USDA United States Department of Agriculture

Grain Transportation Report

A weekly publication of the Agricultural Marketing Service
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Contents

The next release is May 19, 2022

WEEKLY HIGHLIGHTS

FMC Enhances Its Monitoring of Alliance Carrier Operations

The Federal Maritime Commission (FMC) has begun requiring the three global ocean carrier alliances (2M, OCEAN, and THE) and each of their member companies to provide enhanced pricing and capacity information. The newly mandated information will allow FMC to use uniform data in assessing ocean carrier behavior and marketplace competitiveness. This new transparency will give FMC's Bureau of Trade Analysis (BTA) insight into carrier pricing, broken down by individual trade lanes and by type of container and service. FMC will also gain timely information about capacity management decisions of ocean carriers and alliances. The new requirements are the result of a year-long examination by BTA to determine the data needed to properly analyze carrier behavior and marketplace trends. BTA will continuously monitor compliance to assess whether agreements have an anticompetitive impact on the marketplace.

STB Requires Additional Service Reporting From Railroads

On May 6, the Surface Transportation Board (STB) announced it will require the four largest U.S. rail carriers (BNSF Railway, CSX Transportation, Norfolk Southern Railway, and Union Pacific Railroad) to file service recovery plans. The plans will explain the specific actions each carrier will take to improve service. Every 2 weeks, the carriers must also file service progress reports and confer with STB staff. Additionally, weekly, all seven Class I carriers will have to submit a number of new service metrics. These include (but are not limited to) data on terminal dwell times at 10 additional locations; shares of scheduled services that were fulfilled; and shares of cars dropped off within 24 hours of the estimated time of arrival. STB released the new requirements after its 2-day hearing on rail service issues in which USDA, the Department of Transportation, FMC, and many shippers expressed strong concerns over ongoing rail service issues. The STB Chair said the new requirements would "enable needed monitoring of the improved efforts the railroads have been promising for months, and [help] determine if additional regulatory steps are necessary to promote reliable service."

Panama Canal Announces Scheduled Lock Outages

According to *Advisory to Shipping No. A-17-2022* issued on May 6, the west lane of the Panama Canal's Gatum Panamax Locks will be out of service for 12 hours on May 19 for maintenance work. On May 20, the Locks' east lane will be out of service for 12 hours for maintenance work. During these outages, the locks' daily transit capacity is estimated at 24-26 vessels—down from the normal capacity of 34-36 vessels. The locks' exact transit capacity depends on vessel mix, transit restrictions, and other factors. The Panama Canal is a vital outlet for U.S. grain destined to Asia.

Snapshots by Sector

Export Sales

For the week ending April 28, **unshipped balances** of wheat, corn, and soybeans for marketing year 2021/22 totaled 31.4 million metric tons (mmt), down 3 percent from the same time last year and down 4 percent from the previous week. Net **corn export sales** were 0.783 mmt, down 10 percent from the previous week. Net **soybean export sales** were 0.735 mmt, up 53 percent from the previous week. Net weekly **wheat export sales** were 0.119 mmt, up significantly from the previous week.

Rail

U.S. Class I railroads originated 21,380 **grain carloads** during the week ending April 30. This was a 7-percent decrease from the previous week, 24 percent fewer than last year, and 15 percent fewer than the 3-year average.

Average May shuttle **secondary railcar** bids/offers (per car) were $3,007 above tariff for the week ending May 5. This was $1,482 more than last week and $3,102 more than this week last year.

Barge

For the week ending May 7, **barged grain movements** totaled 894,250 tons. This was 13 percent higher than the previous week and 11 percent less than the same period last year.

For the week ending May 7, 549 grain barges **moved down river**—56 more barges than the previous week. There were 594 grain barges **unloaded** in the New Orleans region, 13 percent fewer than last week.

Ocean

For the week ending May 5, 27 **oceangoing grain vessels** were loaded in the Gulf—10 percent fewer than the same period last year. Within the next 10 days (starting May 6), 47 vessels were expected to be loaded—8 percent fewer than the same period last year.

As of May 5, the rate for shipping a metric ton (mt) of grain from the U.S. Gulf to Japan was $79.50. This was 1 percent more than the previous week. The rate from the PNW to Japan was $44.25 per mt, 1 percent more than the previous week.

Fuel

For the week ending May 9, the U.S. average **diesel fuel price** increased 11.4 cents from the previous week to $5.623 per gallon, 243.7 cents above the same week last year.

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Feature Article/Calendar

Transportation Update for Distillers' Dried Grains With Solubles: 2021 and First Quarter 2022

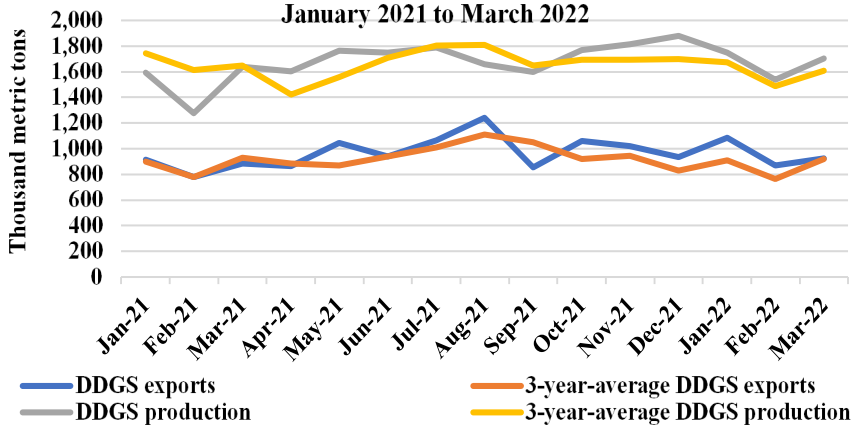
U.S. exports of distillers' dried grains with solubles (DDGS), a co-product of ethanol production, are a key driver of transportation demand. DDGS are the second-largest U.S. containerized grain export. Total DDGS exports in 2021 were the third-highest on record by volume and, at $3 billion, the highest on record by value, as both shipments and prices of DDGS rose last year. Canada and China showed strong growth in DDGS imports, though Chinese imports were limited by antidumping and countervailing duties.

This article reviews DDGS exports for 2021 and first quarter 2022. It also examines the drivers of these exports and the resulting impacts on transportation demand.

DDGS Production and Exports

Because DDGS derive from ethanol, strong ethanol production in 2021 supported DDGS production. U.S. exports of DDGS rose to 11.6 million metric tons (mmt) in 2021, the third-highest volume on record. The top five importers—Mexico, Vietnam, South Korea, Indonesia, and Turkey—received 57 percent of total U.S. DDGS exports. Canada and China showed strong growth in demand, together accounting for 10 percent of U.S. DDGS exports in 2021. From 2020 to 2021, total DDGS exports to Canada rose 88 percent. Last summer, a drought in western Canada significantly reduced the country's barley and wheat supply. With the resulting ingredient deficit for cattle and swine feed, Canada's demand for U.S. corn and DDGS rose. Total first-quarter 2022 DDGS exports were 12 percent higher than the same period last year and 10 percent above the 3-year average (fig. 1).

Figure 1. U.S. DDGS exports and production
January 2021 to March 2022



Note: DDGS = distillers' dried grains with solubles.
Source: USDA, Foreign Agricultural Service.

Impact of DDGS Exports on Port Activity

In 2021, 51 percent of all U.S. DDGS exports left through three gateways: New Orleans, LA (32 percent share); Los Angeles, CA (16 percent); and Laredo, TX (11 percent). From Los Angeles, exports to Korea, Vietnam, and China accounted for 71 percent of port activity. From New Orleans, exports to Turkey, Ireland, Japan, Vietnam, and Mexico accounted for 54 percent of the port activity.

Containerized DDGS exports. Exports of DDGS can shift relatively easily between bulk and containerized ocean shipping.[1] In 2021, bulk accounted for 44 percent of total U.S. waterborne DDGS exports, while containers accounted for 56 percent.[2] After rising in the second quarter, the bulk share of DDGS exports declined in the third and fourth quarters. The difference between container rates and ocean bulk freight rates is one factor in determining which shipping method to use. The declines in the bulk share of exports in the second half of the year may have been driven by the steep 24-percent increase in bulk freight rates (twice the percentage increase in container rates)

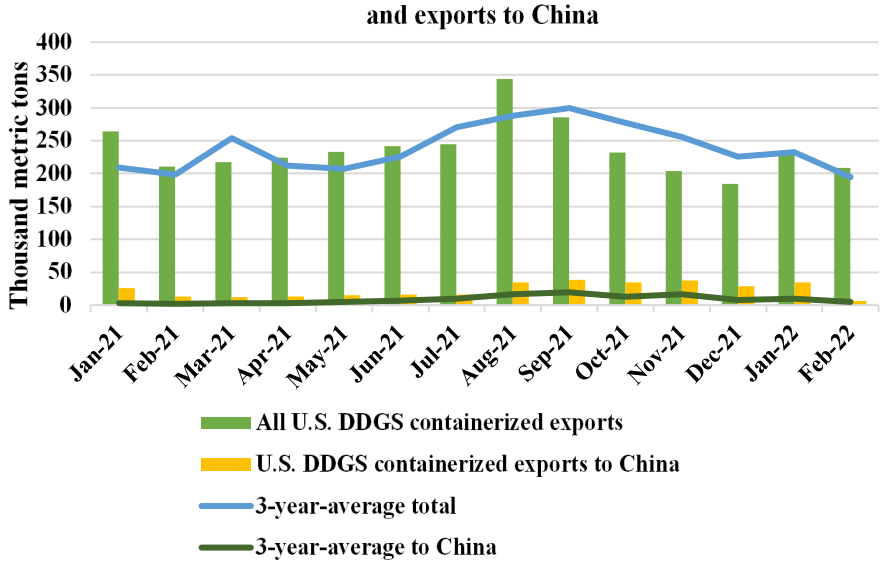
[1] Several factors—such as container availability, freight rates, and shipment volume—determine the economic viability of bulk versus container shipping. The growth in DDGS exports and changes in destination markets may also require the market to shift between bulk and containerized shipments. For example, some emerging destinations require mostly bulk shipments of DDGS, whereas others can accept only containers.

