USDA United States Department of Agriculture

Grain Transportation Report

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

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April 1, 2021

Contents

The next release is April 8, 2021

WEEKLY HIGHLIGHTS

Container Vessel Dislodged From Suez Canal, but Traffic Backlog Lingers

On March 23, a container vessel, "Ever Given," ran aground, blocking traffic through the Suez Canal for 6 days before it was finally refloated on March 29. The Suez Canal is one of the world's busiest waterways, especially for connecting Europe, Asia, and the Middle East. Mainly a route for shipments of oil and containerized cargo, the Canal also serves vessels carrying manufactured goods and some grain from the Black Sea region. According to the *Wall Street Journal*, hundreds of vessels are lined up to navigate the Canal. The Suez Canal Authority reports the Canal is now operating at full capacity, around the clock, and with navigation in both directions. Because most U.S. grain destined to Asia transits the Panama Canal, very little U.S. grain passes through the Suez Canal.

Navigation Season Opens in Upper Mississippi as High Water and Flooding Beset Lower Mississippi

The 2021 navigation season for the Upper Mississippi River unofficially began on March 19, when a motor vessel pushed 12 barges upbound to St. Paul, MN. However, capacity was limited on the entire Upper Mississippi until March 22, when the U.S. Army Corps of Engineers reopened Lock and Dam 25 (near Winfield, MO) after repair and maintenance. While the barge industry busily adjusts upbound logistics for the new navigation season, the Lower Mississippi continues to battle high water, which has delayed grain shipments and raised operation costs since last week. For the week ending March 27, total downbound grain movements reached 851,302 tons, the highest level since early February (***GTR* table 10**). However, the number of barges unloaded in New Orleans was 627, 19 percent less than the previous week and the lowest weekly number of 2021 (***GTR* fig. 12**). Currently, highwater and flooding persist in the Lower Mississippi, and the industry expects delays of grain barge movements and loading operations in the Gulf for most of this week.

ASCE Releases 2021 Infrastructure Report Card

The American Society of Civil Engineers (ASCE) recently released its quadrennial analysis, its 2021 *Report Card for America's Infrastructure*. Up from a D-plus 4 years ago, the U.S infrastructure system received a general a grade of C-minus this year. The analysis found 42 percent of 617,000 U.S. bridges were more than 50 years old, and researchers rated more than 46,000 of them as structurally deficient. Likewise, every year, more bridges slip from good to fair condition. Despite modest improvements in some infrastructure categories—including railroads, inland waterways, and ports—the Nation's infrastructure funding gap continues to grow. The report projects a shortfall of $2.59 trillion over the next 10 years, at an estimated loss of $10 trillion in economic growth and a loss of over 3 million jobs by 2039. The report asserts major Federal investment is required to prevent the harsh effects of a changing climate and other sources of deterioration.

Snapshots by Sector

Export Sales

For the week ending March 18, **unshipped balances** of wheat, corn, and soybeans totaled 44.8 mmt. This was 4 percent higher than last week and also represented a significant increase in outstanding sales from the same time last year. Net **corn export sales** were 4.482 mmt, up significantly from the previous week. Net **soybean export sales** were 0.102 mmt, down 50 percent from the previous week. Net **wheat export sales** were 0.344 mmt, down 12 percent from the previous week.

Rail

U.S. Class I railroads originated 27,332 **grain carloads** during the week ending March 20. This was a 14-percent increase from the previous week, 30 percent more than last year, and 23 percent more than the 3-year average.

Average April shuttle **secondary railcar** bids/offers (per car) were $18 above tariff for the week ending March 25. This was $199 less than the previous week and $7 lower than this week last year. There were no non-shuttle bids/offers this week.

Barge

For the week ending March 27, **barge grain movements** totaled 851,302 tons. This was 18 percent higher than the previous week and 91 percent higher than the same period last year.

For the week ending March 27, 526 grain barges **moved down river**—63 barges more than the previous week. There were 624 grain barges **unloaded in New Orleans**, 19 percent fewer than the previous week.

Ocean

For the week ending March 25, 33 **oceangoing grain vessels** were loaded in the Gulf—3 percent more than the same period last year. Within the next 10 days (starting March 26, 2021), 48 vessels were expected to be loaded—23 percent more than the same period last year.

As of March 25, the rate for shipping a metric ton of grain from the U.S. Gulf to Japan was $61.50. This was 2 percent more than the previous week. The rate from the Pacific Northwest to Japan was $36.00 per metric ton, 3 percent more than the previous week.

Fuel

For the week ending March 29, the U.S. average **diesel fuel price** decreased 3.3 cents from the previous week to $3.161 per gallon, 57.5 cents above the same week last year.

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Feature Article/Calendar

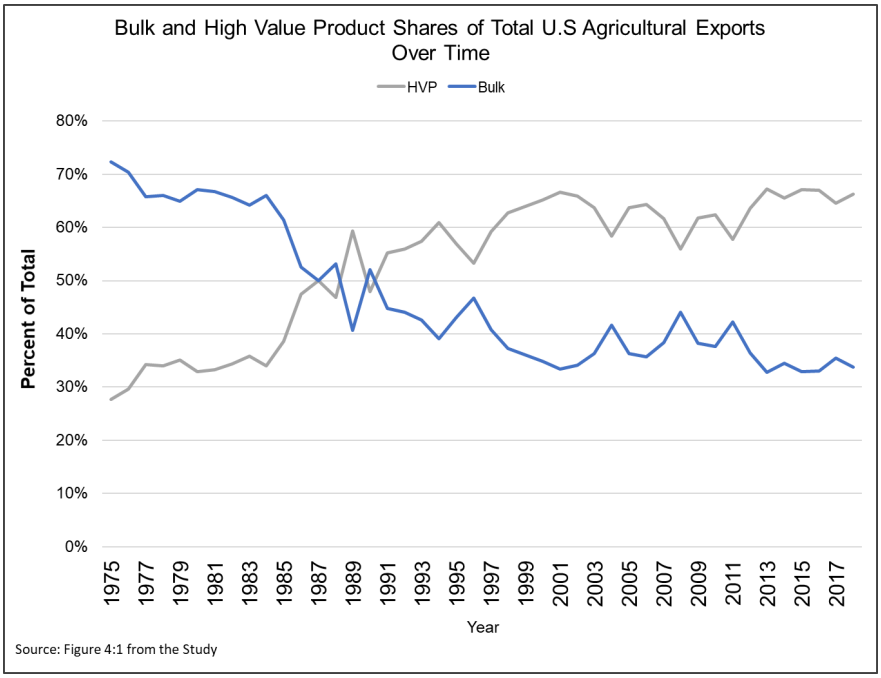
New Research Examines Chassis Availability for Containerized Agricultural Exports

The article's descriptions and findings are drawn from recent USDA-sponsored research from Cyrus Ramezani and Chris Carr.[1] The full report is available online.

Containerized shipping has proliferated over recent decades and now constitutes a significant portion of U.S. international trade. However, although containerized traffic offers some shippers increased efficiency over bulk shipping, the practice still faces a considerable challenge: shippers must match export traffic with empty containers and appropriate chassis.[2] The process of sourcing containers and chassis is a significant source of inefficiency in maritime shipping. That inefficiency grows as the volume of containerized trade rises, and the need for efficient container management becomes more pressing. This article highlights critical challenges for chassis and container management, then offers ideas to mitigate inefficiencies.

Container and Chassis Challenges for Agricultural Shippers

Over recent decades, agricultural shippers have shifted away from bulk products in favor of high-value products (HVPs), such as edible nuts and dairy products, that rely on containers for export (see figure). Ideally, HVP shippers could load their products into recently imported and emptied containers before returning them overseas. However, empty containers concentrate at port locations, whereas agricultural production generally centers at rural, interior regions. Furthermore, the U.S. generally imports more goods than it exports. In particular, trade with the Asia-Pacific regions leads to higher demand for containers in those regions than in the United States. As a result, U.S. ports often return empty containers overseas to be loaded and shipped again, because loading containers with U.S. exports can be too costly and time intensive.



Containerized shipping is a dynamic industry, often subject to disruptions. Steadily growing trade and seasonal variation (due to holiday shopping or the timing of agricultural cycles) can cause bottlenecks. In this way, heavy

[1] Cyrus Ramezani and Chris Carr are professors in California Polytechnic State University's Orfalea College of Business.

[2] A chassis is the wheeled frame by which a trailer or container is moved by truck. For a successful pairing to occur, a container and chassis must be available at the right time and location at a competitive price; must match in size; and must comply with domestic and international regulatory requirements.

equipment. Notably, following the 2007/08 recession, major ocean carriers consolidated and divested themselves from various assets, including chassis. They also increased the size and number of ocean vessels, putting further strain on the land-side logistics system. Today, chassis-leasing companies are the principal purveyors of chassis.

Observations from California Ports

The researchers examined traffic through three California ports—Los Angeles, Long Beach, and Oakland. For these ports, the researchers characterized patterns of container transit and determined their impact on chassis availability and HVP exports. Overall, total movements at each of the three ports of interest varied considerably and generally increased between 1997 and 2020.

Each of the three ports were similarly affected by seasonal trends. On average, export and import activity at each location generally bottomed in February and peaked in August. Exports of empty containers at each port, which ranged between 25 and 30 percent of total exports, were unavailable to agricultural shippers. The outbound empty containers were usually highest between August and September, despite high demand for containers from agricultural exporters during those months. This inefficient, paradoxical situation has been an ongoing source of frustration for agricultural exporters.

