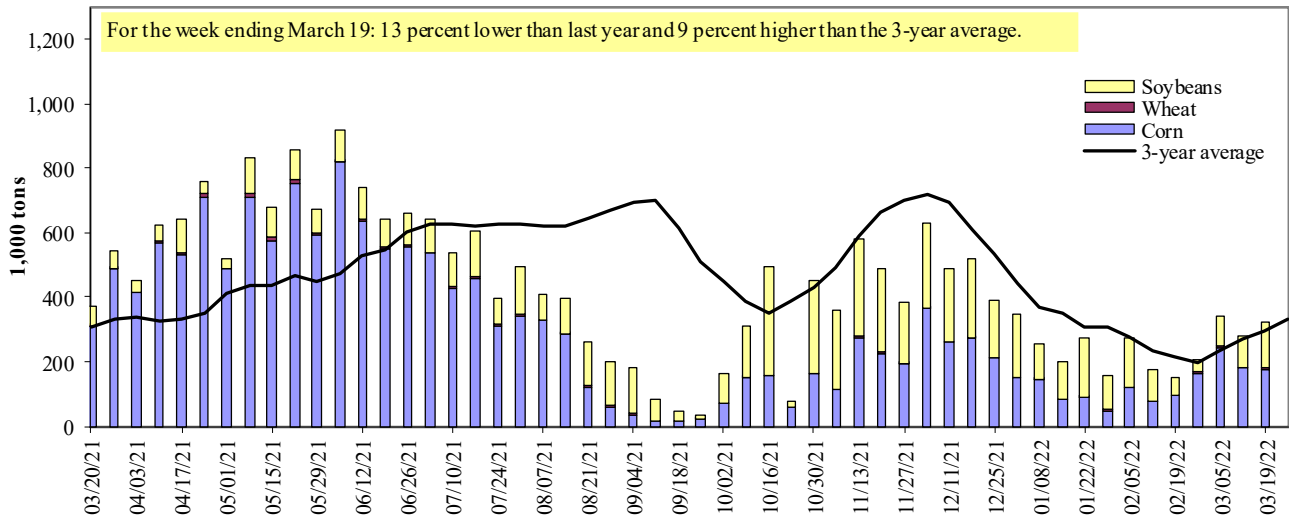
Select applicable index from market quotes are included in tables on this page. The 1976 benchmark rates per ton are provided in map.



Map Credit: USDA, Agricultural Marketing Service

Figure 10

**Barge movements on the Mississippi River<sup>1</sup> (Locks 27 - Granite City, IL)**



<sup>1</sup> The 3-year average is a 4-week moving average.

Source: U.S. Army Corps of Engineers.

Table 10

**Barge grain movements (1,000 tons)**

For the week ending 03/19/2022	Corn	Wheat	Soybeans	Other	Total
<b>Mississippi River</b>					
Rock Island, IL (L15)	0	0	2	0	2
Winfield, MO (L25)	63	3	35	0	101
Alton, IL (L26)	229	10	148	0	387
Granite City, IL (L27)	173	8	142	0	323
<b>Illinois River (La Grange)</b>					
	80	5	62	0	147
<b>Ohio River (Olmsted)</b>					
	238	0	89	4	331
<b>Arkansas River (L1)</b>					
	4	23	13	0	40
Weekly total - 2022	416	31	243	4	693
Weekly total - 2021	556	12	156	0	723
2022 YTD <sup>1</sup>	3,416	289	2,537	35	6,277
2021 YTD <sup>1</sup>	5,512	171	2,716	87	8,486
2022 as % of 2021 YTD	62	169	93	41	74
Last 4 weeks as % of 2021 <sup>2</sup>	70	183	135	483	86
Total 2021	23,516	1,634	11,325	297	36,772

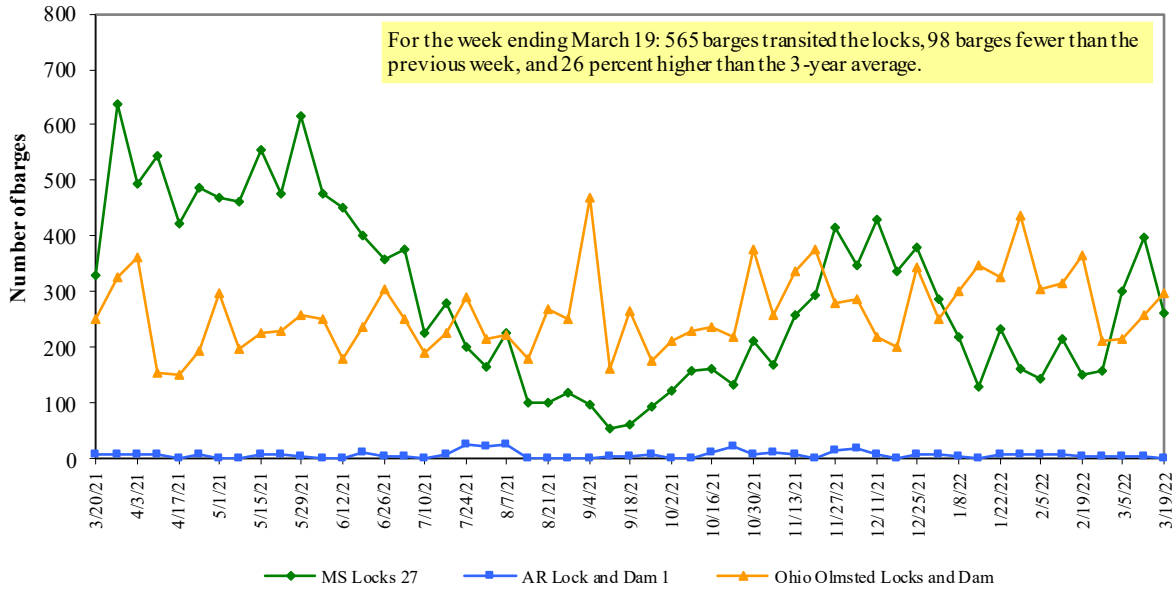
<sup>1</sup> Weekly total, YTD (year-to-date), and calendar year total include MI/27, OH/Olmsted, and AR/1; Other refers to oats, barley, sorghum, and rye. Total may not add exactly due to rounding.