[2] Based on Piers/IHS Markit data, which do not include cross-border movements.

from the second to third quarter. Despite dropping slightly (4 percent) from the third to fourth quarter, bulk rates remained elevated through December.

As the second-largest containerized grain commodity exported by the United States, DDGS accounted for 32 percent of that market in 2021. Although containerized grain exports rose in August and September, the market declined in the fourth quarter. The drop was due to decreased exports to Vietnam, Indonesia, and Korea. From 2020 to 2021, total DDGS containerized-export volumes fell 6 percent. As the top ports of exit in 2021, Los Angeles and Long Beach, CA, handled 30 percent and 23 percent, respectively, of all containerized DDGS exports. From 2020 to 2021, the Port of Los Angeles's share increased 6 percent, and the Port of Long Beach's share rose 1 percent— despite chronic congestion at both ports. In 2021, four importing countries—Vietnam, South Korea, Indonesia, and China—purchased 73 percent of total U.S. containerized DDGS exports. In the first 2 months of 2022, year-to-date (YTD) containerized DDGS exports were 8 percent below the same YTD period last year, but surpassed the 3-year average for the period by 2 percent (fig. 2).

Figure 2. U.S. Total monthly containerized grain exports of DDGS and exports to China



Note: DDGS = distillers' dried grains with solubles.
Source: IHS Markit/PIERS.

China's Imports of U.S. DDGS

Once the largest foreign market for U.S. DDGS, China sharply reduced its DDGS imports after its Government levied steep anti-dumping and countervailing duties (53.4-65.7 percent) on U.S. DDGS in 2017. Nonetheless, after declining for several years, China's imports of U.S. DDGS rose 56 percent from 2019 to 2020. From 2020 to 2021, China's total imports of U.S. DDGS continued to rise, jumping 69 percent and making China the 7th-largest destination for U.S. DDGS. Within China's total U.S. DDGS imports for 2021, the containerized segment rose even more steeply—up 88 percent from 2020 and up 168 percent from the 3-year average.

According to a recent USDA/Foreign Agricultural Service report, the sharp 2020-21 rise in DDGS imports was due to the short supply of domestic DDGS. As Chinese ethanol production slowed because of high domestic corn prices, DDGS production slowed as well. China turned, in part, to the United States to boost its supply of DDGS. In first quarter 2022, China's total imports of U.S. DDGS were 24 percent more than the same period last year. In the first 2 months of 2022, China's imports of containerized U.S. DDGS were 3 percent higher than the same time last year and accounted for 9 percent of total U.S. containerized grain exports (fig. 2).

China's duties on U.S. DDGS were due to expire in January 2022. However, on January 11, 2022, China's Ministry of Commerce (MOFCOM) announced it would review the expiration at the request of the Chinese industry and keep the measures in place during a 1-year review period. The report expects MOFCOM will renew the measures for another 5 years at the conclusion of the review.

Conclusion

In 2021, demand for U.S. DDGS exports and transportation was largely driven by the top five importers—Mexico, Vietnam, South Korea, Indonesia, and Turkey—along with strong imports by Canada and China. At the end of March, total YTD shipments of U.S. DDGS were 2.9 mmt, the largest first-quarter exports since first quarter 2017. The steep rise in shipments was due to strong purchases from three top importers—Mexico, South Korea, and Vietnam—and record-high imports from Canada. Rising U.S. ethanol production and demand for U.S. DDGS from key importers may raise the demand for DDGS transportation. *Kranti.Mulik@usda.gov*

Grain Transportation Indicators

Table 1

Grain transport cost indicators[1]

	Truck	Rail		Barge	Ocean	
For the week ending		Non-Shuttle	Shuttle		Gulf	Pacific
05/11/22	377	318	324	291	356	316
05/04/22	370	318	282	307	353	314

[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.
Source: USDA, Agricultural Marketing Service.

Table 2

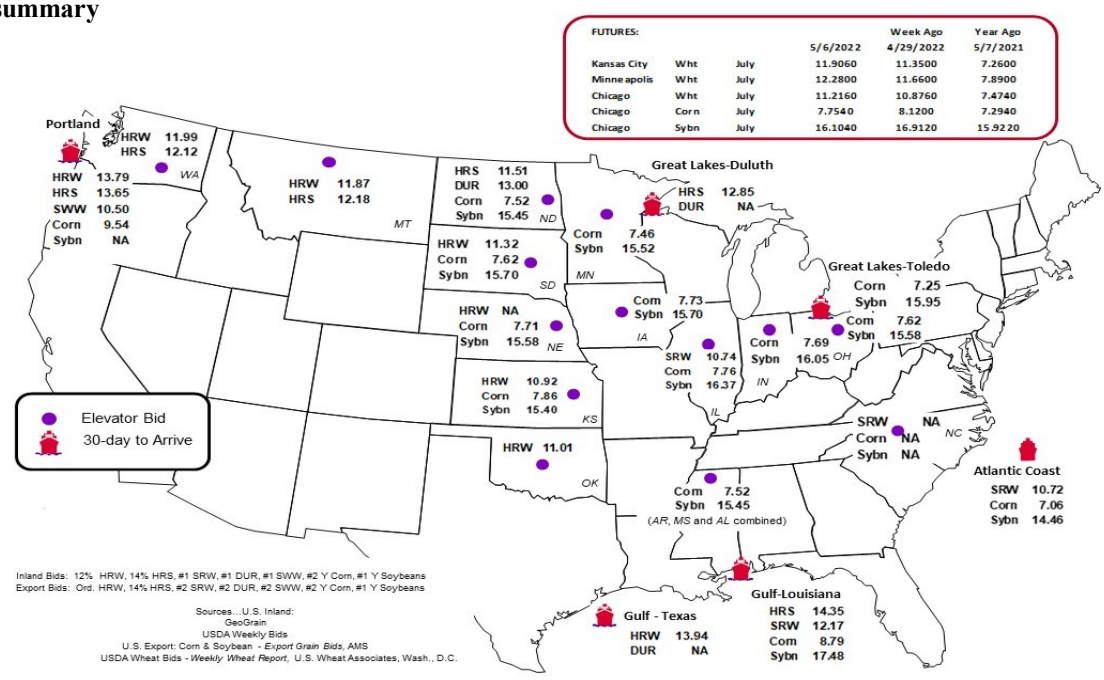
Market Update: U.S. origins to export position price spreads ($/bushel)

Commodity	Origin–destination	5/6/2022	4/29/2022
Corn	IL–Gulf	-1.03	-1.04
Corn	NE–Gulf	-1.08	-1.11
Soybean	IA–Gulf	-1.78	-1.91
HRW	KS–Gulf	-3.02	-3.03
HRS	ND–Portland	-2.14	-2.13

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)[1]

For the week ending	Mississippi Gulf	Texas Gulf	Pacific Northwest	Atlantic & East Gulf	Total	Week ending	Cross-border Mexico[3]
5/4/2022[p]	953	903	5,788	725	8,369	4/30/2022	2,762
4/27/2022[r]	1,620	1,200	5,767	450	9,037	4/23/2022	2,780
2022 YTD[r]	28,416	18,309	105,612	10,388	162,725	2022 YTD	48,498
2021 YTD[r]	28,799	29,069	115,342	9,381	182,591	2021 YTD	43,698
2022 YTD as % of 2021 YTD	99	63	92	111	89	% change YTD	111
Last 4 weeks as % of 2021[2]	111	72	87	201	91	Last 4wks. % 2021	103
Last 4 weeks as % of 4-year avg.[2]	191	89	97	148	106	Last 4wks. % 4 yr.	119
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

[1]Data is incomplete as it is voluntarily provided.

[2] Compared with same 4-weeks in 2021 and prior 4-year average.

[3] 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.

