



Grain Transportation Report

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

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April 4, 2019

WEEKLY HIGHLIGHTS

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The next release is April 11, 2019 Spot Grain Barge Rates Drop from Last Week

As of April 2, spot grain barge rates for export grain originating from major shipping points were 17 to 29 percent lower than a week ago. Barge operators reported that increased navigation difficulties have dampened the demand for barge services. Competition for a dwindling number of customers has put downward pressure on rates. Export grain barge rates from St. Louis were 350 percent of tariff this week (\$13.97 per ton), compared to 457 percent (\$18.23 per ton) last week. However, barge rates have been above average for over a year due, in part, to constant highwater conditions. Current rates are 28 to 44 percent higher than the 3-year average. While this week's rates have dropped, barge operators have to contend with increased costs and reduced transit times. For more information on river conditions and overall flood-related transportation issues, see this week's feature article.

STB Hearing on Railroad Demurrage and Accessorial Charges: May 22

The Surface Transportation Board (STB) announced it will hold a public hearing on railroad demurrage and accessorial charges on May 22, 2019. According to the announcement, "railroads, shippers, third-party logistics providers, and other interested parties will be invited to speak at the hearing and report their experience with demurrage and accessorial charges, including matters such as reciprocity, commercial fairness, operational and capacity issues, and effects on network fluidity." The hearing will be held in Washington, DC. Further details including time, location, instructions on how to participate, and opportunities to file written comments will be forthcoming from STB.

Grain Inspections Continue to Increase

For the week ending March 28, total inspections of grain for export from all major U.S. export regions reached 2.45 million metric tons (mmt). This is a 7 percent increase from the previous week, a 2 percent decrease from last year, and is 2 percent above the 3-year average. Total wheat and corn inspections drove the increase in total grain inspections, with wheat increasing 9 percent from the previous week and corn jumping 26 percent. Shipments of corn rebounded primarily to Latin America. Soybean inspections, however; were down 15 percent from last week. Mississippi Gulf and Pacific Northwest (PNW) ispections increased 13 percent and 9 percent, respectively.

Diesel Fuel Prices Stabilize

After a steady decrease in U.S. average diesel fuel prices at the end of 2018 and through January 2019, prices began to increase during the first three weeks in February. However, prices stabilized in March, increasing only 0.002 cents throughout the month. Crude oil prices have also been stable during the month averaging around \$66 per barrel. The Energy Information Administration estimates crude oil prices will average around \$64 in 2019.

Snapshots by Sector

Export Sales

For the week ending March 21, **unshipped balances** of wheat, corn, and soybeans totaled 32.1 mmt. This indicates a 14 percent decrease in outstanding sales, compared to the same time last year. Net weekly **wheat export sales** were .476 mmt, up 59 percent from the previous week. Net **corn export sales** totaled .905 mmt, up 6 percent from the previous week. Net **soybean export sales**, however; totaled .182 mmt, down 54 percent from the past week.

Rail

U.S. Class I railroads originated 22,032 grain carloads for the week ending March 23. This is an 18 percent increase from the previous week, 6 percent lower than last year, and unchanged from the 3-year average.

Average April shuttle **secondary railcar** bids/offers (per car) were \$341 above tariff for the week ending March 28. This is down \$280 from last week and \$247 from last year. Average non-shuttle secondary railcar bids/offers were \$400 above tariff, down \$25 from last week. There were no non-shuttle bids/offers this week last year.

Barge

For the week ending March 30, **barge grain movements** totaled 670,622 tons. This is 4 percent lower than the previous week and 4 percent lower than the same period last year.

For the week ending March 30, 401 grain barges moved down river. This is 27 less barges than the previous week. There were 653 grain barges unloaded in New Orleans, 1 percent higher than the previous week.

Ocean

For the week ending March 28, 37 ocean-going grain vessels were loaded in the Gulf. This is 6 percent more than the same period last year. Forty-two vessels are expected to be loaded within the next 10 days, 28 percent less than the same period last year.

For the week ending March 28, the ocean freight rate for shipping bulk grain from the Gulf to Japan was \$41.50 per metric ton. This is 1 percent more than the previous week. The cost of shipping from the PNW to Japan was \$23.75 per metric ton. This is 1 percent more than the previous week.

Fue

For the week ending April 1, the U.S. average diesel fuel price decreased to \$3.078 per gallon, 0.2 cent below the previous week's average and 3.6 cents above the same week last year.