Proposed Chassis Solutions

The researchers noted total transportation costs, length of transit time, and freight reliability as three primary concerns for agricultural exporters. Considering such metrics, they proposed several strategies to reduce inefficiencies associated with container and chassis provisioning.

Governments can reduce perennial chassis shortages through incentives that promote chassis ownership or long-term lease agreements, such as by providing low interest loans. Additionally, various stakeholders could develop a not-for-profit chassis pool dedicated to agricultural exporters. The pool would serve as a buffer stock and the optimal number of chassis could be determined through statistical analysis of traffic data. Finally, the researchers suggest shippers base the timing of their agricultural exports on cyclical patterns to avoid periods of high chassis demand.
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Grain Transportation Indicators

Table 1

Grain transport cost indicators[1]

	Truck	Rail		Barge	Ocean	
For the week ending		Non-Shuttle	Shuttle		Gulf	Pacific
03/31/21	212	294	222	207	275	255
03/24/21	214	294	230	210	269	248

[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)

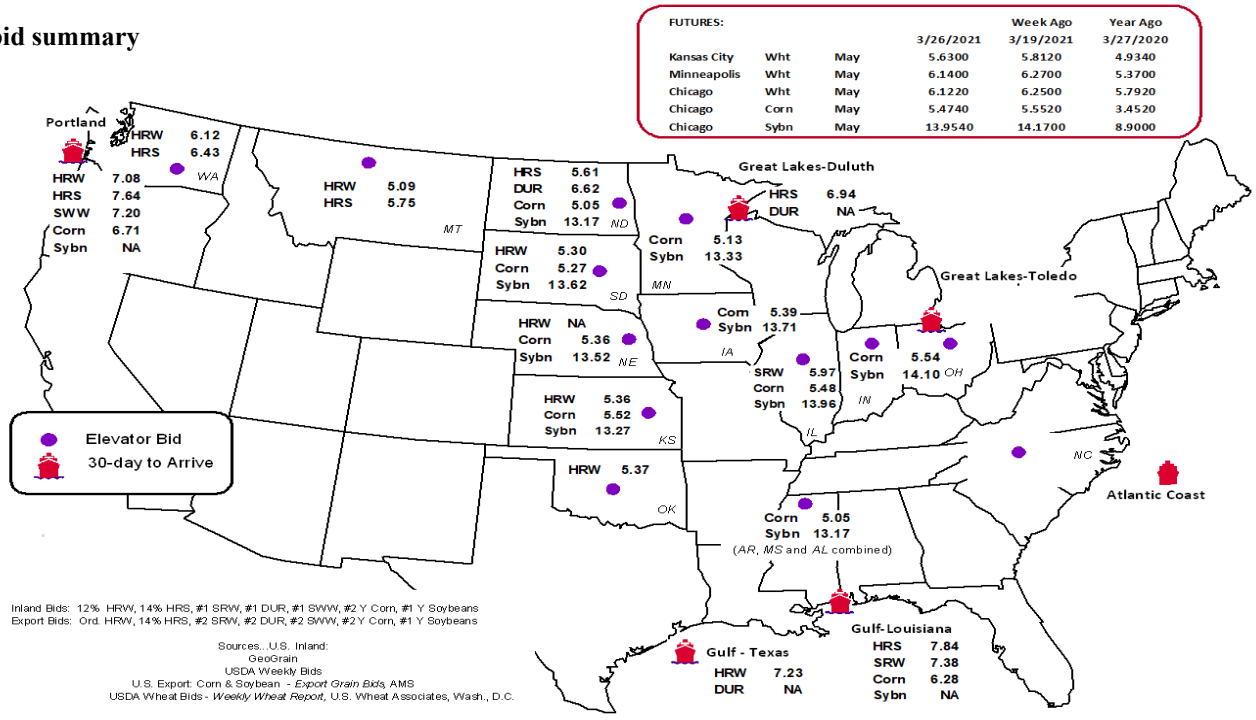
Commodity	Origin–destination	3/26/2021	3/19/2021
Corn	IL–Gulf	-0.80	-0.82
Corn	NE–Gulf	-0.92	-0.95
Soybean	IA–Gulf	n/a	n/a
HRW	KS–Gulf	-1.87	-1.80
HRS	ND–Portland	-2.03	-2.10

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]
3/24/2021[p]	1,564	1,302	6,996	524	10,386	3/20/2021	2,318
3/17/2021[r]	1,492	1,632	5,991	300	9,415	3/13/2021	2,723
2021 YTD[r]	21,796	21,250	81,945	7,999	132,990	2021 YTD	28,395
2020 YTD[r]	4,342	7,813	50,481	2,449	65,085	2020 YTD	27,566
2021 YTD as % of 2020 YTD	502	272	162	327	204	% change YTD	103
Last 4 weeks as % of 2020[2]	1,338	221	154	139	188	Last 4wks. % 2020	119
Last 4 weeks as % of 4-year avg.[2]	257	123	115	100	126	Last 4wks. % 4 yr.	139
Total 2020	45,294	64,116	299,882	24,458	433,750	Total 2020	126,407
Total 2019	40,974	51,167	251,181	16,192	359,514	Total 2019	127,622

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

[2] Compared with same 4-weeks in 2020 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.

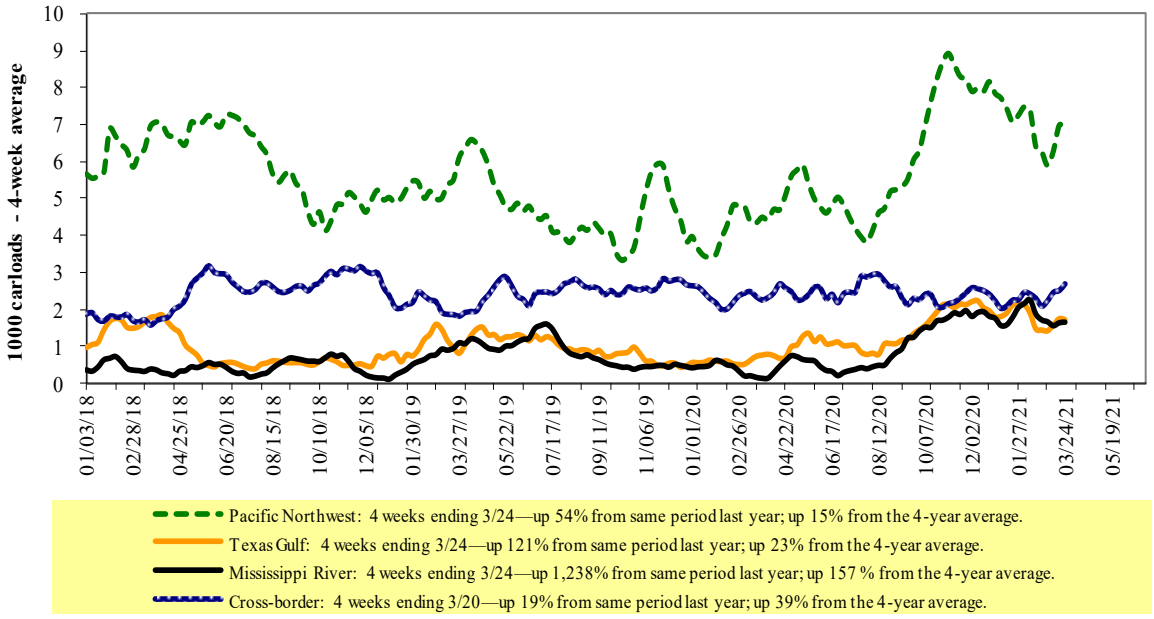
YTD = year-to-date; p = preliminary data; r = revised data; n/a = not available; wks. = weeks; avg. = average.

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	
3/20/2021	CSXT	NS	BNSF	KCS	UP		CN	CP
This week	1,871	2,298	14,690	1,386	7,087	27,332	4,599	5,464
This week last year	1,838	2,663	10,812	787	4,900	21,000	3,347	4,307
2021 YTD	22,774	28,833	144,292	11,308	71,719	278,926	52,734	54,705
2020 YTD	20,786	27,242	124,676	12,682	53,398	238,784	39,578	44,421
2021 YTD as % of 2020 YTD	110	106	116	89	134	117	133	123
Last 4 weeks as % of 2020*	116	101	122	107	141	123	137	144
Last 4 weeks as % of 3-yr. avg.**	107	95	123	112	134	120	129	140
Total 2020	91,659	130,939	613,630	57,782	296,701	1,190,711	239,099	261,778

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

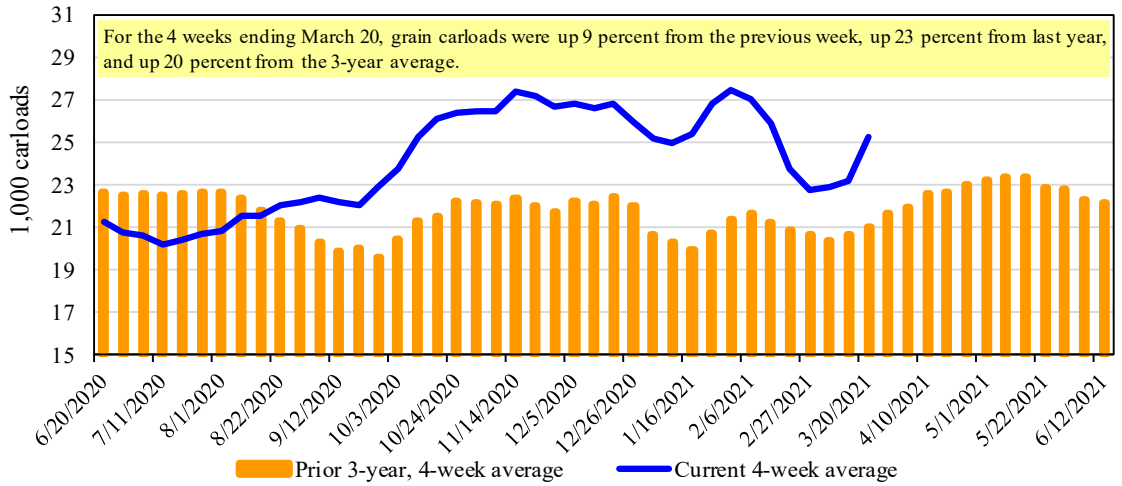
**The past 4 weeks as a percent of the same period from the prior 3-year average. YTD = year-to-date; avg. = average; yr. = year.