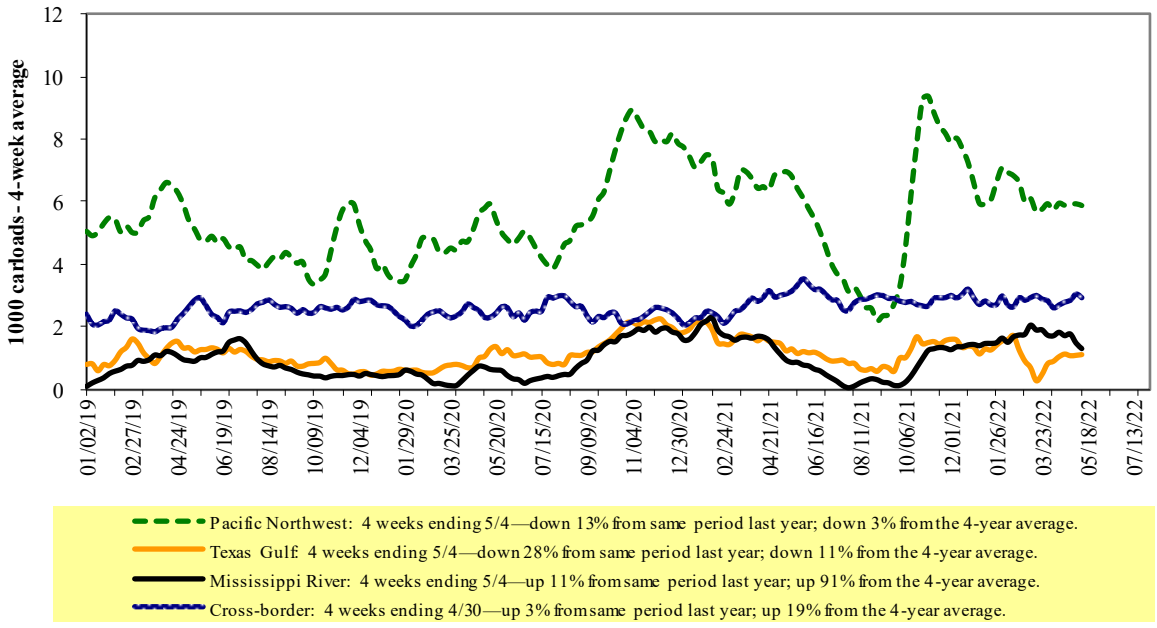
YTD = year-to-date; p = preliminary data; r = revised data; n/a = not available; wks. = weeks; avg. = average.

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:	East		West			U.S. total	Canada	
4/30/2022	CSXT	NS	BNSF	KCS	UP		CN	CP
This week	1,928	2,402	10,489	1,109	5,452	21,380	2,822	3,439
This week last year	2,366	2,232	14,774	1,680	7,058	28,110	5,101	6,371
2022 YTD	31,658	39,314	197,606	21,306	102,020	391,904	60,219	63,424
2021 YTD	34,400	43,764	224,489	18,160	112,475	433,288	84,136	93,240
2022 YTD as % of 2021 YTD	92	90	88	117	91	90	72	68
Last 4 weeks as % of 2021*	101	93	83	95	79	85	71	60
Last 4 weeks as % of 3-yr. avg.**	100	90	93	105	91	93	70	66
Total 2021	93,935	120,910	609,890	64,818	318,002	1,207,555	210,217	242,533

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

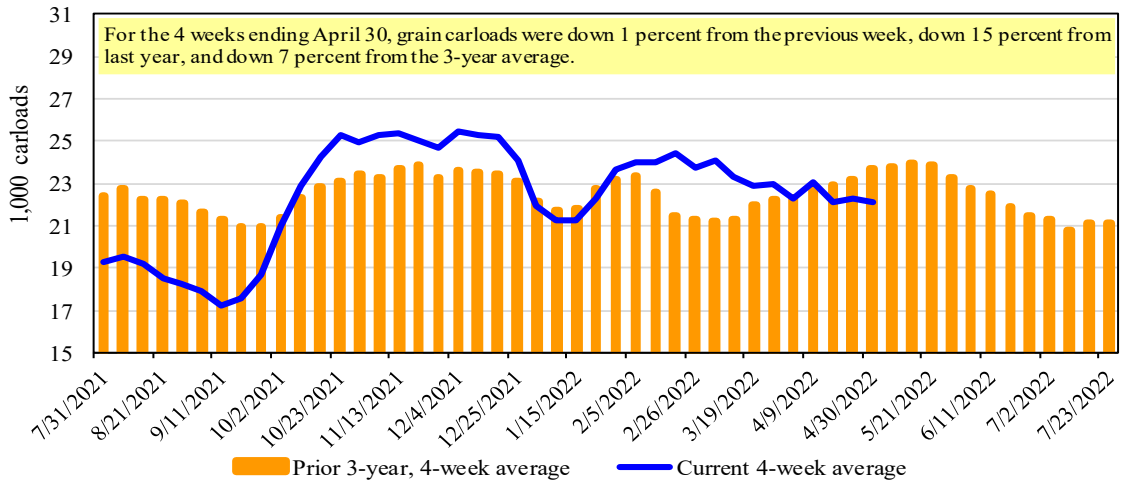
**The past 4 weeks as a percent of the same period from the prior 3-year average. YTD = year-to-date; avg. = average; yr. = year.

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[1] ($/car)[2]

For the week ending:		Delivery period							
5/5/2022		May-22	May-21	Jun-22	Jun-21	Jul-22	Jul-21	Aug-22	Aug-21
BNSF[3]	COT grain units	no offer	no offer	no offer	4	0	no bids	0	0
	COT grain single-car	no offer	no offer	no offer	0	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.

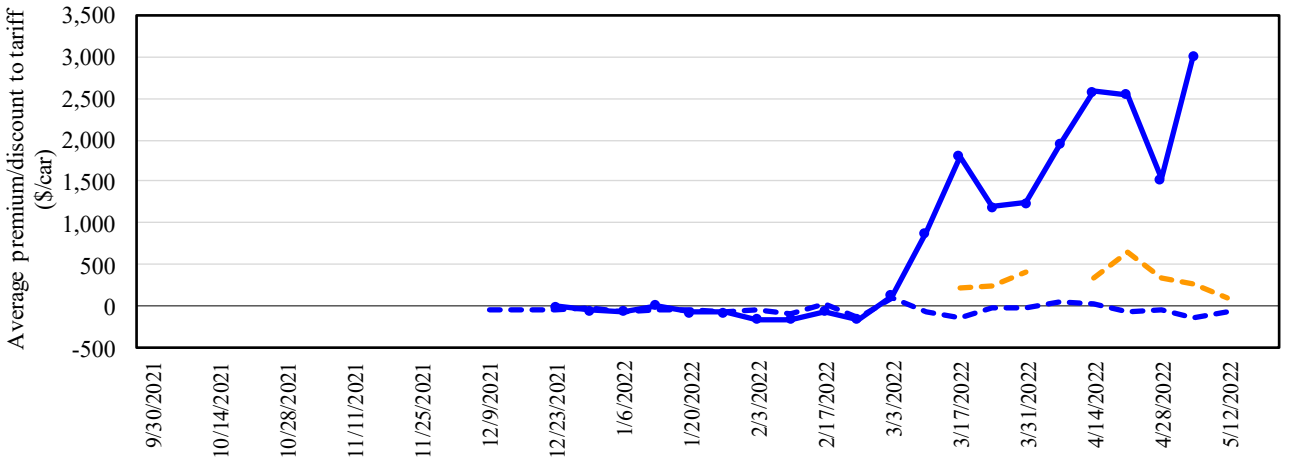
Region 1 includes: AR, IL, LA, MO, NM, OK, TX, WI, and Duluth, MN.

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 4
Secondary market bids/offers for railcars to be delivered in May 2022

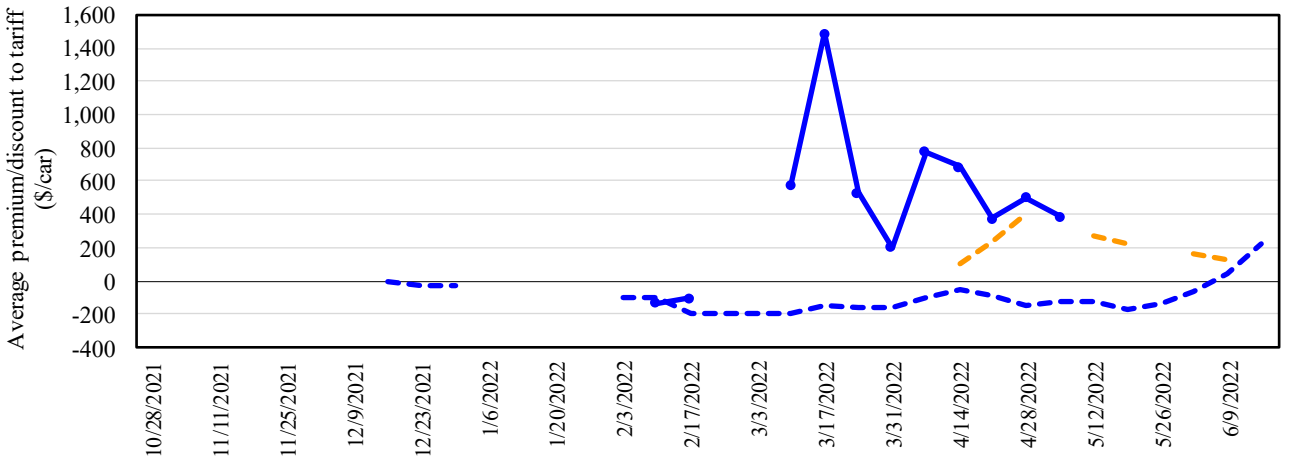


5/5/2022	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	$1,659	$4,354

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers rose $1,482 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.