<sup>2</sup> As a percent of same period in 2020.

Note: L (as in "L15") refers to a lock, locks, or locks and dam facility.

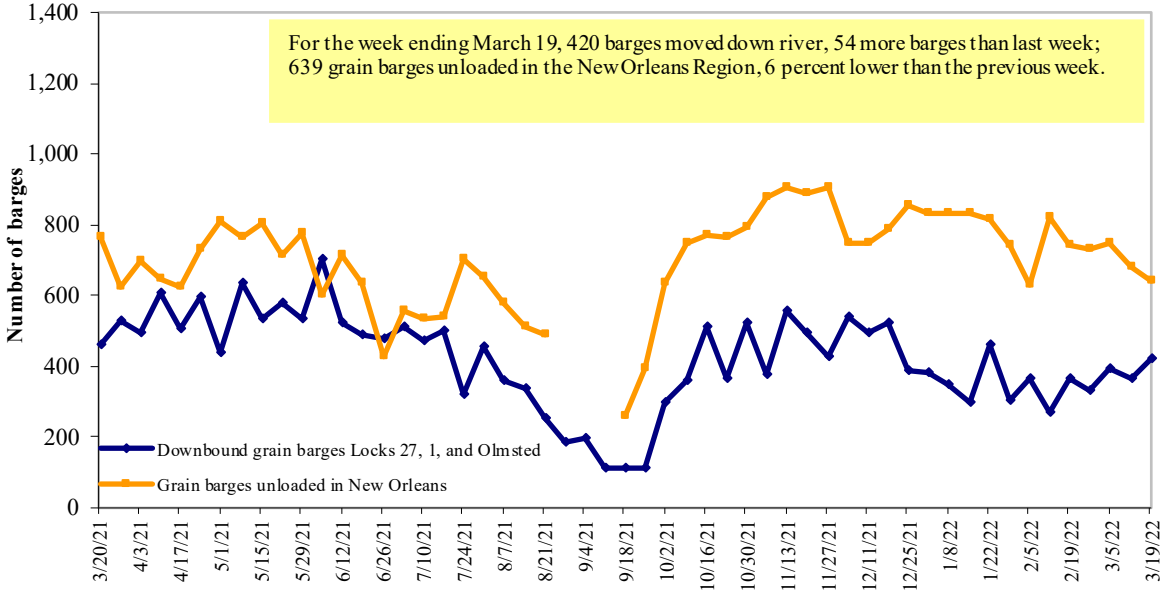
Source: U.S. Army Corps of Engineers.

**Figure 11**  
**Upbound empty barges transiting Mississippi River Locks 27, Arkansas River Lock and Dam 1, and Ohio River Olmsted Locks and Dam**



Source: U.S. Army Corps of Engineers.

**Figure 12**  
**Grain barges for export in New Orleans region**



Note: Olmsted = Olmsted Locks and Dam.

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 11

**Retail on-highway diesel prices, week ending 3/21/2022 (U.S. \$/gallon)**

Region	Location	Price	Change from	
			Week ago	Year ago
I	East Coast	5.179	-0.155	2.027
	New England	5.125	-0.106	2.026
	Central Atlantic	5.303	-0.171	2.004
	Lower Atlantic	5.110	-0.154	2.046
II	Midwest	4.959	-0.085	1.810
III	Gulf Coast	4.964	-0.146	1.973
IV	Rocky Mountain	4.887	-0.079	1.570
V	West Coast	5.797	-0.070	2.119
	West Coast less California	5.319	-0.097	2.004
	California	6.218	-0.046	2.238
Total	United States	5.134	-0.116	1.940