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							
3/25/2021		Apr-21	Apr-20	May-21	May-20	Jun-21	Jun-20	Jul-21	Jul-20
BNSF[3]	COT grain units	no bids	14	no bids	0	0	0	0	no bids
	COT grain single-car	51	0	0	0	0	no bids	0	no bids
UP[4]	GCAS/Region 1	no offer	no offer	no offer	no bid	no offer	no offer	n/a	n/a
	GCAS/Region 2	no offer	10	no offer	no bid	no offer	no bid	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.

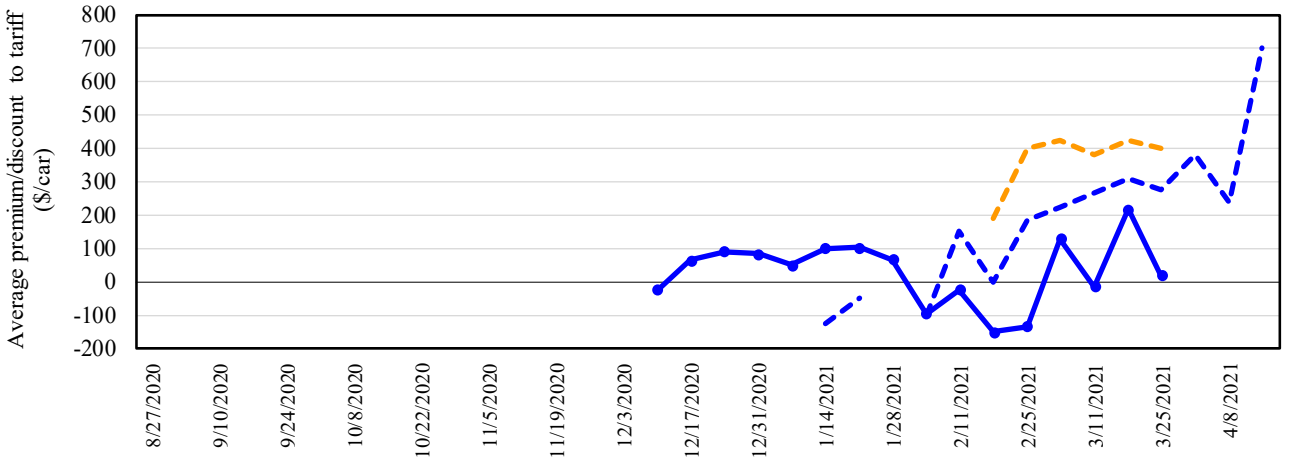
Region 1 includes: AR, IL, LA, MO, NM, OK, TX, WI, and Duluth, MN.

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
Bids/offers for railcars to be delivered in April 2021, secondary market

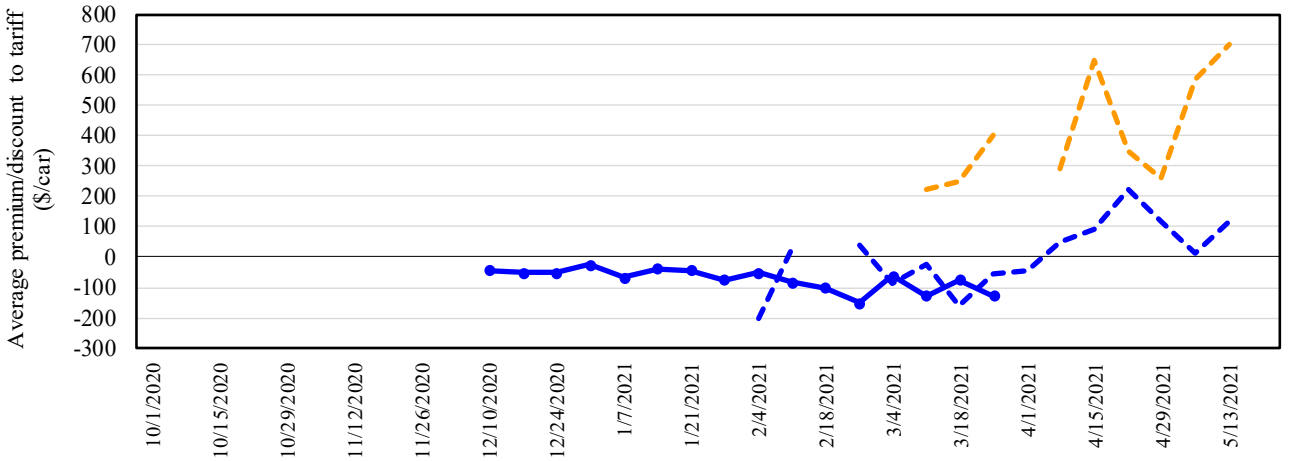


3/25/2021	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$66	$102

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers fell $199 this week and are $199 below the peak.

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

Figure 5
Bids/offers for railcars to be delivered in May 2021, secondary market



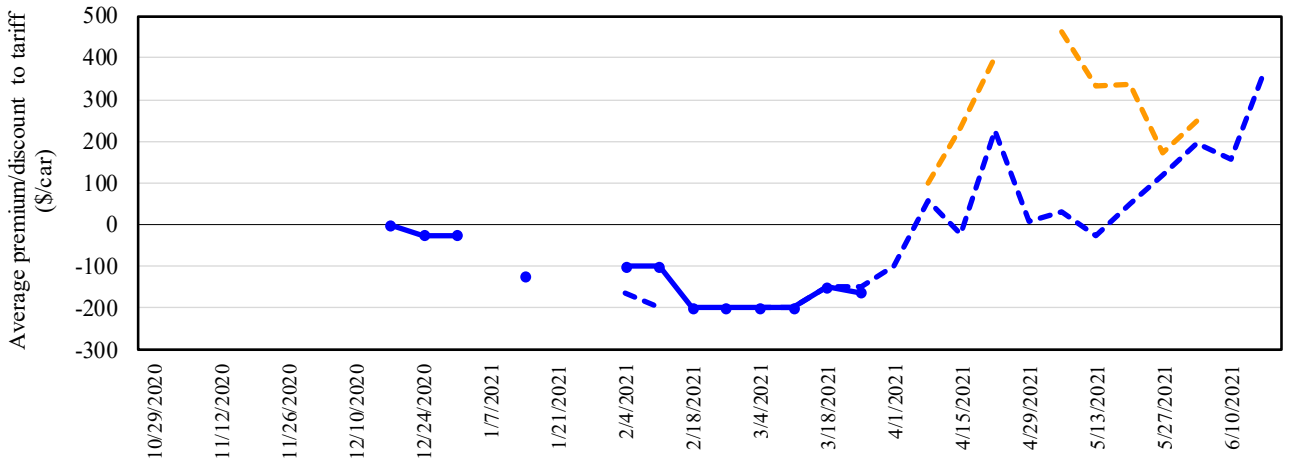
3/25/2021	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$169	-$84

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers fell $52 this week and are $102 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

Bids/offers for railcars to be delivered in June 2021, secondary market



3/25/2021	BNSF	UP
Non-shuttle	n/a	n/a
Shuttle	-$188	-$138

There were no non-shuttle bids/offers this week.
Average shuttle bids/offers fell $13 this week and are $163 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: 3/25/2021	Delivery period					
		Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21
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 2020	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 2020	n/a	n/a	n/a	n/a	n/a	n/a
Shuttle	**BNSF-GF**	**(66)**	**(169)**	**(188)**	**(150)**	**(150)**	**(150)**
	Change from last week	(300)	(94)	(38)	0	0	0
	Change from same week 2020	(41)	n/a	n/a	n/a	n/a	n/a
	UP-Pool	**102**	**(84)**	**(138)**	**(150)**	**(200)**	**(150)**
	Change from last week	(98)	(9)	n/a	(50)	0	n/a
	Change from same week 2020	27	(72)	n/a	n/a	n/a	n/a

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

Note: Bids listed are market indicators only and are not guaranteed prices. n/a = not available; GF = guaranteed freight; Pool = guaranteed pool; BNSF = BNSF Railway; UP = Union Pacific Railroad.

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

Source: USDA, Agricultural Marketing Service.