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



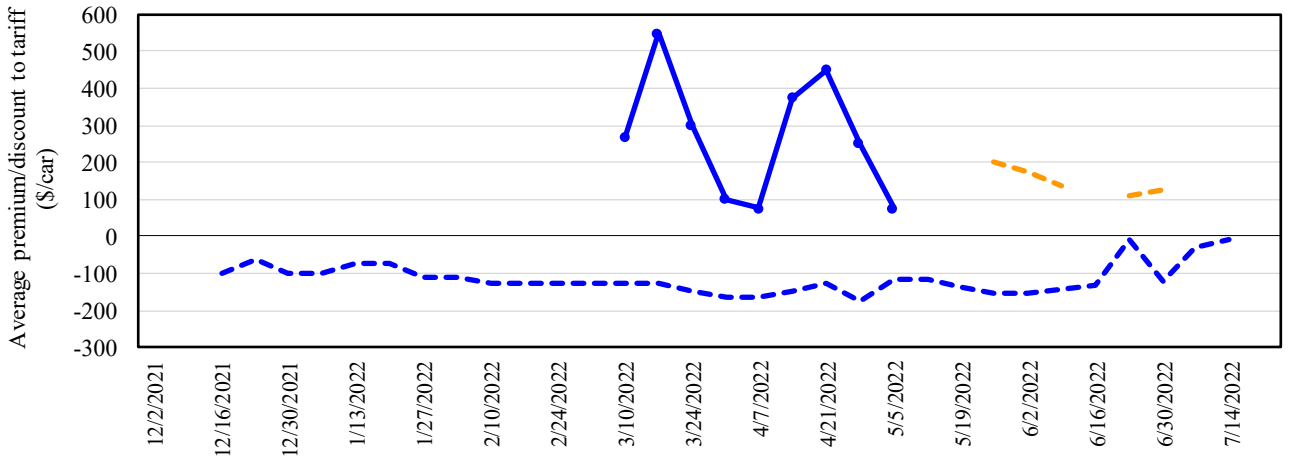
5/5/2022	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	$275	$500

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers fell $113 this week and are $1,100 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 6

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



5/5/2022	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	$75	n/a

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers fell $175 this week and are $475 below the peak.

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

Table 6

Weekly secondary railcar market ($/car)[1]

	For the week ending: 5/5/2022	Delivery period					
		May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-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 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
Shuttle	**BNSF-GF**	**1,659**	**275**	**75**	**(50)**	**300**	**n/a**
	Change from last week	846	75	(25)	0	(75)	n/a
	Change from same week 2021	1,726	450	288	200	13	n/a
	UP-Pool	**4,354**	**500**	**n/a**	**500**	**650**	**n/a**
	Change from last week	2,116	(300)	n/a	200	n/a	n/a
	Change from same week 2021	4,479	600	n/a	650	800	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.

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[1]

May 2022	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	$309	$39.76	$1.08	5
	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	$543	$49.44	$1.35	5
	Sioux Falls, SD	Galveston-Houston, TX	$7,026	$0	$69.77	$1.90	3
	Colby, KS	Galveston-Houston, TX	$4,712	$595	$52.70	$1.43	6
	Amarillo, TX	Los Angeles, CA	$5,121	$828	$59.07	$1.61	10
Corn	Champaign-Urbana, IL	New Orleans, LA	$4,000	$614	$45.82	$1.16	12
	Toledo, OH	Raleigh, NC	$8,130	$671	$87.40	$2.22	12
	Des Moines, IA	Davenport, IA	$2,505	$130	$26.17	$0.66	5
	Indianapolis, IN	Atlanta, GA	$6,227	$504	$66.84	$1.70	13
	Indianapolis, IN	Knoxville, TN	$5,247	$326	$55.34	$1.41	11
	Des Moines, IA	Little Rock, AR	$4,000	$382	$43.51	$1.11	9
	Des Moines, IA	Los Angeles, CA	$5,880	$1,112	$69.43	$1.76	13
Soybeans	Minneapolis, MN	New Orleans, LA	$4,431	$951	$53.44	$1.45	40
	Toledo, OH	Huntsville, AL	$6,714	$478	$71.42	$1.94	9
	Indianapolis, IN	Raleigh, NC	$7,422	$680	$80.46	$2.19	14
	Indianapolis, IN	Huntsville, AL	$5,367	$323	$56.50	$1.54	8
	Champaign-Urbana, IL	New Orleans, LA	$4,665	$614	$52.42	$1.43	8
Shuttle train							
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	$633	$72.53	$1.97	15
	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	$975	$68.50	$1.86	8
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	$614	$45.02	$1.14	12
	Lincoln, NE	Galveston-Houston, TX	$4,080	$0	$40.52	$1.03	5
	Des Moines, IA	Amarillo, TX	$4,420	$480	$48.66	$1.24	9
	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	$708	$55.64	$1.51	9
	Toledo, OH	Huntsville, AL	$4,954	$478	$53.94	$1.47	10
	Grand Island, NE	Portland, OR	$5,280	$999	$62.35	$1.70	12

[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 8

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

Date: December 2021							
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	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	Torreon, 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	Torreon, 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	Torreon, CU	$7,225	$438	$78.29	$1.99	6

[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.

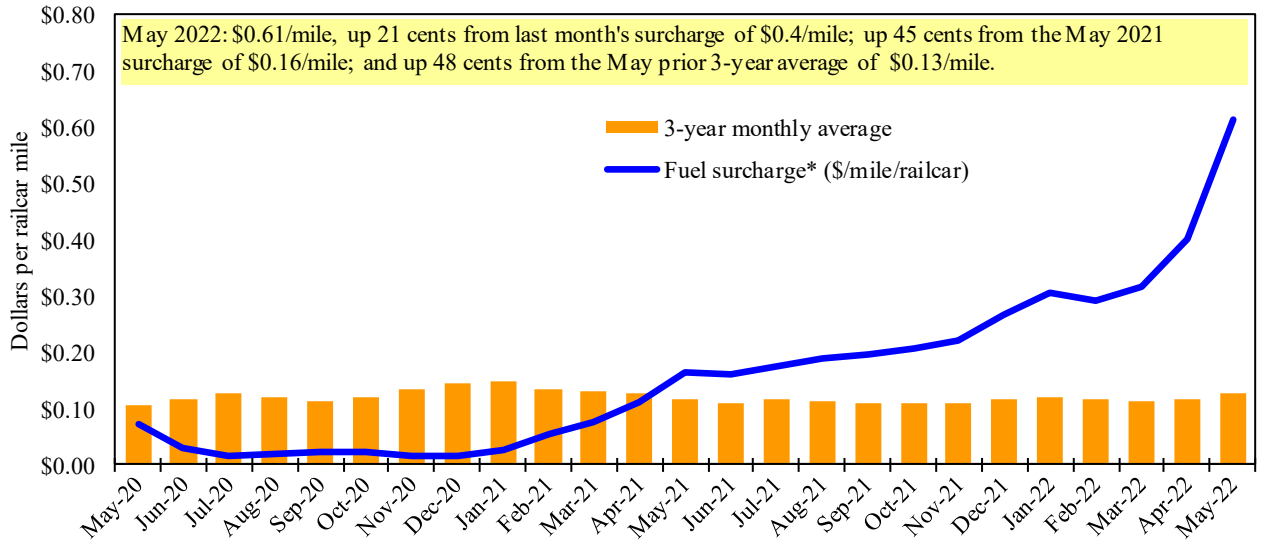
[4]Percentage change calculated using tariff rate plus fuel surchage; Y/Y = year over year.

[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 7

Railroad fuel surcharges, North American weighted average [1]



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

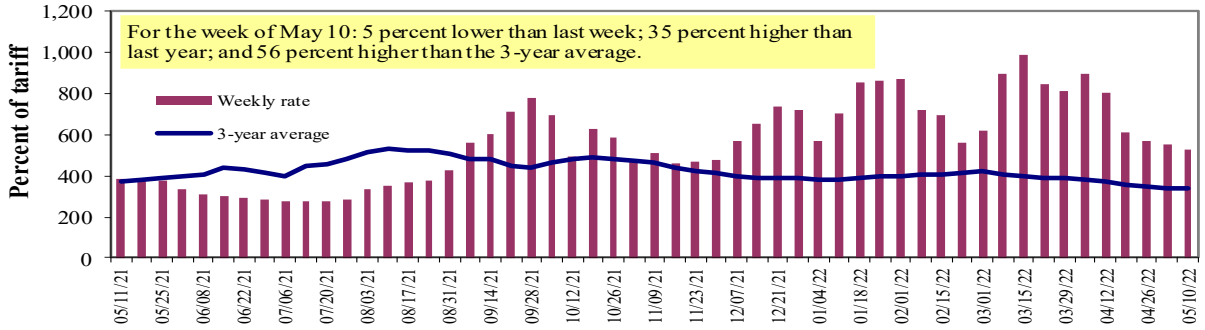
* Beginning January 2009, the Canadian Pacific fuel surcharge is computed by a monthly average of the bi-weekly fuel surcharge.