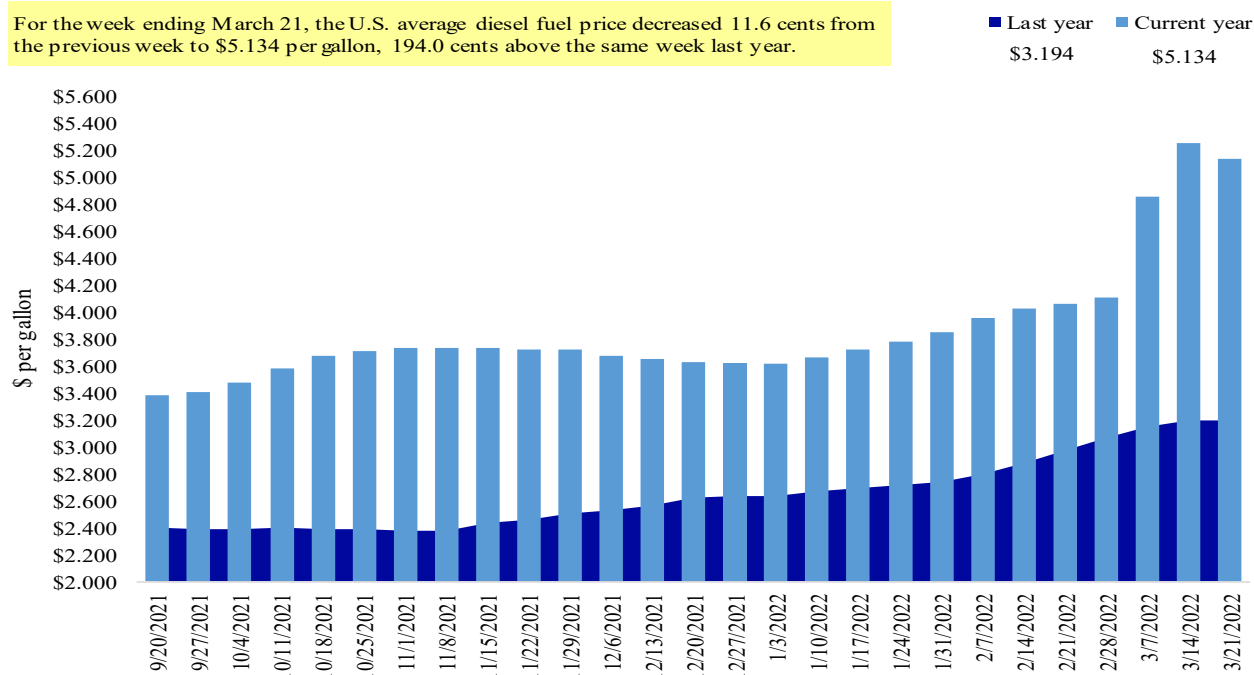
<sup>1</sup>Diesel fuel prices include all taxes. Prices represent an average of all types of diesel fuel.

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

Figure 13

**Weekly diesel fuel prices, U.S. average**

For the week ending March 21, the U.S. average diesel fuel price decreased 11.6 cents from the previous week to \$5.134 per gallon, 194.0 cents above the same week last year.



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



# Grain Exports

Table 12

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

For the week ending	Wheat					All wheat	Corn	Soybeans	Total
	HRW	SRW	HRS	SWW	DUR				
<b>Export balances<sup>1</sup></b>									
3/10/2022	1,705	622	1,081	528	19	3,955	23,232	11,299	38,485
This week year ago	1,428	388	1,765	2,017	153	5,752	30,543	6,780	43,074
<b>Cumulative exports-marketing year<sup>2</sup></b>									
2021/22 YTD	5,721	2,149	4,007	2,735	170	14,781	28,807	42,326	85,913
2020/21 YTD	6,897	1,378	5,537	4,429	518	18,759	29,962	53,777	102,498
YTD 2021/22 as % of 2020/21	83	156	72	62	33	79	96	79	84
Last 4 wks. as % of same period 2020/21*	127	157	61	28	12	71	75	150	86
Total 2020/21	8,331	1,744	7,337	6,281	654	24,347	66,702	60,287	151,336
Total 2019/20	9,526	2,318	6,960	4,751	922	24,477	42,622	43,994	111,094

<sup>1</sup> Current unshipped (outstanding) export sales to date.

<sup>2</sup> Shipped export sales to date; 2021/22 marketing year now in effect for wheat, corn and soybeans.

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 13

## Top 5 importers<sup>1</sup> of U.S. corn

For the week ending 3/10/2022	Total commitments <sup>2</sup>		% change current MY from last MY	Exports <sup>3</sup> 3-yr. avg. 2019-21
	2021/22 current MY	2020/21 last MY		
1,000 mt -				
Mexico	14,384	12,428	16	14,817
Japan	8,070	8,563	(6)	11,082
China	12,100	19,364	(38)	7,920
Columbia	3,490	2,856	22	4,491
Korea	347	1,929	(82)	3,302
<b>Top 5 importers</b>	<b>38,390</b>	<b>45,140</b>	<b>(15)</b>	<b>41,613</b>
<b>Total U.S. corn export sales</b>	<b>52,039</b>	<b>60,505</b>	<b>(14)</b>	<b>53,145</b>
% of projected exports	82%	86%		
Change from prior week <sup>2</sup>	<b>1,836</b>	<b>986</b>		
<b>Top 5 importers' share of U.S. corn export sales</b>	74%	75%		78%
<b>USDA forecast March 2022</b>	<b>63,613</b>	<b>70,051</b>	<b>(9)</b>	
<b>Corn use for ethanol USDA forecast, March 2022</b>	<b>135,890</b>	<b>127,838</b>	<b>6</b>	

<sup>1</sup> Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2020/21; marketing year (MY) = Sep 1 - Aug 31.