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]

April 2021	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	$3,983	$76	$40.31	$1.10	0
	Grand Forks, ND	Duluth-Superior, MN	$4,208	$0	$41.79	$1.14	-3
	Wichita, KS	Los Angeles, CA	$7,115	$0	$70.66	$1.92	-2
	Wichita, KS	New Orleans, LA	$4,525	$134	$46.26	$1.26	0
	Sioux Falls, SD	Galveston-Houston, TX	$6,851	$0	$68.03	$1.85	-2
	Colby, KS	Galveston-Houston, TX	$4,801	$146	$49.13	$1.34	0
	Amarillo, TX	Los Angeles, CA	$5,121	$204	$52.88	$1.44	-1
Corn	Champaign-Urbana, IL	New Orleans, LA	$3,900	$151	$40.23	$1.02	0
	Toledo, OH	Raleigh, NC	$7,833	$0	$77.79	$1.98	15
	Des Moines, IA	Davenport, IA	$2,455	$32	$24.70	$0.63	1
	Indianapolis, IN	Atlanta, GA	$5,979	$0	$59.37	$1.51	3
	Indianapolis, IN	Knoxville, TN	$5,040	$0	$50.05	$1.27	3
	Des Moines, IA	Little Rock, AR	$3,900	$94	$39.66	$1.01	2
	Des Moines, IA	Los Angeles, CA	$5,780	$273	$60.11	$1.53	1
Soybeans	Minneapolis, MN	New Orleans, LA	$5,246	$148	$53.56	$1.46	42
	Toledo, OH	Huntsville, AL	$6,595	$0	$65.49	$1.78	17
	Indianapolis, IN	Raleigh, NC	$7,125	$0	$70.75	$1.93	3
	Indianapolis, IN	Huntsville, AL	$5,247	$0	$52.11	$1.42	3
	Champaign-Urbana, IL	New Orleans, LA	$4,645	$151	$47.63	$1.30	0
Shuttle train							
Wheat	Great Falls, MT	Portland, OR	$4,018	$0	$39.90	$1.09	-3
	Wichita, KS	Galveston-Houston, TX	$4,236	$0	$42.07	$1.14	-3
	Chicago, IL	Albany, NY	$6,376	$0	$63.32	$1.72	-10
	Grand Forks, ND	Portland, OR	$5,676	$0	$56.37	$1.53	-2
	Grand Forks, ND	Galveston-Houston, TX	$5,996	$0	$59.54	$1.62	-2
	Colby, KS	Portland, OR	$6,012	$240	$62.08	$1.69	-1
Corn	Minneapolis, MN	Portland, OR	$5,180	$0	$51.44	$1.31	0
	Sioux Falls, SD	Tacoma, WA	$5,140	$0	$51.04	$1.30	0
	Champaign-Urbana, IL	New Orleans, LA	$3,820	$151	$39.43	$1.00	-1
	Lincoln, NE	Galveston-Houston, TX	$3,880	$0	$38.53	$0.98	0
	Des Moines, IA	Amarillo, TX	$4,320	$118	$44.07	$1.12	2
	Minneapolis, MN	Tacoma, WA	$5,180	$0	$51.44	$1.31	0
	Council Bluffs, IA	Stockton, CA	$5,100	$0	$50.65	$1.29	2
Soybeans	Sioux Falls, SD	Tacoma, WA	$5,850	$0	$58.09	$1.58	0
	Minneapolis, MN	Portland, OR	$5,900	$0	$58.59	$1.59	0
	Fargo, ND	Tacoma, WA	$5,750	$0	$57.10	$1.55	0
	Council Bluffs, IA	New Orleans, LA	$4,875	$174	$50.14	$1.36	0
	Toledo, OH	Huntsville, AL	$4,945	$0	$49.11	$1.34	3
	Grand Island, NE	Portland, OR	$5,260	$246	$54.67	$1.49	-1

[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: April 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	$7,384	$0	$75.45	$2.05	-2
	OK	Cuautitlan, EM	$6,713	$105	$69.65	$1.89	-1
	KS	Guadalajara, JA	$7,471	$644	$82.91	$2.25	1
	TX	Salinas Victoria, NL	$4,347	$64	$45.07	$1.23	0
Corn	IA	Guadalajara, JA	$8,902	$531	$96.38	$2.45	1
	SD	Celaya, GJ	$8,140	$0	$83.17	$2.11	0
	NE	Queretaro, QA	$8,300	$218	$87.04	$2.21	0
	SD	Salinas Victoria, NL	$6,905	$0	$70.55	$1.79	0
	MO	Tlalnepantla, EM	$7,665	$213	$80.49	$2.04	0
	SD	Torreon, CU	$7,690	$0	$78.57	$1.99	0
Soybeans	MO	Bojay (Tula), HG	$8,547	$500	$92.43	$2.51	1
	NE	Guadalajara, JA	$9,157	$517	$98.84	$2.69	1
	IA	El Castillo, JA	$9,410	$0	$96.15	$2.61	-1
	KS	Torreon, CU	$8,014	$349	$85.45	$2.32	1
Sorghum	NE	Celaya, GJ	$7,772	$463	$84.15	$2.14	1
	KS	Queretaro, QA	$8,108	$131	$84.17	$2.14	0
	NE	Salinas Victoria, NL	$6,713	$105	$69.66	$1.77	0
	NE	Torreon, CU	$7,092	$314	$75.67	$1.92	1

[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.

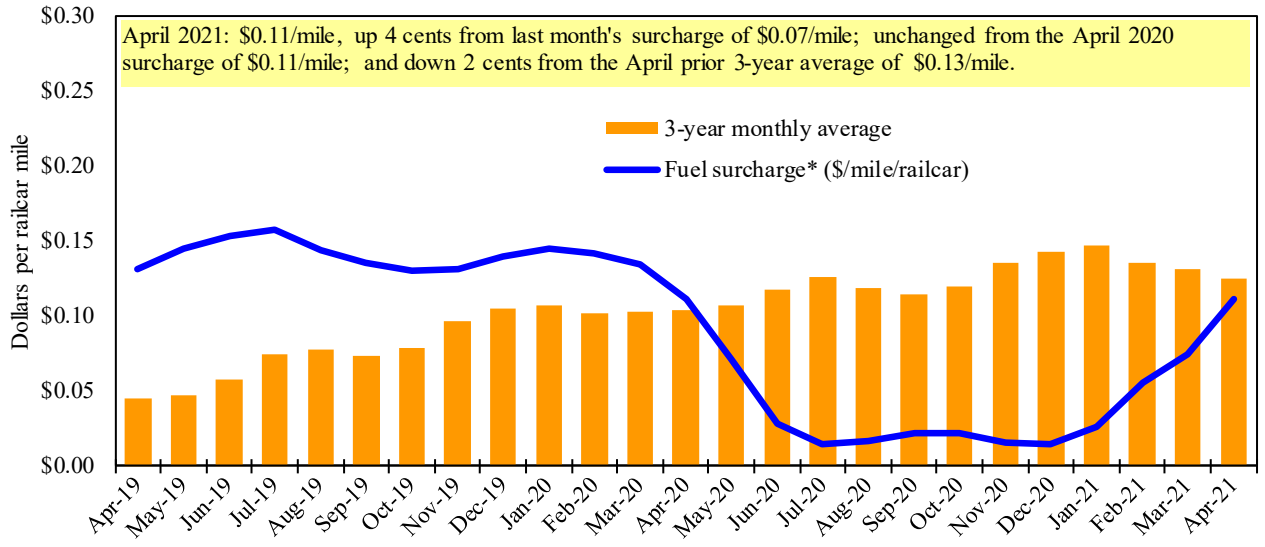
[3]Approximate load per car = 97.87 metric tons: Corn & Sorghum 56 lbs/bu, Wheat & Soybeans 60 lbs/bu.

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

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.

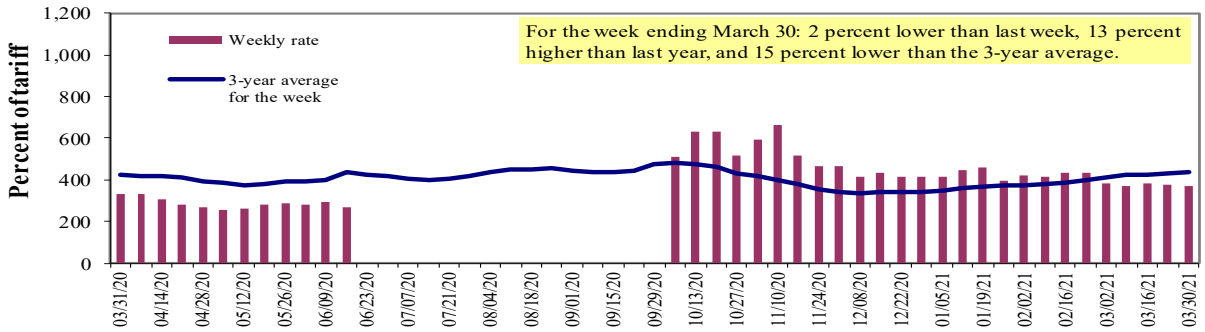
* Beginning January 2009, the Canadian Pacific fuel surcharge is computed by a monthly average of the bi-weekly fuel surcharge.

**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[1,2,3]



[1]Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); [2]4-week moving average of the 3-year average.
[3]No rates data from 06/23/20 to 9/29/20 due to the lock closure for rehabilitation and replacement of lock machinery.
Source: USDA, Agricultural Marketing Service.