**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[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 9
Weekly barge freight rates: Southbound only

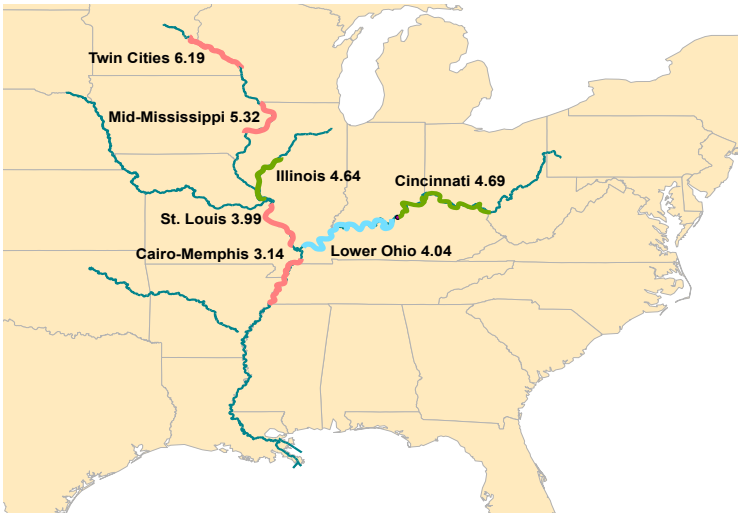
		Twin Cities	Mid-Mississippi	Lower Illinois River	St. Louis	Cincinnati	Lower Ohio	Cairo-Memphis
Rate[1]	5/10/2022	665	580	523	383	495	495	346
	5/3/2022	664	625	552	402	525	525	390
$/ton	5/10/2022	41.16	30.86	24.27	15.28	23.22	20.00	10.86
	5/3/2022	41.10	33.25	25.61	16.04	24.62	21.21	12.25
Current week % change from the same week:								
	Last year	46	47	35	43	90	90	48
	3-year avg. [2]	73	82	56	64	92	92	56
Rate[1]	June	584	529	505	410	466	466	343
	August	640	600	590	505	582	582	515

[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 9
Benchmark tariff rates

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

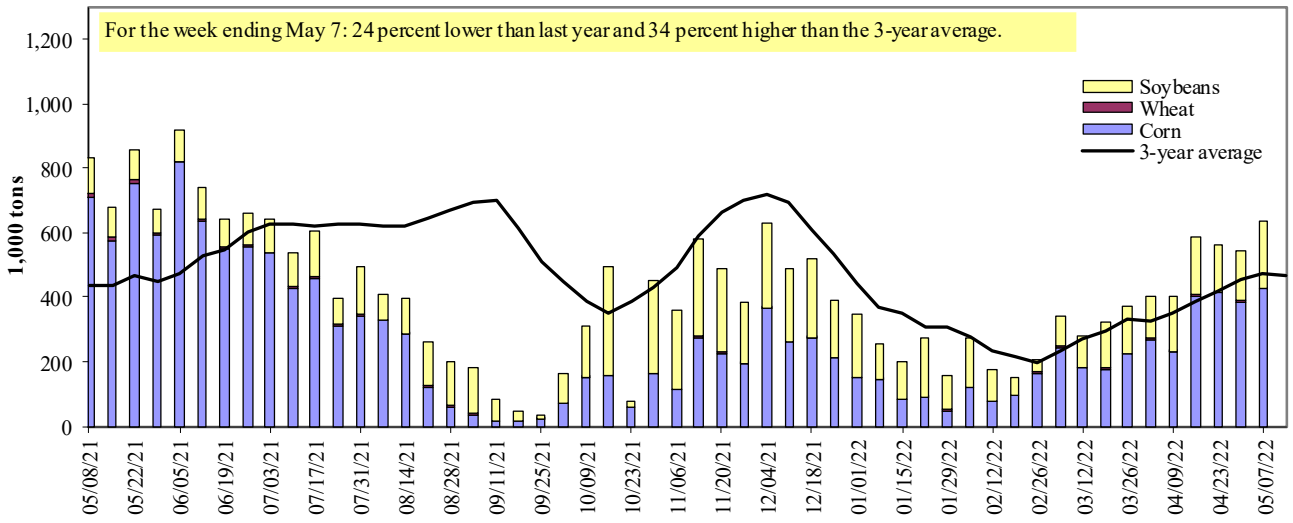
Select applicable index from market quotes are included in tables on this page. The 1976 benchmark rates per ton are provided in map.



Map Credit: USDA, Agricultural Marketing Service

Figure 10

Barge movements on the Mississippi River[1] (Locks 27 - Granite City, IL)



[1] 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 05/07/2022	Corn	Wheat	Soybeans	Other	Total
Mississippi River					
Rock Island, IL (L15)	152	0	83	0	235
Winfield, MO (L25)	283	0	154	0	438
Alton, IL (L26)	408	0	244	0	652
Granite City, IL (L27)	428	0	208	0	636
Illinois River (La Grange)	115	0	57	0	171
Ohio River (Olmsted)	147	25	66	5	243
Arkansas River (L1)	0	7	8	0	15
Weekly total - 2022	576	32	282	5	894
Weekly total - 2021	826	26	140	13	1,005
2022 YTD[1]	6,987	588	4,262	123	11,960
2021 YTD[1]	10,431	398	3,481	138	14,448
2022 as % of 2021 YTD	67	148	122	89	83
Last 4 weeks as % of 2021[2]	79	133	233	165	101
Total 2021	23,516	1,634	11,325	297	36,772

[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.

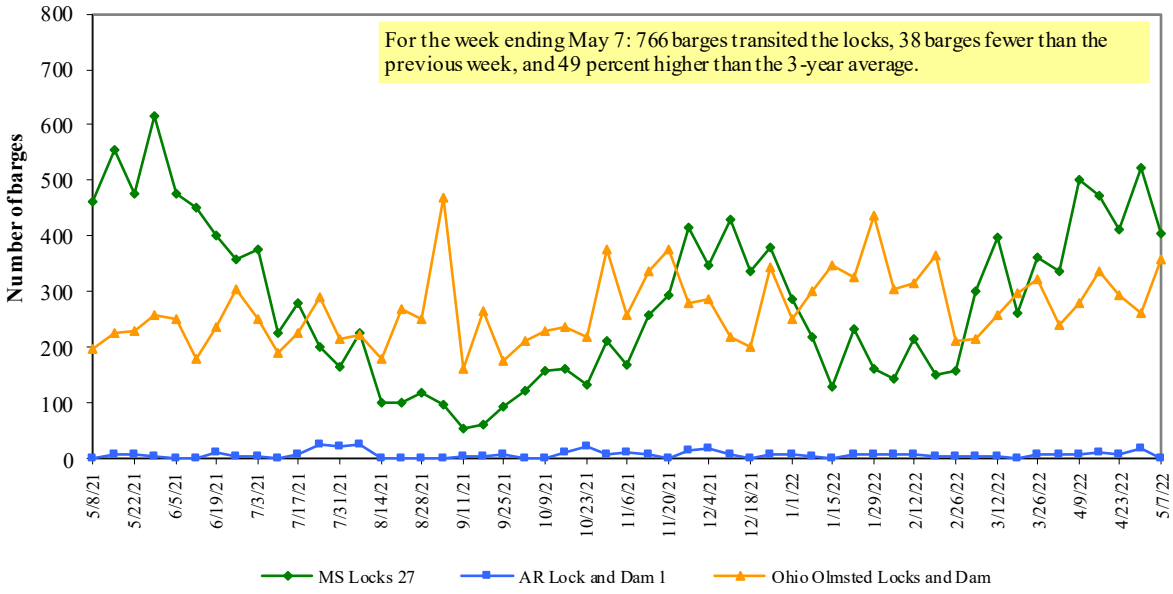
[2] As a percent of same period in 2020.

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

Source: U.S. Army Corps of Engineers.