<sup>2</sup> 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.

<sup>3</sup> FAS marketing year ranking reports (carry over 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 5 importers<sup>1</sup> of U.S. soybeans**

For the week ending 3/10/2022	Total commitments <sup>2</sup>		% change current MY from last MY	Exports <sup>3</sup> 3-yr. avg. 2018-20
	2021/22 current MY	2020/21 last MY		
				- 1,000 mt -
China	27,686	35,847	(23)	21,666
Mexico	4,806	4,498	7	4,754
Egypt	3,350	2,393	40	3,093
Indonesia	1,201	1,736	(31)	2,325
Japan	1,818	1,804	1	2,275
<b>Top 5 importers</b>	<b>38,861</b>	<b>46,278</b>	<b>(16)</b>	<b>34,113</b>
<b>Total U.S. soybean export sales</b>	<b>53,624</b>	<b>60,557</b>	<b>(11)</b>	<b>50,758</b>
% of projected exports	94%	98%		
change from prior week <sup>2</sup>	<b>1,253</b>	<b>202</b>		
<b>Top 5 importers' share of U.S. soybean export sales</b>	<b>72%</b>	<b>76%</b>		<b>67%</b>
<b>USDA forecast, March 2022</b>	<b>56,948</b>	<b>61,608</b>	<b>(8)</b>	

<sup>1</sup>Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2020/21; marketing year (MY) = Sep 1- Aug 31.

<sup>2</sup>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.

<sup>3</sup>FAS marketing year ranking reports (carry over 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 15

**Top 10 importers<sup>1</sup> of all U.S. wheat**

For the week ending 3/10/2022	Total Commitments <sup>2</sup>		% change current MY from last MY	Exports <sup>3</sup> 3-yr. avg. 2018-20
	2021/22 current MY	2020/21 last MY		
				- 1,000 mt -
Mexico	3,410	3,367	1	3,388
Philippines	2,722	3,032	(10)	3,121
Japan	2,243	2,336	(4)	2,567
Korea	1,197	1,608	(26)	1,501
Nigeria	2,023	1,367	48	1,490
China	848	3,051	(72)	1,268
Taiwan	823	1,136	(28)	1,187
Indonesia	67	994	(93)	1,131
Thailand	542	810	(33)	768
Italy	229	570	(60)	681
<b>Top 10 importers</b>	<b>14,103</b>	<b>18,271</b>	<b>(23)</b>	<b>17,102</b>
<b>Total U.S. wheat export sales</b>	<b>18,735</b>	<b>24,510</b>	<b>(24)</b>	<b>24,617</b>
% of projected exports	86%	91%		
change from prior week <sup>2</sup>	<b>146</b>	<b>390</b>		
<b>Top 10 importers' share of U.S. wheat export sales</b>	<b>75%</b>	<b>75%</b>		<b>69%</b>
<b>USDA forecast, March 2022</b>	<b>21,798</b>	<b>27,030</b>	<b>(19)</b>	

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

<sup>2</sup>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.

<sup>3</sup>FAS marketing year final reports (carry over plus accumulated export); yr. = year; avg. = average.

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

Source: USDA, Foreign Agricultural Service.