Table 9
Weekly barge freight rates: Southbound only

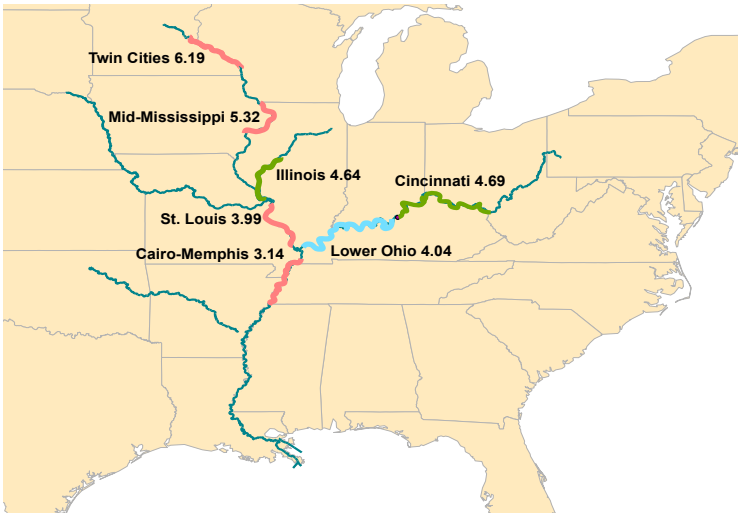
		Twin Cities	Mid-Mississippi	Lower Illinois River	St. Louis	Cincinnati	Lower Ohio	Cairo-Memphis
Rate[1]	3/30/2021	490	385	372	262	317	317	238
	3/23/2021	-	-	378	279	311	311	241
$/ton	3/30/2021	30.33	20.48	17.26	10.45	14.87	12.81	7.47
	3/23/2021	-	-	17.54	11.13	14.59	12.56	7.57
Current week % change from the same week:								
	Last year	26	13	13	16	41	41	15
	3-year avg. [2]	26	-11	-15	-23	-18	-18	-24
Rate[1]	April	485	385	370	262	307	307	238
	June	453	362	353	255	278	278	233

[1]Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); [2]4-week moving average; ton = 2,000 pounds; "-" not available due to closure.
Source: USDA, Agricultural Marketing Service.

Figure 9
Benchmark tariff rates

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

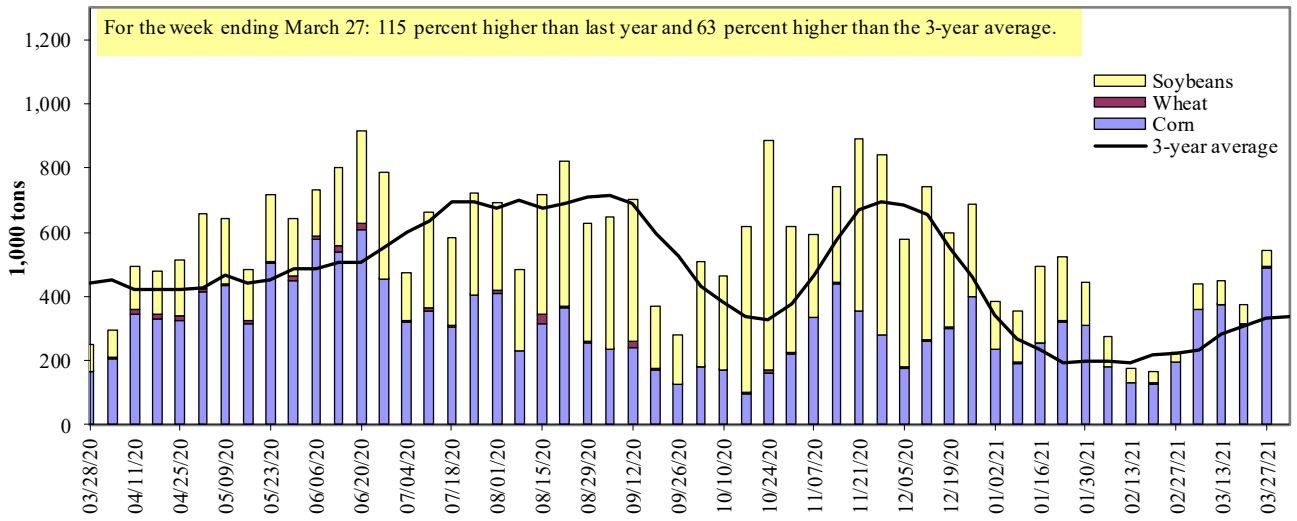
Select applicable index from market quotes are included in tables on this page. The 1976 benchmark rates per ton are provided in map.



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 03/27/2021	Corn	Wheat	Soybeans	Other	Total
Mississippi River					
Rock Island, IL (L15)	0	0	0	0	0
Winfield, MO (L25)	41	0	2	0	43
Alton, IL (L26)	445	3	49	5	502
Granite City, IL (L27)	488	3	52	5	548
Illinois River (La Grange)	--	--	--	--	--
Ohio River (Olmsted)	177	7	46	11	241
Arkansas River (L1)	6	34	23	0	63
Weekly total - 2021	670	44	121	15	851
Weekly total - 2020	303	23	119	0	445
2021 YTD[1]	6,182	216	2,838	102	9,337
2020 YTD[1]	2,996	375	2,605	12	5,987
2021 as % of 2020 YTD	206	57	109	882	156
Last 4 weeks as % of 2020[2]	195	83	95	947	158
Total 2020	18,942	1,765	19,205	237	40,149

[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.

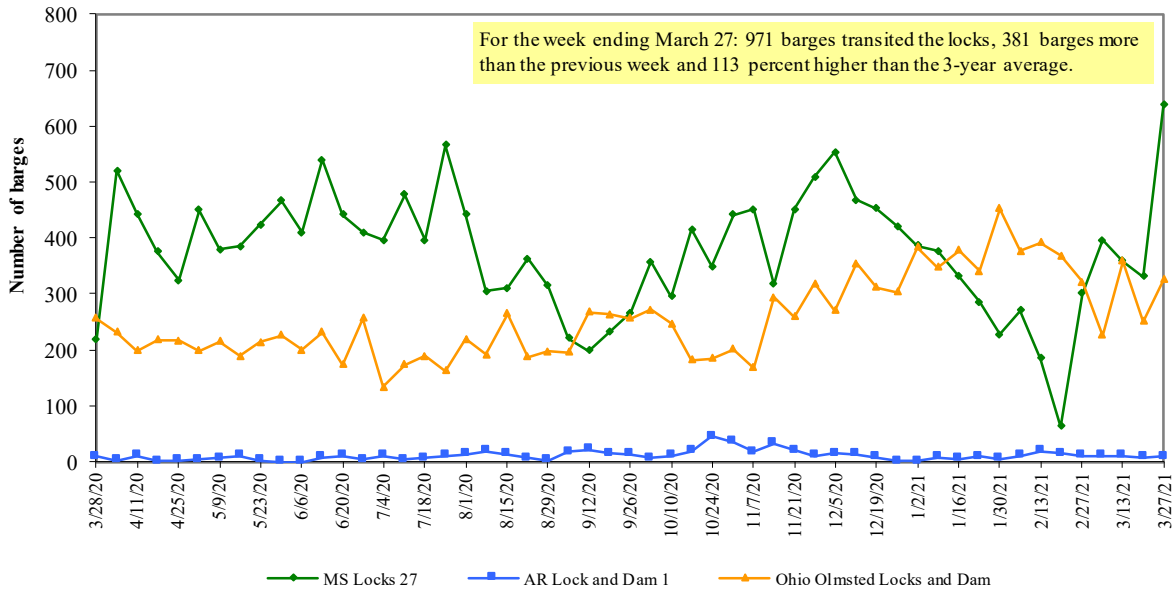
[2] As a percent of same period in 2020.

Note: L (as in "L15") refers to a lock, locks, or locks and dam facility. Illinois River La Grange lock and dam records are unavailable this week.

Source: U.S. Army Corps of Engineers.

Figure 11

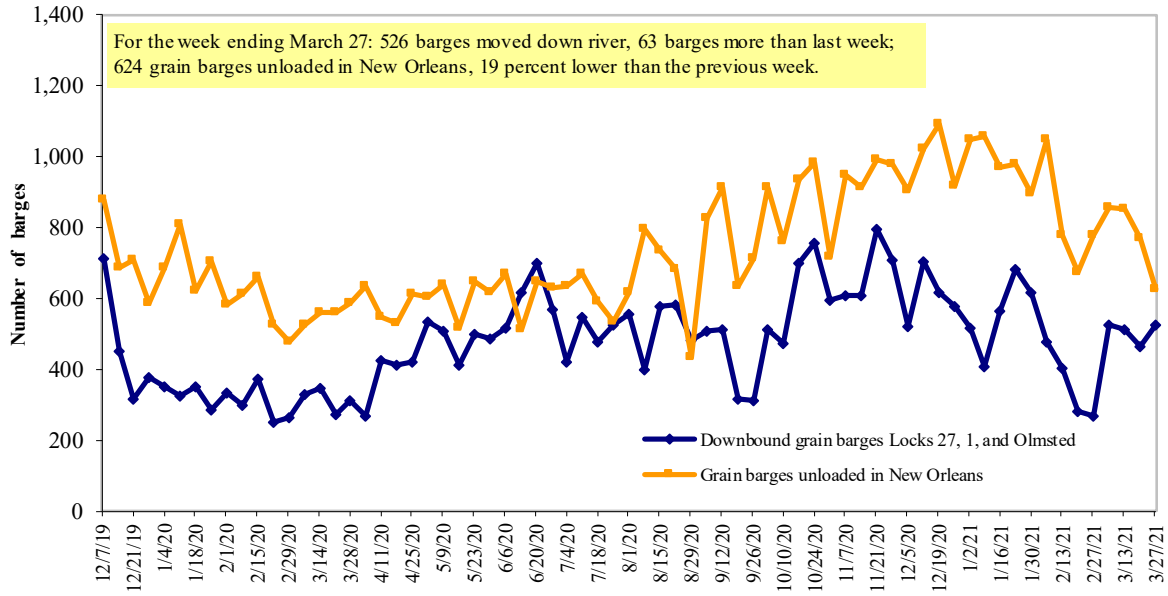
Upbound empty barges transiting Mississippi River Locks 27, Arkansas River Lock and Dam 1, and Ohio River Olmsted Locks and Dam