Figure 11

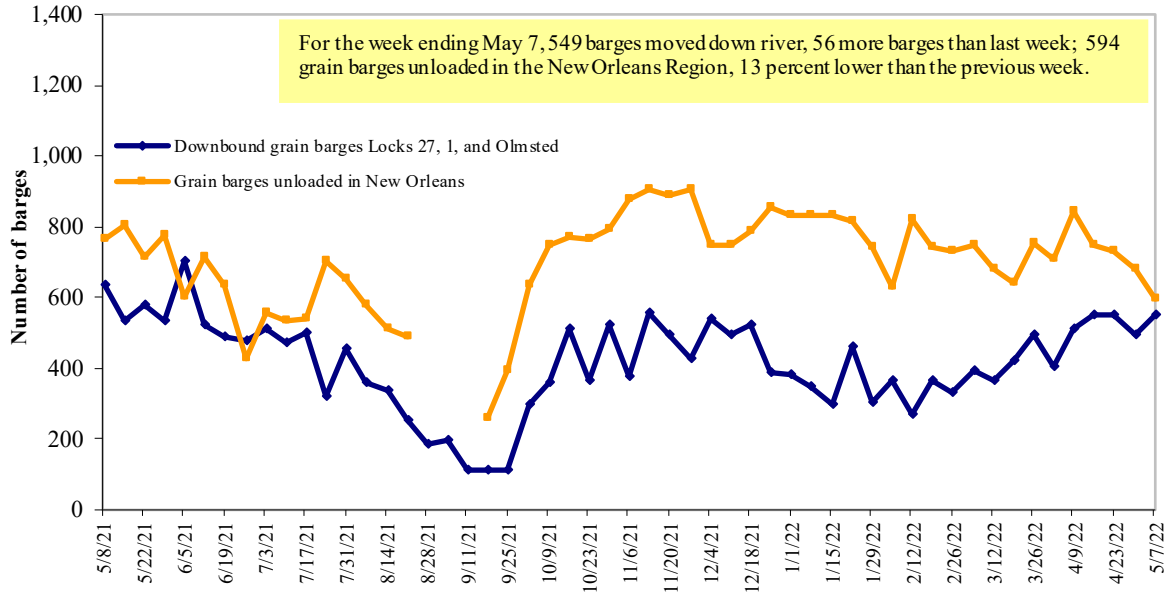
Upbound empty barges transiting Mississippi River Locks 27, Arkansas River Lock and Dam 1, and Ohio River Olmsted Locks and Dam



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 5/9/2022 (U.S. $/gallon)

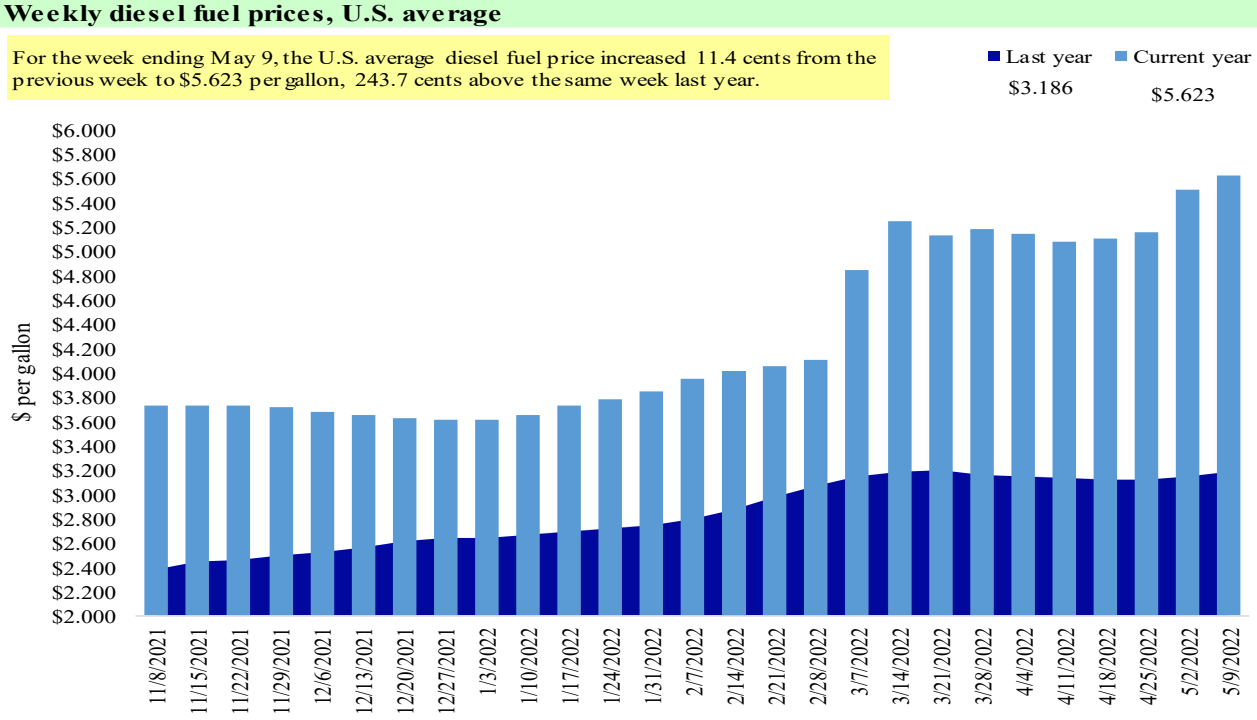
Region	Location	Price	Change from Week ago	Change from Year ago
I	East Coast	5.907	0.206	2.747
	New England	6.339	0.238	3.224
	Central Atlantic	6.318	0.238	2.982
	Lower Atlantic	5.580	0.179	2.529
II	Midwest	5.386	0.057	2.256
III	Gulf Coast	5.339	0.129	2.371
IV	Rocky Mountain	5.461	0.055	2.154
V	West Coast	6.071	0.050	2.379
	West Coast less California	5.628	0.051	2.315
	California	6.461	0.049	2.453
Total	United States	5.623	0.114	2.437

[1]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



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)

	Wheat						Corn	Soybeans	Total
For the week ending	HRW	SRW	HRS	SWW	DUR	All wheat			
Export balances[1]									
4/28/2022	862	314	686	280	1	2,142	18,261	11,020	31,423
This week year ago	922	235	910	878	70	3,015	24,354	4,956	32,324
Cumulative exports-marketing year[2]									
2021/22 YTD	6,640	2,558	4,790	3,090	196	17,274	40,037	47,292	104,602
2020/21 YTD	7,779	1,601	6,746	5,762	595	22,483	43,503	56,329	122,315
YTD 2021/22 as % of 2020/21	85	160	71	54	33	77	92	84	86
Last 4 wks. as % of same period 2020/21*	116	168	81	39	11	85	80	224	103
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

[1] Current unshipped (outstanding) export sales to date.

[2] 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[1] of U.S. corn

For the week ending 04/28/2022	Total commitments[2] 2021/22 current MY	2020/21 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2019-21
	1,000 mt -			
Mexico	15,669	13,720	14	14,817
Japan	8,847	9,737	(9)	11,082
China	14,648	23,244	(37)	7,920
Columbia	4,110	3,624	13	4,491
Korea	1,132	3,153	(64)	3,302
Top 5 importers	**44,406**	**53,478**	**(17)**	**41,613**
Total U.S. corn export sales	**58,298**	**67,857**	**(14)**	**53,145**
% of projected exports	92%	97%		
Change from prior week[2]	**783**	**137**		
Top 5 importers' share of U.S. corn export sales	76%	79%		78%
USDA forecast April 2022	**63,613**	**70,051**	**(9)**	
Corn use for ethanol USDA forecast, April 2022	**136,525**	**127,838**	**7**	

[1] Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2020/21; 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 14

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

For the week ending 4/28/2022	Total commitments[2] 2021/22 current MY	2020/21 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2018-20
				- 1,000 mt -
China	30,045	35,702	(16)	21,666
Mexico	5,094	4,625	10	4,754
Egypt	3,725	2,670	39	3,093
Indonesia	1,407	1,954	(28)	2,325
Japan	2,047	2,049	(0)	2,275
Top 5 importers	**42,318**	**47,000**	**(10)**	**34,113**
Total U.S. soybean export sales	**58,312**	**61,285**	**(5)**	**50,758**
% of projected exports	101%	99%		
change from prior week[2]	**735**	**165**		
Top 5 importers' share of U.S. soybean export sales	73%	77%		**67%**
USDA forecast, April 2022	**57,629**	**61,608**	**(6)**	

[1] Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2020/21; 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 15

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

For the week ending 4/28/2022	Total Commitments[2] 2021/22 current MY	2020/21 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2018-20
		1,000 mt -		- 1,000 mt -
Mexico	3,766	3,652	3	3,388
Philippines	2,782	3,209	(13)	3,121
Japan	2,351	2,492	(6)	2,567
Korea	1,254	1,846	(32)	1,501
Nigeria	1,773	1,426	24	1,490
China	848	3,208	(74)	1,268
Taiwan	951	1,186	(20)	1,187
Indonesia	122	937	(87)	1,131
Thailand	558	810	(31)	768
Italy	263	600	(56)	681
Top 10 importers	**14,667**	**19,365**	(24)	**17,102**
Total U.S. wheat export sales	**19,416**	**25,498**	(24)	**24,617**
% of projected exports	91%	94%		
change from prior week[2]	**119**	**(96)**		
Top 10 importers' share of U.S. wheat export sales	76%	76%		69%
USDA forecast, April 2022	**21,390**	**27,030**	(21)	