Table 16

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

Port regions	For the week ending 03/17/22	Previous week*	Current week as % of previous	2022 YTD*	2021 YTD*	2022 YTD as % of 2021 YTD	Last 4-weeks as % of:		2021 total*
							Last year	Prior 3-yr. avg.	
<b>Pacific Northwest</b>									
Wheat	126	156	81	2,345	3,530	66	48	57	13,243
Corn	267	180	148	2,559	3,781	68	48	87	13,420
Soybeans	71	143	50	3,471	3,685	94	111	93	14,540
<b>Total</b>	<b>465</b>	<b>479</b>	<b>97</b>	<b>8,375</b>	<b>10,996</b>	<b>76</b>	<b>58</b>	<b>76</b>	<b>41,203</b>
<b>Mississippi Gulf</b>									
Wheat	83	86	97	822	411	200	217	100	3,202
Corn	973	753	129	9,237	10,878	85	78	128	38,498
Soybeans	302	433	70	6,452	8,490	76	97	86	27,159
<b>Total</b>	<b>1,358</b>	<b>1,272</b>	<b>107</b>	<b>16,511</b>	<b>19,779</b>	<b>83</b>	<b>85</b>	<b>112</b>	<b>68,858</b>
<b>Texas Gulf</b>									
Wheat	89	10	929	681	733	93	54	42	3,888
Corn	20	6	321	141	146	97	32	45	627
Soybeans	0	0	n/a	2	619	0	n/a	n/a	1,611
<b>Total</b>	<b>110</b>	<b>16</b>	<b>667</b>	<b>824</b>	<b>1,498</b>	<b>55</b>	<b>50</b>	<b>42</b>	<b>6,126</b>
<b>Interior</b>									
Wheat	49	68	71	647	559	116	122	172	2,972
Corn	173	184	94	1,934	1,914	101	91	116	10,147
Soybeans	125	174	72	1,622	1,622	100	109	111	6,525
<b>Total</b>	<b>347</b>	<b>427</b>	<b>81</b>	<b>4,203</b>	<b>4,095</b>	<b>103</b>	<b>102</b>	<b>121</b>	<b>19,644</b>
<b>Great Lakes</b>									
Wheat	1	4	26	23	19	120	777	443	536
Corn	0	0	n/a	0	0	n/a	n/a	n/a	145
Soybeans	0	0	n/a	0	0	n/a	n/a	n/a	592
<b>Total</b>	<b>1</b>	<b>4</b>	<b>26</b>	<b>23</b>	<b>19</b>	<b>120</b>	<b>777</b>	<b>443</b>	<b>1,273</b>
<b>Atlantic</b>									
Wheat	0	0	n/a	4	71	6	0	0	128
Corn	7	3	244	42	0	n/a	n/a	358	85
Soybeans	75	81	94	744	787	94	176	228	2,184
<b>Total</b>	<b>82</b>	<b>83</b>	<b>99</b>	<b>790</b>	<b>858</b>	<b>92</b>	<b>126</b>	<b>194</b>	<b>2,397</b>
<b>U.S. total from ports*</b>									
Wheat	348	323	108	4,522	5,323	85	66	69	23,969
Corn	1,441	1,127	128	13,914	16,719	83	72	116	62,921
Soybeans	573	831	69	12,290	15,203	81	107	97	52,612
<b>Total</b>	<b>2,362</b>	<b>2,281</b>	<b>104</b>	<b>30,725</b>	<b>37,245</b>	<b>82</b>	<b>78</b>	<b>100</b>	<b>139,501</b>

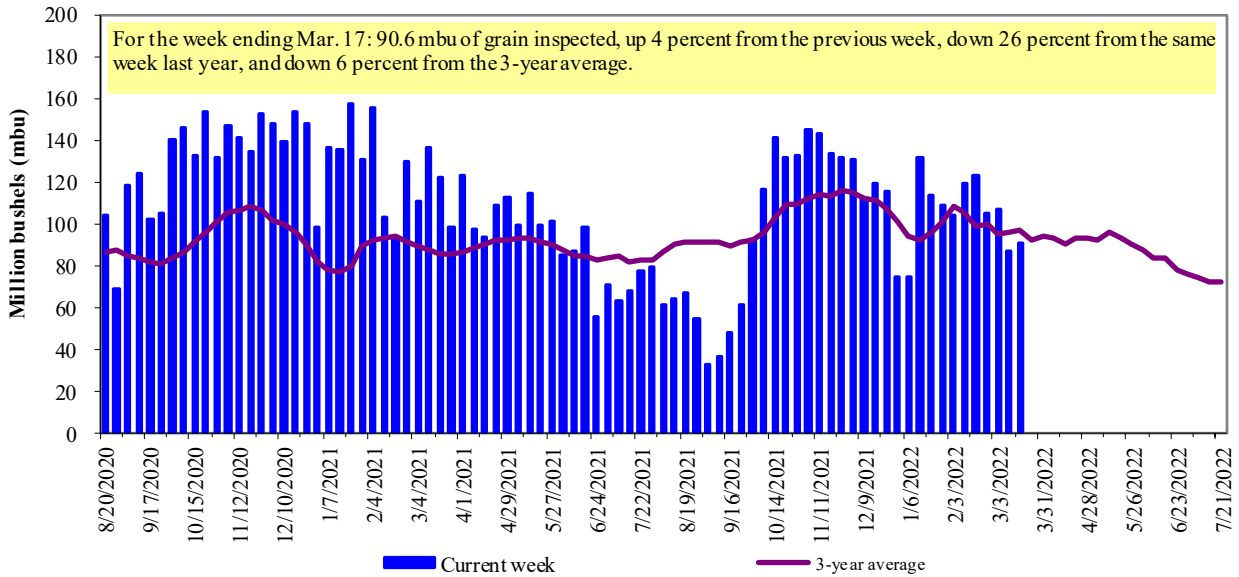
\*Data includes revisions from prior weeks; some regional totals may not add exactly due to rounding.