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 3/29/2021 (U.S. $/gallon)

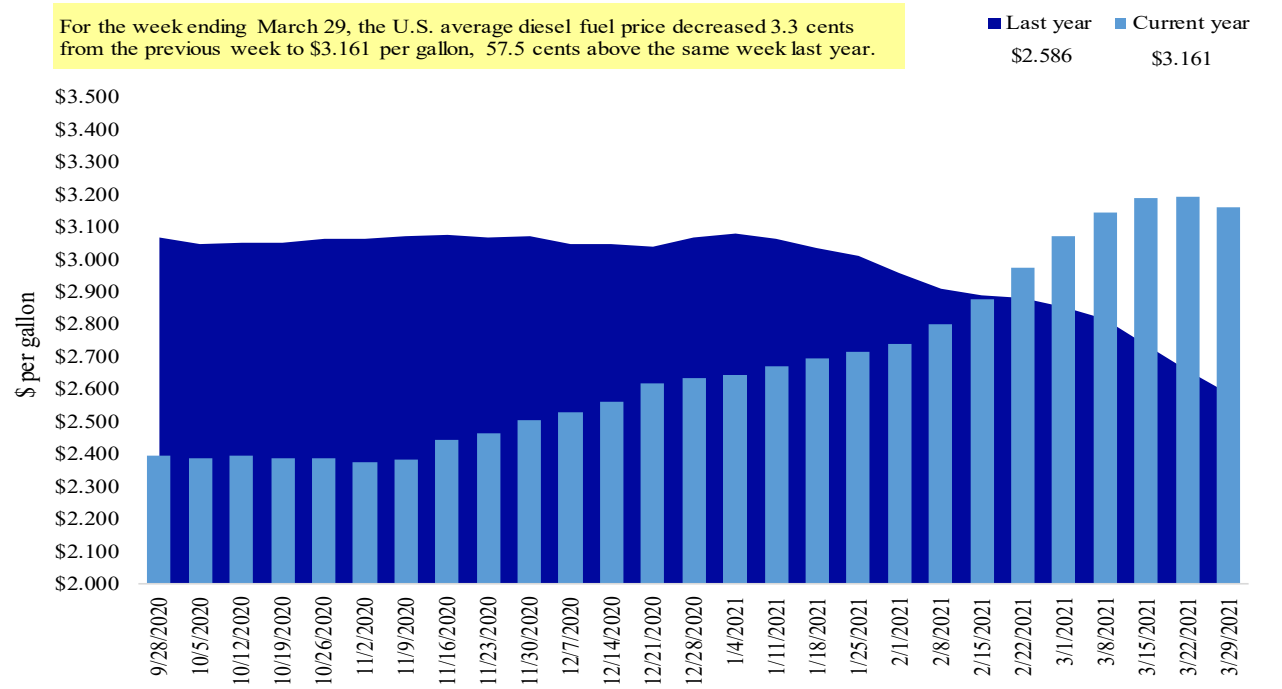
Region	Location	Price	Change from Week ago	Change from Year ago
I	East Coast	3.130	-0.022	0.459
	New England	3.091	-0.008	0.298
	Central Atlantic	3.274	-0.025	0.408
	Lower Atlantic	3.041	-0.023	0.527
II	Midwest	3.104	-0.045	0.672
III	Gulf Coast	2.955	-0.036	0.592
IV	Rocky Mountain	3.294	-0.023	0.702
V	West Coast	3.659	-0.019	0.533
	West Coast less California	3.982	0.667	1.184
	California	3.272	-0.708	-0.123
Total	United States	3.161	-0.033	0.575

[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]									
3/18/2021	1,399	355	1,648	1,957	78	5,436	32,989	6,380	44,805
This week year ago	1,928	290	1,640	1,120	230	5,208	13,784	4,613	23,605
Cumulative exports-marketing year[2]									
2020/21 YTD	7,017	1,440	5,768	4,601	592	19,418	31,998	54,356	105,772
2019/20 YTD	7,322	2,044	5,632	3,821	682	19,502	17,048	31,139	67,689
YTD 2020/21 as % of 2019/20	96	70	102	120	87	100	188	175	156
Last 4 wks. as % of same period 2019/20*	72	135	112	187	59	112	233	150	190
Total 2019/20	9,526	2,318	6,960	4,751	922	24,477	42,622	43,994	111,094
Total 2018/19	8,591	3,204	6,776	5,164	479	24,214	48,924	46,189	119,327

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

[2] Shipped export sales to date; 2020/21 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 3/18/2021	Total commitments[2]		% change	Exports[3]
	2020/21 current MY	2019/20 last MY	current MY from last MY	3-yr. avg. 2017-19
		- 1,000 mt -		
Mexico	12,624	11,336	11	14,869
Japan	8,633	6,610	31	11,221
Columbia	2,987	2,977	0	4,830
Korea	2,282	1,273	79	4,011
China	23,254	817	2,746	909
Top 5 importers	**49,780**	**23,013**	**116**	**35,840**
Total U.S. corn export sales	**64,987**	**30,832**	**111**	**49,983**
% of projected exports	98%	68%		
Change from prior week[2]	**4,482**	**1,814**		
Top 5 importers' share of U.S. corn export sales	77%	75%		72%
USDA forecast March 2021	**66,158**	**45,242**	**46**	
Corn use for ethanol USDA forecast, March 2021	**125,730**	**123,368**	**2**	

[1] Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2019/20; 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 3/18/2021	Total commitments[2] 2020/21 current MY	2019/20 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2017-19
		- 1,000 mt -		- 1,000 mt -
China	35,924	12,343	191	19,106
Mexico	4,549	3,583	27	4,591
Egypt	2,503	2,186	14	2,980
Indonesia	1,799	1,429	26	2,360
Japan	1,814	1,965	(8)	2,288
Top 5 importers	**46,588**	**21,506**	**117**	**31,324**
Total U.S. soybean export sales	**60,736**	**35,752**	**70**	**49,352**
% of projected exports	99%	78%		
change from prior week[2]	**102**	**904**		
Top 5 importers' share of U.S. soybean export sales	77%	60%		**63%**
USDA forecast, March 2021	**61,308**	**45,831**	**134**	

[1]Based on USDA, Foreign Agricultural Service (FAS) marketing year ranking reports for 2019/20; 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 3/18/2021	Total commitments[2] 2020/21 current MY	2019/20 last MY	% change current MY from last MY	Exports[3] 3-yr. avg. 2017-19
		1,000 mt -		- 1,000 mt -
Mexico	3,395	3,459	(2)	3,213
Philippines	3,021	3,146	(4)	2,888
Japan	2,455	2,679	(8)	2,655
Nigeria	1,391	1,497	(7)	1,433
Korea	1,725	1,568	10	1,372
Indonesia	994	1,062	(6)	1,195
Taiwan	1,138	1,165	(2)	1,175
Thailand	808	854	(5)	727
Italy	570	802	(29)	622
Colombia	359	748	(52)	618
Top 10 importers	**15,855**	**16,979**	(7)	**15,897**
Total U.S. wheat export sales	**24,854**	**24,710**	1	**23,821**
% of projected exports	93%	94%		
change from prior week[2]	**344**	**740**		
Top 10 importers' share of U.S. wheat export sales	64%	69%		67%
USDA forecast, March 2021	**26,839**	**26,294**	2	

[1] Based on USDA, Foreign Agricultural Service(FAS) marketing year ranking reports for 2019/20; 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 03/25/21	Previous week*	Current week as % of previous	2021 YTD*	2020 YTD*	2021 YTD as % of 2020 YTD	Last 4-weeks as % of: Last year	Last 4-weeks as % of: Prior 3-yr. avg.	2020 total*
Pacific Northwest									
Wheat	156	455	34	3,614	3,751	96	161	185	15,966
Corn	521	470	111	4,302	1,461	294	227	164	9,969
Soybeans	12	0	n/a	3,625	2,133	170	98	40	14,028
Total	**689**	**925**	**74**	**11,541**	**7,345**	**157**	**179**	**136**	**39,963**
Mississippi Gulf									
Wheat	11	30	35	422	951	44	41	32	3,422
Corn	978	1,218	80	11,857	6,427	184	198	193	28,781
Soybeans	218	351	62	8,708	7,079	123	88	73	38,013
Total	**1,207**	**1,599**	**75**	**20,986**	**14,458**	**145**	**150**	**136**	**70,215**
Texas Gulf									
Wheat	119	103	115	850	918	93	125	90	4,248
Corn	23	39	60	169	138	122	177	111	723
Soybeans	29	0	n/a	648	7	n/a	n/a	n/a	2,098
Total	**171**	**141**	**121**	**1,667**	**1,063**	**157**	**139**	**99**	**7,068**
Interior									
Wheat	33	63	52	590	598	99	112	152	2,263
Corn	143	256	56	2,018	1,809	112	133	148	8,683
Soybeans	123	151	81	1,745	1,750	100	114	110	7,274
Total	**299**	**470**	**64**	**4,353**	**4,156**	**105**	**123**	**132**	**18,220**
Great Lakes									
Wheat	0	0	n/a	19	1	n/a	n/a	61	891
Corn	0	0	n/a	0	0	n/a	n/a	n/a	111
Soybeans	0	0	n/a	0	0	n/a	n/a	n/a	1,111
Total	**0**	**0**	**n/a**	**19**	**1**	**n/a**	**n/a**	**61**	**2,113**
Atlantic									
Wheat	0	37	0	71	0	n/a	n/a	173	65
Corn	0	0	n/a	0	0	n/a	n/a	0	33
Soybeans	66	20	336	848	285	297	177	116	1,870
Total	**66**	**56**	**116**	**919**	**285**	**322**	**229**	**121**	**1,968**
U.S. total from ports*									
Wheat	318	688	46	5,566	6,219	90	131	127	26,854
Corn	1,666	1,982	84	18,345	9,835	187	194	178	48,301
Soybeans	448	521	86	15,573	11,254	138	99	73	64,394
Total	**2,431**	**3,192**	**76**	**39,484**	**27,308**	**145**	**153**	**133**	**139,548**