[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 16

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

Port regions	For the week ending 05/05/22	Previous week*	Current week as % of previous	2022 YTD*	2021 YTD*	2022 YTD as % of 2021 YTD	Last 4-weeks as % of: Last year	Last 4-weeks as % of: Prior 3-yr. avg.	2021 total*
Pacific Northwest									
Wheat	54	159	34	3,384	6,032	56	29	34	13,243
Corn	436	401	109	4,988	7,438	67	71	95	13,420
Soybeans	144	71	202	4,264	3,730	114	n/a	182	14,540
Total	**634**	**631**	**100**	**12,636**	**17,200**	**73**	**62**	**74**	**41,203**
Mississippi Gulf									
Wheat	128	103	124	1,484	806	184	153	112	3,202
Corn	735	1,052	70	15,721	18,604	85	80	110	38,498
Soybeans	199	405	49	9,283	9,490	98	377	171	27,159
Total	**1,062**	**1,560**	**68**	**26,488**	**28,900**	**92**	**109**	**123**	**68,858**
Texas Gulf									
Wheat	29	96	30	1,116	1,271	88	122	95	3,888
Corn	0	11	0	235	216	109	132	59	627
Soybeans	0	0	n/a	2	656	0	n/a	0	1,611
Total	**29**	**108**	**27**	**1,353**	**2,143**	**63**	**123**	**87**	**6,126**
Interior									
Wheat	38	42	92	996	966	103	73	86	2,973
Corn	187	174	108	3,255	3,312	98	99	109	10,157
Soybeans	106	148	72	2,635	2,545	104	116	111	6,525
Total	**332**	**363**	**91**	**6,887**	**6,823**	**101**	**101**	**107**	**19,656**
Great Lakes									
Wheat	0	13	0	84	85	98	88	54	536
Corn	0	22	0	39	25	159	130	391	145
Soybeans	13	0	n/a	102	11	917	747	545	592
Total	**13**	**35**	**36**	**225**	**121**	**186**	**171**	**133**	**1,273**
Atlantic									
Wheat	0	0	n/a	37	72	52	n/a	306	128
Corn	10	7	143	79	14	565	292	275	85
Soybeans	68	12	547	1,129	992	114	475	382	2,184
Total	**78**	**19**	**402**	**1,245**	**1,077**	**116**	**509**	**361**	**2,397**
U.S. total from ports*									
Wheat	249	413	60	7,100	9,231	77	59	60	23,969
Corn	1,368	1,666	82	24,318	29,609	82	80	105	62,932
Soybeans	530	637	83	17,416	17,425	100	290	165	52,612
Total	**2,147**	**2,716**	**79**	**48,834**	**56,265**	**87**	**94**	**105**	**139,512**

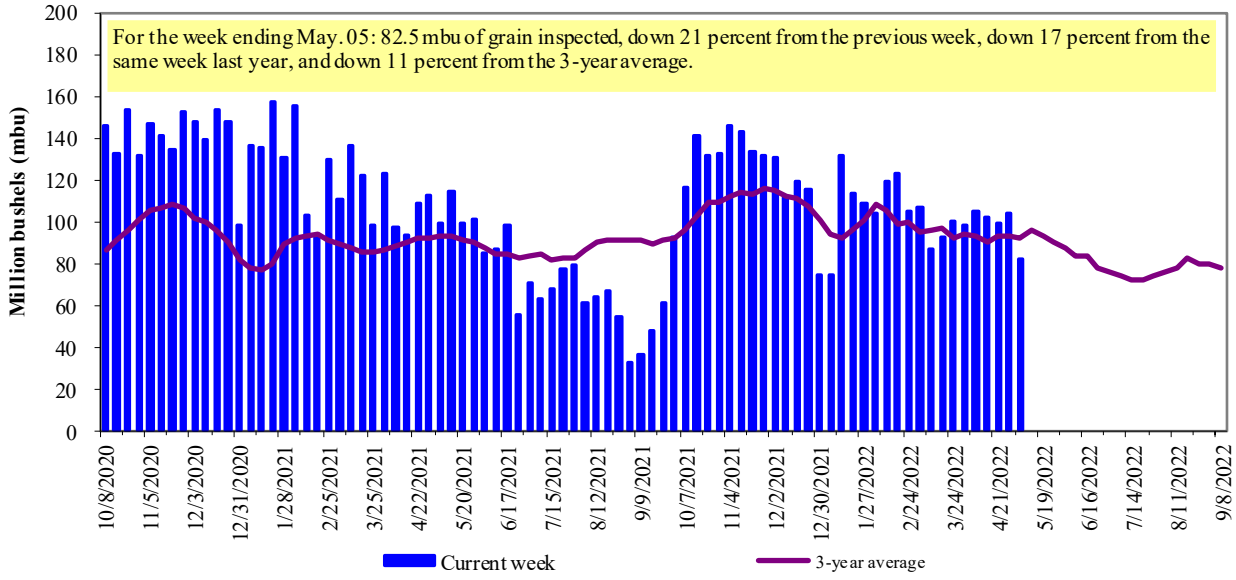
*Data includes revisions from prior weeks; some regional totals may not add exactly due to rounding.

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)

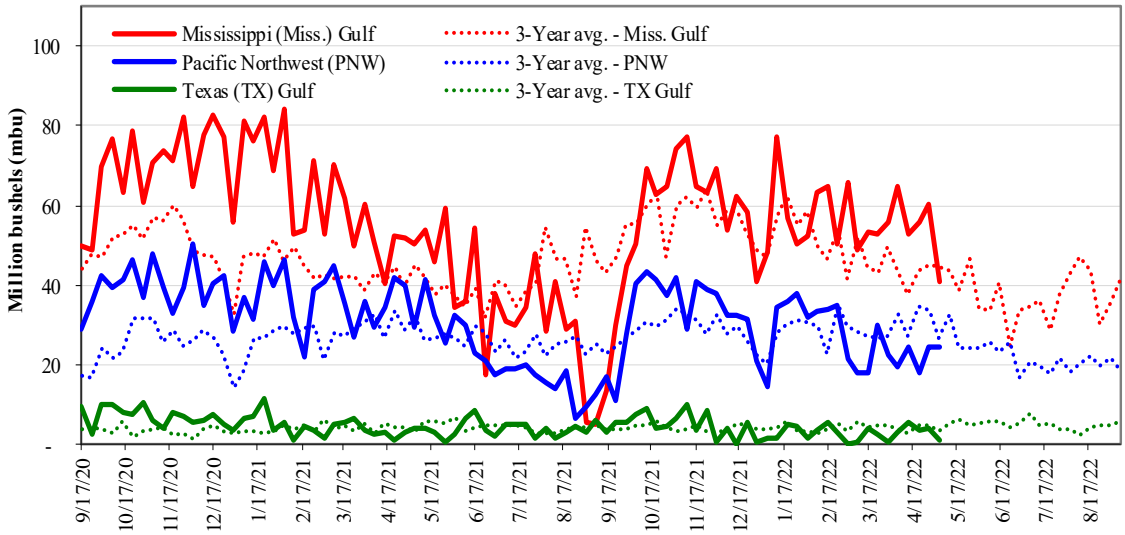


Note: 3-year average consists of 4-week running average.

Source: USDA, Federal Grain Inspection Service.

Figure 15

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



Week ending 05/05/22 inspections (mbu):	
MS Gulf:	41.0
PNW:	24.4
TX Gulf:	1.1

Percent change from:	MS Gulf	TX Gulf	U.S. Gulf	PNW
Last wk:	down 32	down 73	down 34	unchanged
Last Year (same wk):	down 19	down 74	down 23	down 16
3-yr avg. (4-wk. mov. Avg):	down 4	down 73	down 10	down 20

Source: USDA, Federal Grain Inspection Service.

Table 17

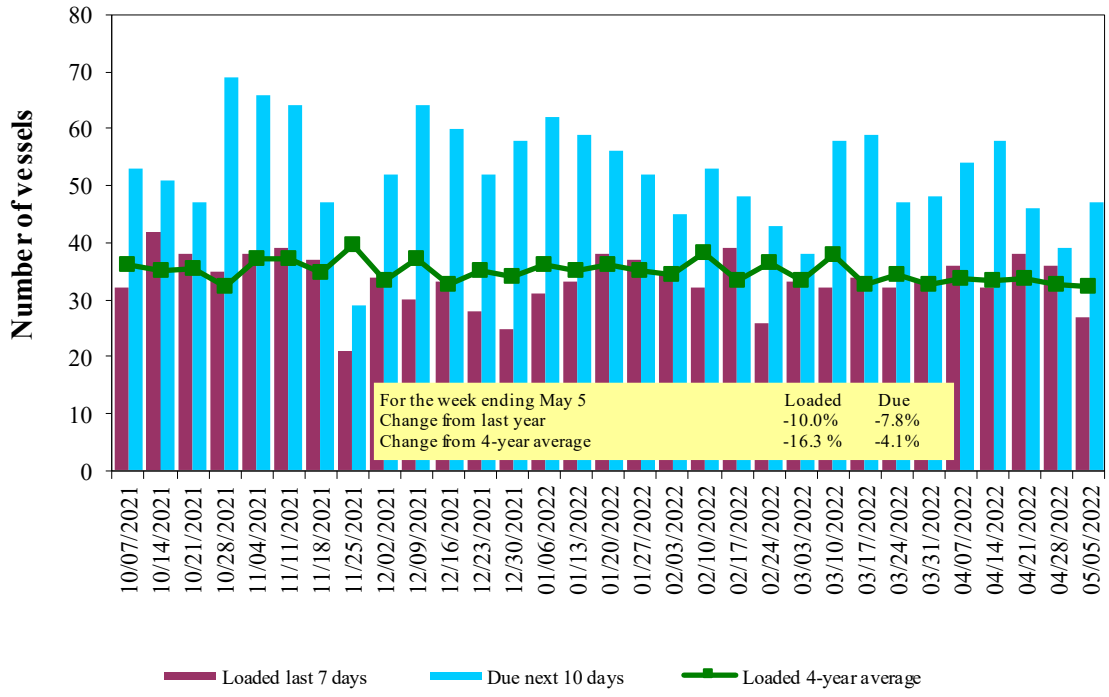
Weekly port region grain ocean vessel activity (number of vessels)

	Gulf			Pacific Northwest
Date	In port	Loaded 7-days	Due next 10-days	In port
5/5/2022	20	27	47	11
4/28/2022	25	36	39	9
2021 range	(10…57)	(5...48)	(15...69)	(4…27)
2021 average	34	32	49	15

Source: USDA, Agricultural Marketing Service.