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 14

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

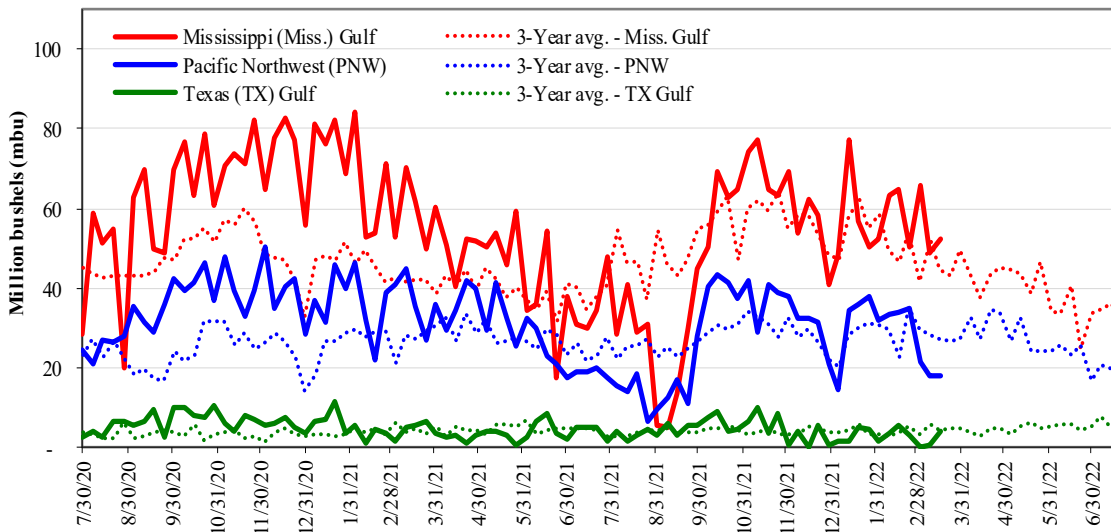


Note: 3-year average consists of 4-week running average.

Source: USDA, Federal Grain Inspection Service.

Figure 15

**U.S. Grain inspections: U.S. Gulf and PNW<sup>1</sup> (wheat, corn, and soybeans)**



<u>Week ending 03/17/22 inspections (mbu):</u>	<u>Percent change from:</u>	<u>MS Gulf</u>	<u>TX Gulf</u>	<u>U.S. Gulf</u>	<u>PNW</u>
MS Gulf: 52.4	Last wk:	up 8	up 558	up 15	down 2
PNW: 17.8	Last Year (same wk):	down 15	down 24	down 16	down 50
TX Gulf: 4.1	3-yr avg. (4-wk. mov. Avg):	up 9	down 12	up 7	down 41

Source: USDA, Federal Grain Inspection Service.

# Ocean Transportation

Table 17

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

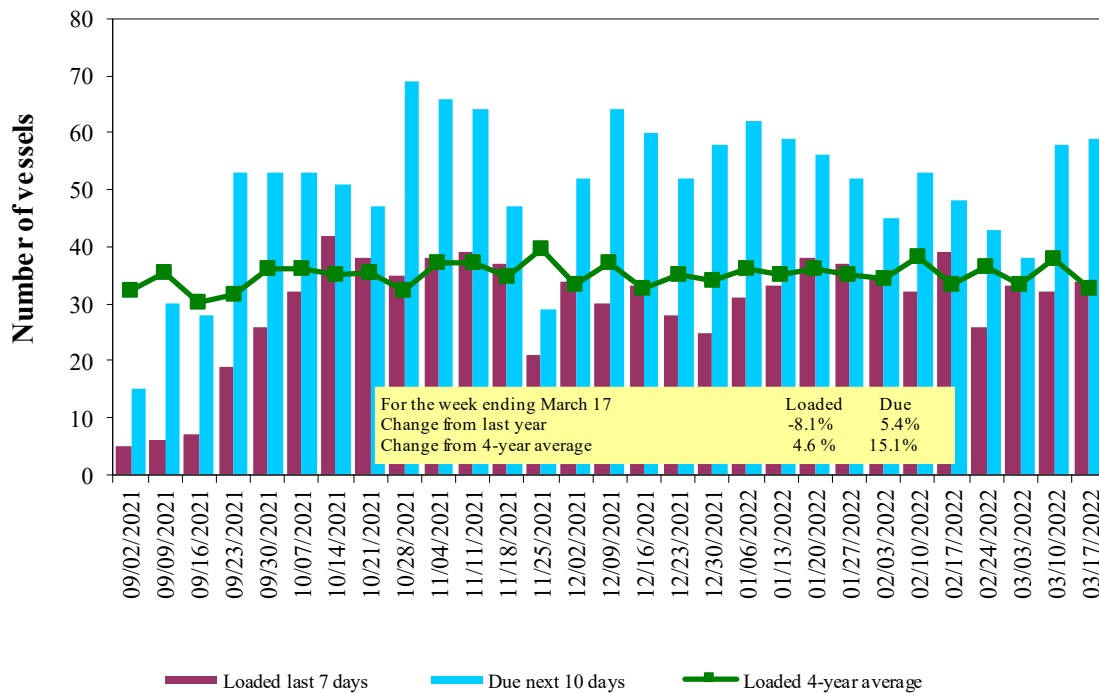
Date	In port	Gulf		Pacific Northwest
		Loaded 7-days	Due next 10-days	In port
3/17/2022	19	34	59	10
3/10/2022	26	32	58	10
2021 range	(10...57)	(5...48)	(15...69)	(4...27)
2021 average	34	32	49	15

Note: n/a = not available due to the holiday

Source: USDA, Agricultural Marketing Service.