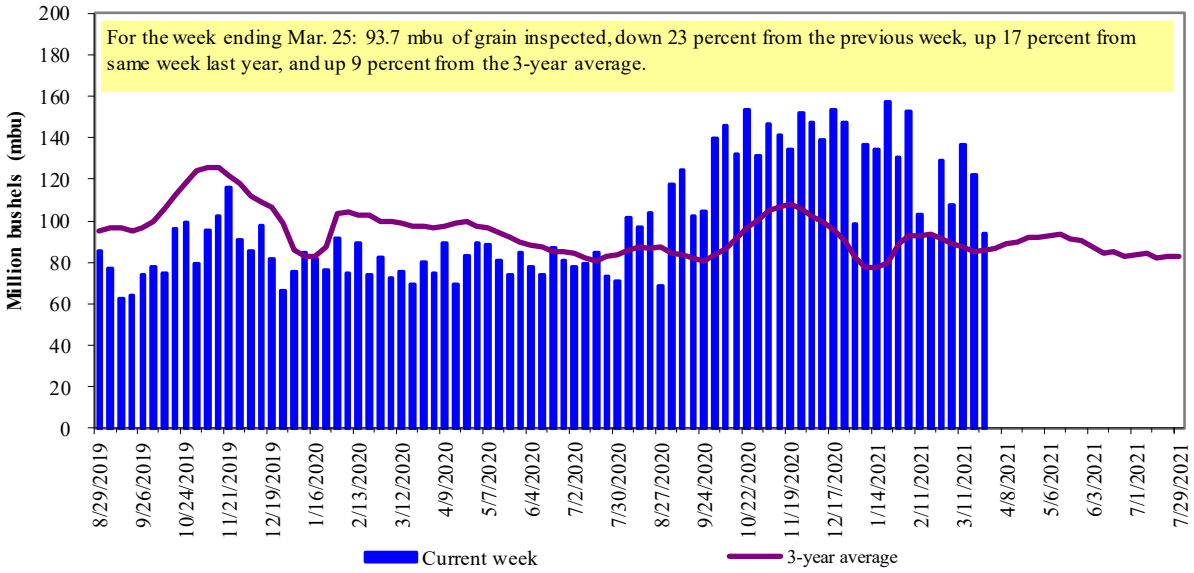
*Data includes revisions from prior weeks; some regional totals may not add exactly due to rounding.

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)

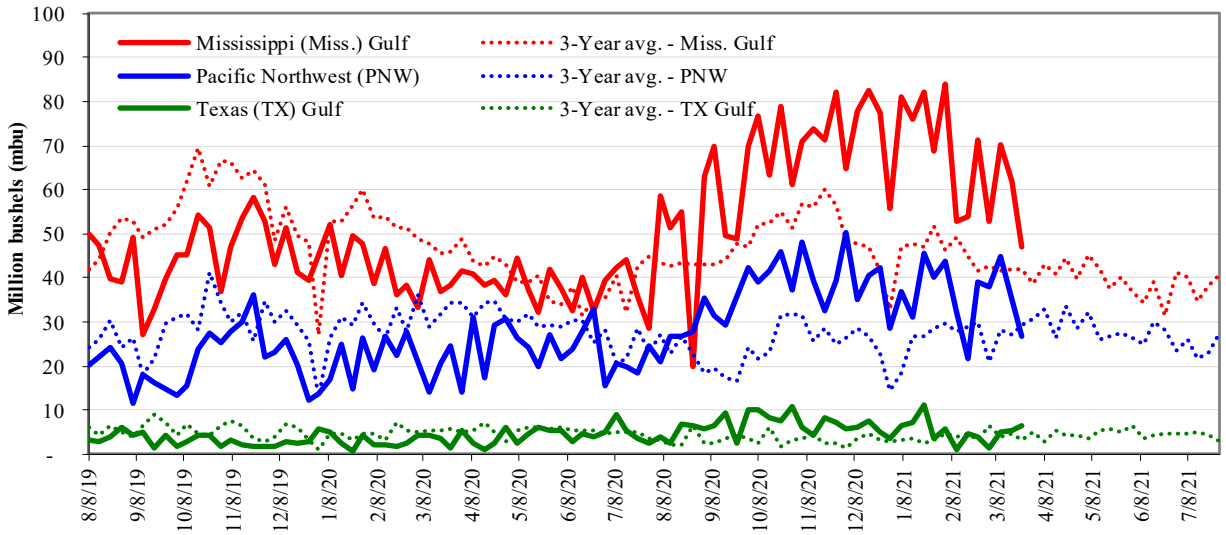


Note: 3-year average consists of 4-week running average.

Source: USDA, Federal Grain Inspection Service.

Figure 15

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



Week ending 03/25/21 inspections (mbu):	
MS Gulf:	46.9
PNW:	26.7
TX Gulf:	6.3

Percent change from:	MS Gulf	TX Gulf	U.S. Gulf	PNW
Last wk:	down 24	up 20	down 21	down 24
Last Year (same wk):	up 22	up 337	up 33	up 9
3-yr avg. (4-wk. mov. Avg):	up 11	up 37	up 14	unchanged

Source: USDA, Federal Grain Inspection Service.

Table 17

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

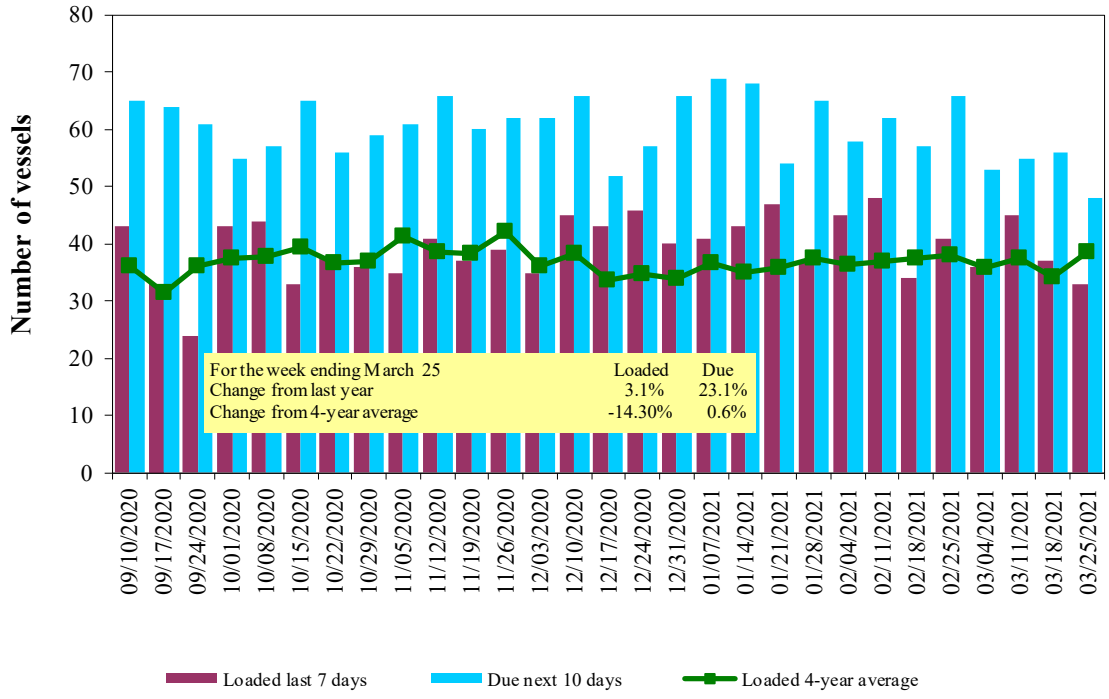
	Gulf			Pacific Northwest
Date	In port	Loaded 7-days	Due next 10-days	In port
3/25/2021	38	33	48	17
3/18/2021	35	37	56	15
2020 range	(22…60)	(23...46)	(34...68)	(7…24)
2020 average	37	33	49	15

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

Source: USDA, Agricultural Marketing Service.