Figure 16

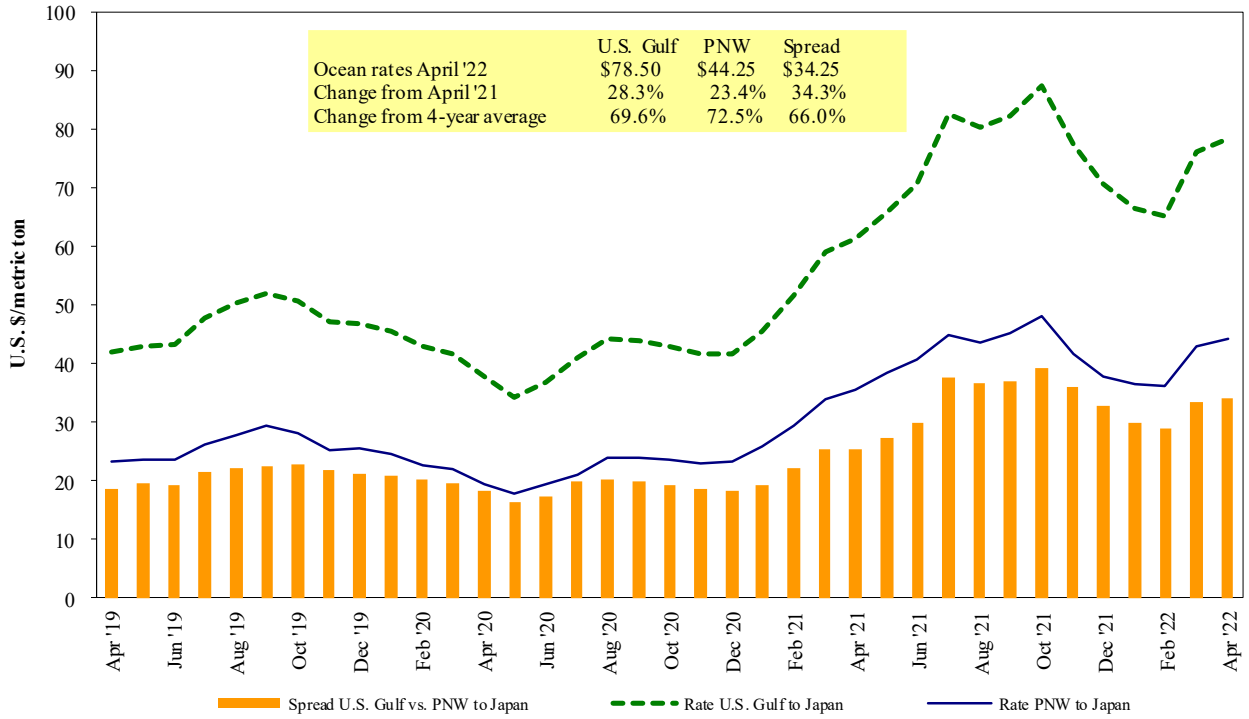
U.S. Gulf[1] vessel loading activity



[1]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 05/07/2022

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

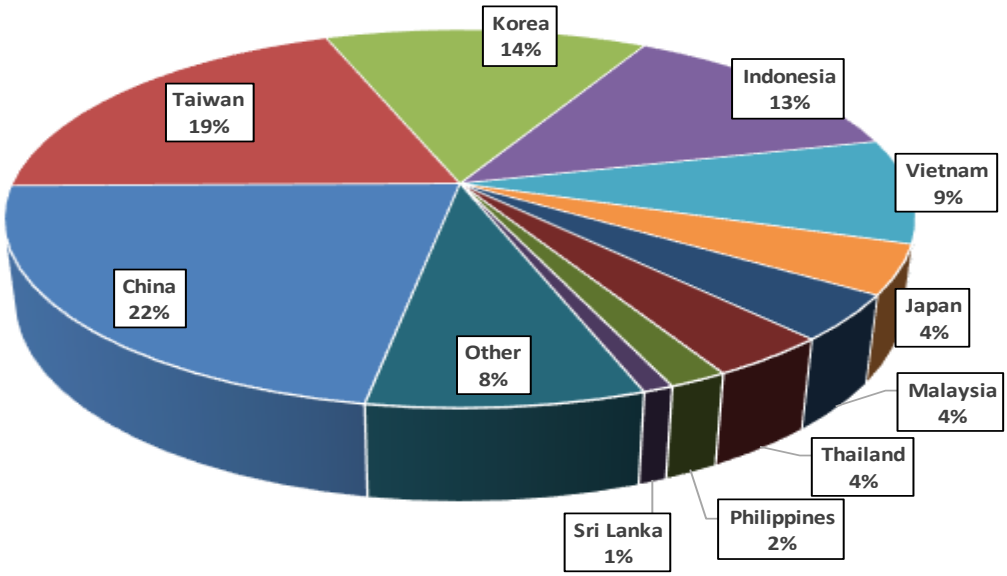
*50 percent of food aid from the United States is required to be shipped on U.S.-flag vessels.

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.

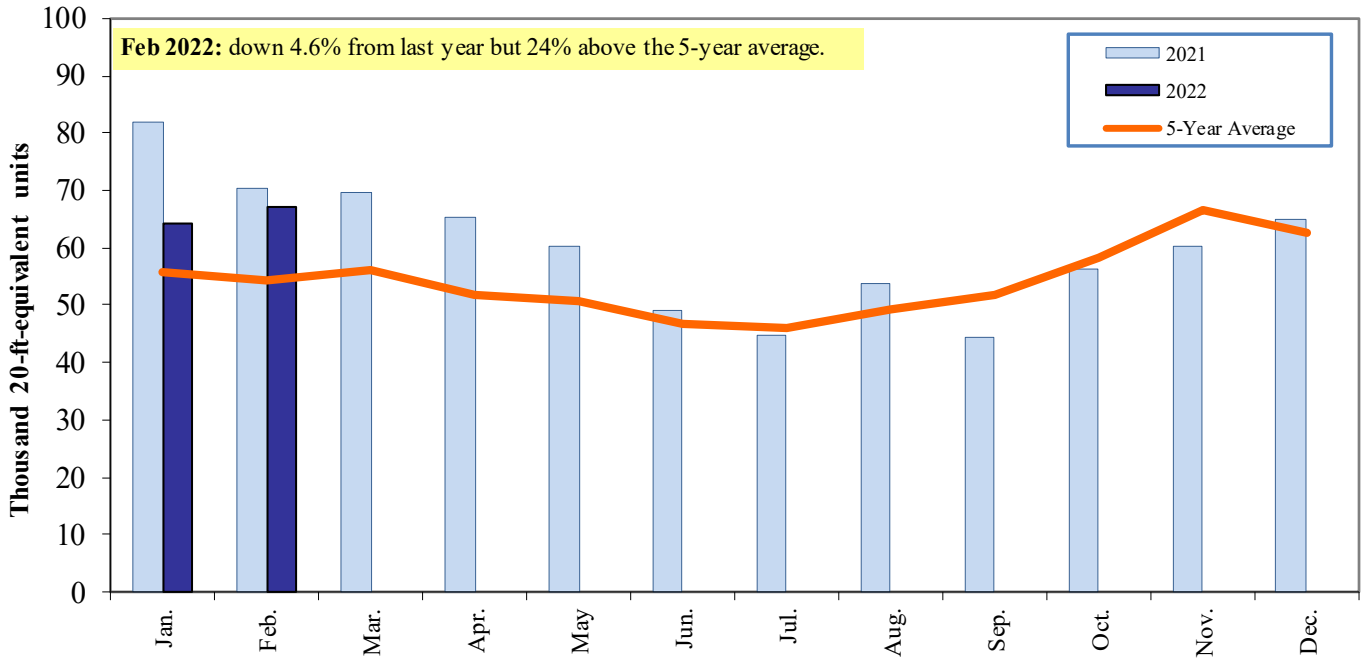
Figure 18
Top 10 destination markets for U.S. containerized grain exports, Jan-Feb 2022



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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