Figure 16

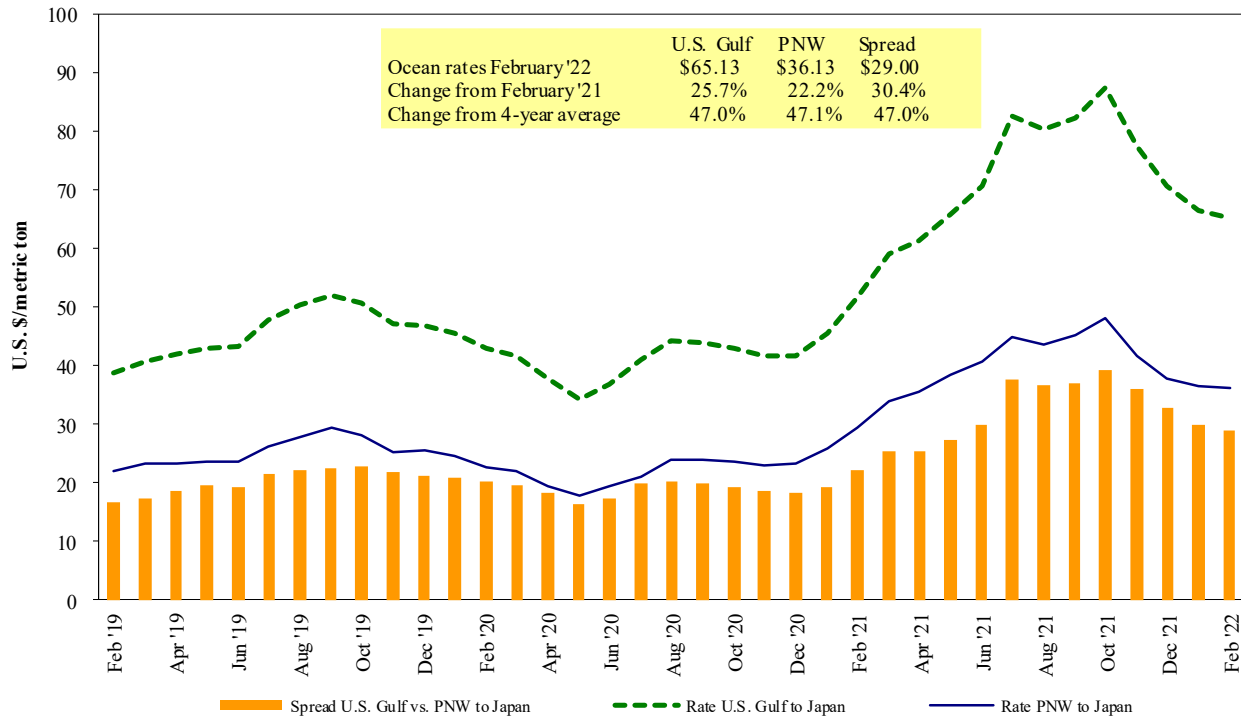
**U.S. Gulf<sup>1</sup> vessel loading activity**



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

Figure 17

Grain vessel rates, U.S. to Japan



Note: PNW = Pacific Northwest

Source: O'Neil Commodity Consulting

Table 18

Ocean freight rates for selected shipments, week ending 03/19/2022

Export region	Import region	Grain types	Loading date	Volume loads (metric tons)	Freight rate (US\$/metric ton)
U.S. Gulf	Japan	Heavy grain	Jun 1/10	50,000	89.65
U.S. Gulf	Japan	Heavy grain	May 1/20, 2022	50,000	78.90
U.S. Gulf	China	Heavy grain	Dec 1/10, 2021	65,000	76.00
U.S. Gulf	China	Heavy grain	Nov 1/10, 2021	66,000	89.00
U.S. Gulf	Djibouti	Sorghum	Mar 1/10, 2022	10,000	209.97*
U.S. Gulf	Honduras	Soybean Meal	Feb 18/28, 2022	7,820	57.15*
U.S. Gulf	S. Korea	Heavy grain	Jun 1/Jul, 2022	55,000	82.75
U.S. Gulf	Sudan	Sorghum	Mar 1/10, 2022	35,790	149.97*
U.S. Gulf	Sudan	Sorghum	Feb 1/10, 2022	35,780	77.60*
PNW	Japan	Wheat	Sep 1, 2021	52,170	56.55*
PNW	Yemen	Wheat	Jan 24/Feb 4, 2022	29,960	124.00*
Brazil	N. China	Heavy grain	Mar 18/27, 2022	64,000	56.85
Brazil	N. China	Heavy grain	Jan 1/5, 2022	64,000	58.25
Argentina	Taiwan	Corn	May 1/Jun, 2022	65,000	85.00
Australia	Japan	Barley	Nov 1/10, 2021	55,000	65.50