Figure 16

U.S. Gulf[1] vessel loading activity

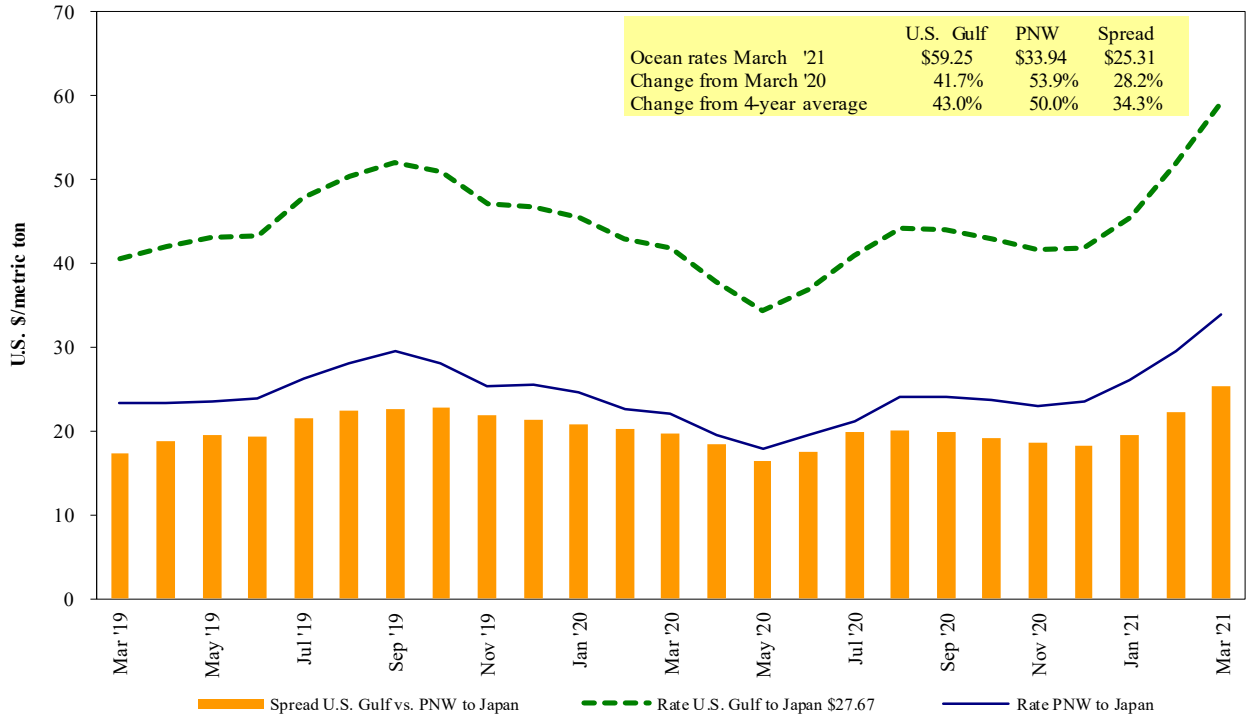


[1]U.S. Gulf includes Mississippi, Texas, and East Gulf.

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 03/27/2021

Export region	Import region	Grain types	Loading date	Volume loads (metric tons)	Freight rate (US$/metric ton)
U.S. Gulf	Japan	Grain	May 25/Jun 25	50,000	46.85 op 47.85
U.S. Gulf	Japan	Wheat	May 1/15	31,877	58.33
U.S. Gulf	Japan	Wheat	May 1/14	47,405	67.50
U.S. Gulf	Japan	Heavy grain	Apr 15/May 15	50,000	47.00
U.S. Gulf	Japan	Heavy grain	Apr 1/30	48,000	46.75
U.S. Gulf	South Korea	Heavy grain	Feb 20/28	51,000	51.50
U.S. Gulf	Pt Sudan	Sorghum	Feb 15/25	34,860	143.13*
U.S. Gulf	Vietnam	Corn	Feb 5/15	70,000	47.25
PNW	Japan	Grain	Mar 5/14	28,000	48.10
PNW	Taiwan	Corn	Feb 20/Mar 15	65,000	24.90
Brazil	China	Heavy grain	Mar 21/31	66,000	44.00
Brazil	China	Heavy grain	Mar 21/30	66,000	45.50
River Plate	S. Korea	Corn	May 1/31	68,000	52.60*
Ukraine	China	Corn	Feb 10/17	60,000	36.40 op 38.90

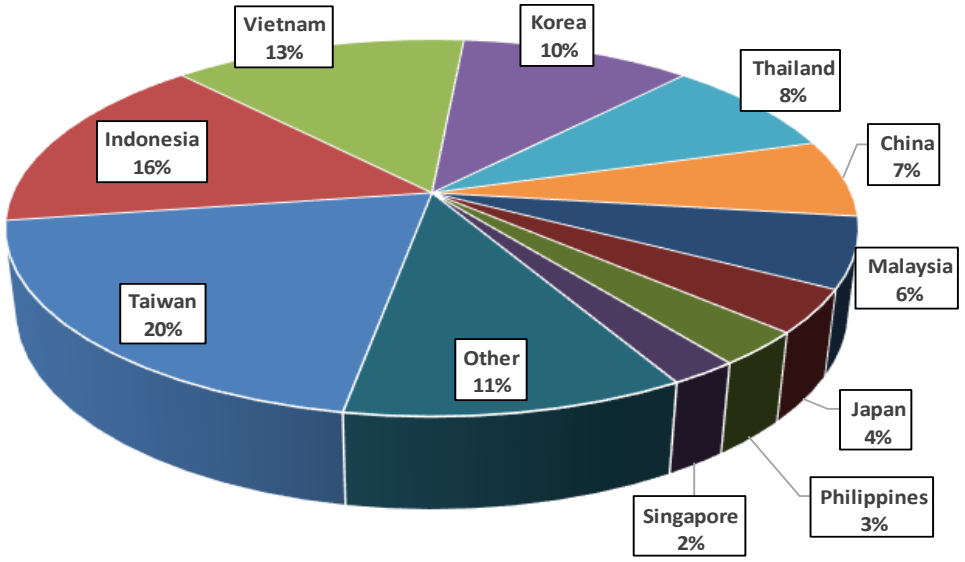
*50 percent of food aid from the United States is required to be shipped on U.S.-flag vessels.

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 2019, containers were used to transport 9 percent of total U.S. waterborne grain exports. Approximately 60 percent of U.S. waterborne grain exports in 2019 went to Asia, of which 14 percent were moved in containers. Approximately 94 percent of U.S. waterborne containerized grain exports were destined for Asia.

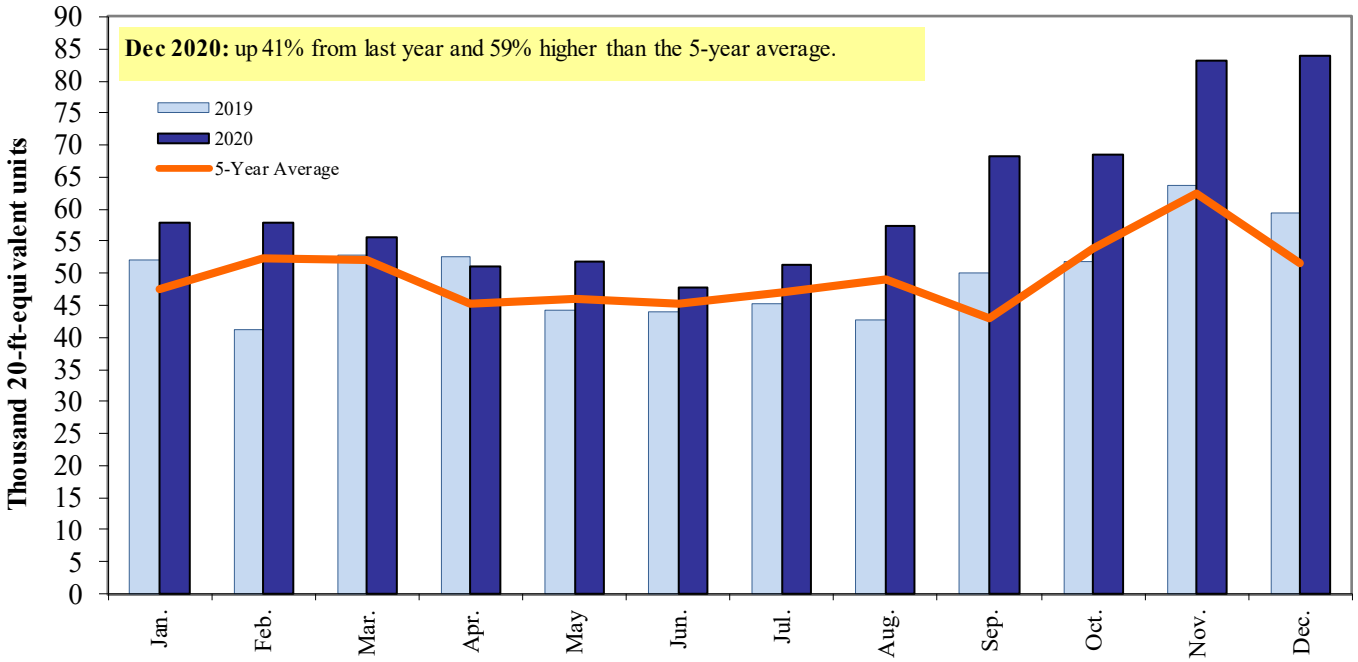
Figure 18
Top 10 destination markets for U.S. containerized grain exports, Jan-Dec 2020



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 containerized grain to Asia



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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