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

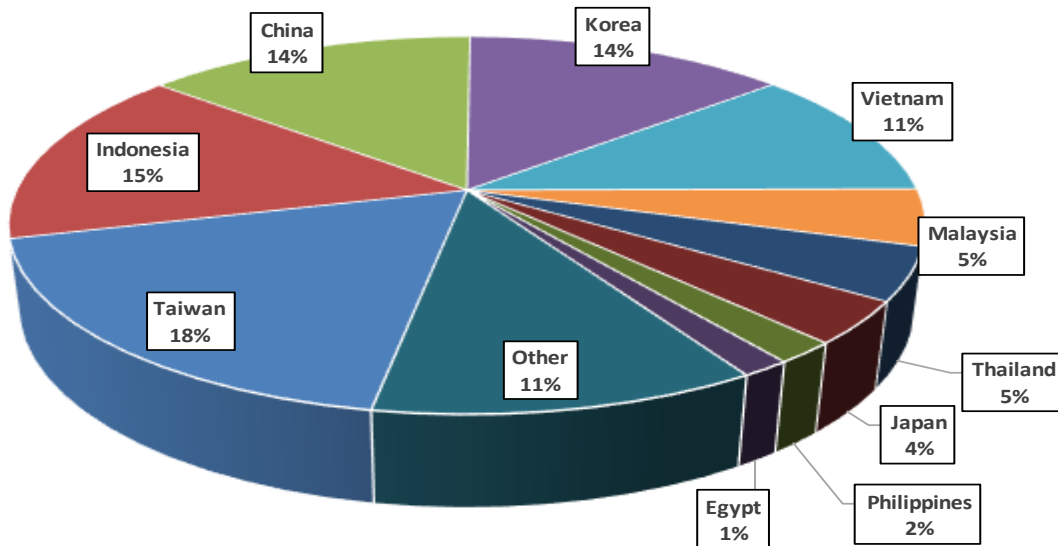
Note: Rates shown are per metric ton (2,204.62 lbs. = 1 metric ton), free on board (F.O.B), except where otherwise indicated; op = option.

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.

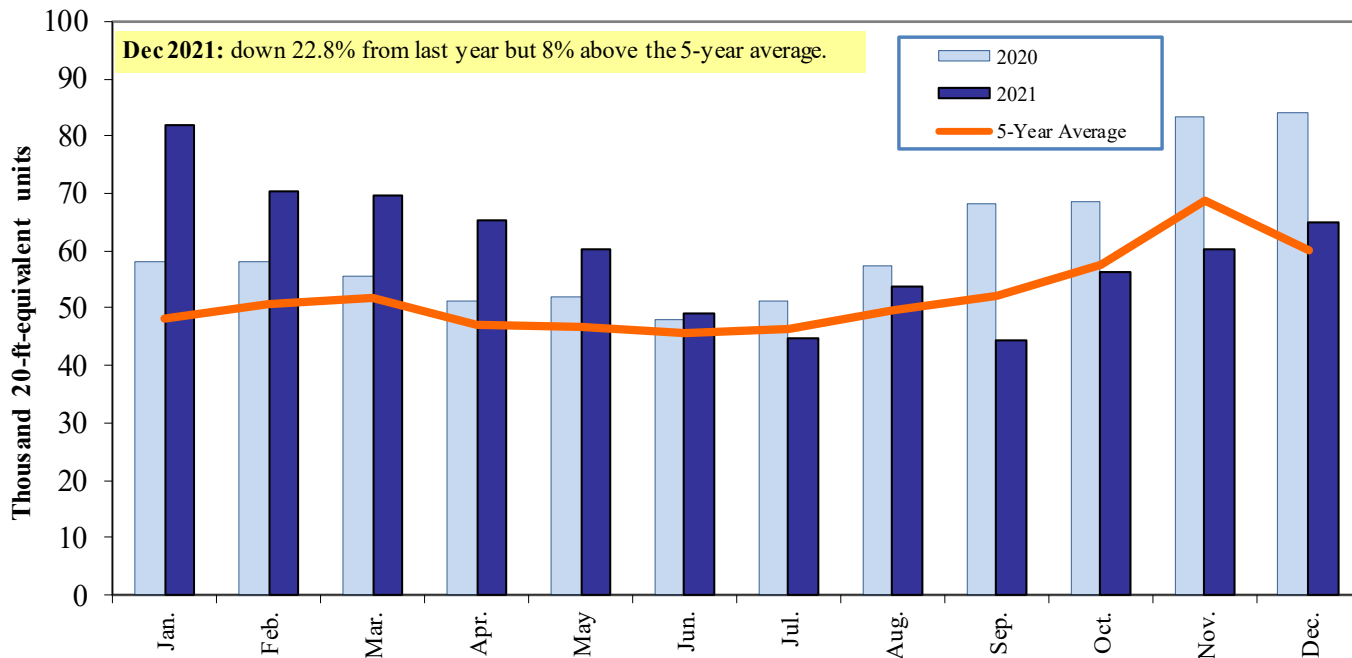
Figure 18  
**Top 10 destination markets for U.S. containerized grain exports, Jan-Dec 2021**



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

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

Figure 19  
**Monthly shipments of U.S. containerized grain exports**



Note: The following Harmonized Tariff Codes are used to calculate containerized grains movements: 100190, 100200, 100300, 100400, 100590, 100700, 110100, 110220, 110290, 1201, 120100, 120190, 120810, 230210, 230310, 230330, and 230990.

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

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