Feature Article/Calendar

Transportation Impacts of Midwest Flooding

Beginning in mid-March, various parts of the Midwest were hit with blizzard conditions, excessive rainfall, and snowmelt. The result was severe flooding and significant transportation disruptions in recent weeks, especially for trucks and railroads. Railroads have made substantial progress restoring operations across their network, but some outages remain. Ethanol and grain train speeds, origin dwell times, number of unit trains held short and cars not moved, were all significantly worse after the flooding. Mississippi River conditions have been challenging for barge shippers, with numerous lock closures and limited or no transit under several bridges. Flooding in the Midwest has had a significant negative impact on agricultural operations, including losses in livestock and stored grains from ruptured silos. This article highlights some of the impact on agricultural shippers. It also provides the current status of the on-going recovery efforts from the transportation sector and closes with an outlook of the possible weather ahead.

Update on Operations by Mode

<u>Rail</u>: BNSF and UP have made major repairs and restored operations across much of their network. For instance, BNSF has used more than 100,000 tons of rock and aggregate material to restore washed out sections of track.¹

Some corridors remain out of service. For BNSF, track between Omaha, NE, and Napier, MO, remains closed, along with portions adjacent to the Mississippi River. For UP, track remains out of service from Council Bluffs, IA, to Kansas City, KS, due to high water. In addition, the corridor between Fremont and Lincoln, NE, also remains closed.

Rail service metrics show the impact of flood disruptions on grain and ethanol rail shippers. In March, average BNSF Railway (BNSF) and Union Pacific Railroad (UP) grain and ethanol train speeds averaged 12 and 14 percent, respectively, below January speeds. For the same railroads and time periods, grain and ethanol origin dwell times rose 167 and 218 percent, respectively. High origin dwell times indicate the challenges railroads and shippers have had in sending out their shipments from affected areas. The number of grain and ethanol unit trains held short, as well as cars not moved, also rose significantly in recent weeks. While there are no state-level, ethanol-specific service metrics, unfilled grain orders for rail service rose significantly following the Midwest flooding in North Dakota, Minnesota, Nebraska, Kansas, South Dakota, and Illinois.

<u>Truck</u>: Numerous sections of Interstates, U.S. routes, and State and local roads are closed in Nebraska and Iowa, mostly along the Missouri River between the two States. State governors and the Federal Motor Carrier Safety Administration have provided regulatory relief for commercial motor vehicle operations. Qualified vehicles must be supporting emergency relief efforts by transporting supplies, equipment, fuel, and persons into and from Nebraska, Iowa and 14 other midwestern States or providing other assistance in the form of emergency services. Free overweight and oversize permits are available for trucks involved in the relief efforts in Iowa and Nebraska, and fuel and trip permits related to taxes and registration have been waived.

On March 25, Supply Chain Dive reported the Midwest relief effort may impact freight rates on the spot market, as shippers compete for available truck capacity. However, on April 2, DAT reported that while volumes on the spot market increased, available truck capacity held rates in check the week of March 25-31. Rates for flatbed trucks are projected by DAT to continue their upward trend in April.

¹ BNSF Network Update, March 29, 2019.

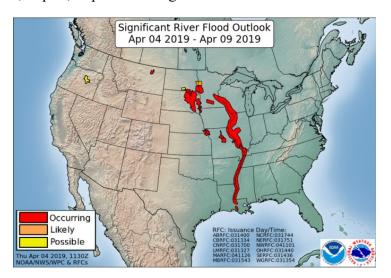
<u>Barge</u>: On-going flooding continues to disrupt Mississippi River barge traffic. The National Oceanic and Atmospheric Administration's (NOAA) Flood Outlook shows nearly the entire length of the Mississippi River has significant flooding (see map below). As of April 4, there are 12 locks on the upper Mississippi River that are closed due to high water. Another round of rain has the potential to push lock closures into mid-April. In addition, barge traffic is stopped at the Louisiana, MO, Railroad Bridge (above St. Louis), preventing traffic from passage until the second half of April. Barge movements are restricted to daylight only and require additional horsepower operating capabilities for the St. Louis Harbor. As a precaution for the safety of bridges, barge traffic is restricted to daylight only in several locations on the lower Mississippi River. Maximum draft for ocean-going vessels coming in or out of the Gulf through the mouth of the Mississippi River at the Southwest Pass (SWP) is restricted to 42-feet due to shoaling. Ongoing dredging is being conducted by the U.S. Army Corps of Engineers at the SWP to prevent vessel grounding and to maintain the channel to the required 45-foot draft.

With a growing number of lock closures, barge operators are reporting reduced demand for barge services, which is reducing spot barge rates. As of April 2, spot grain barge rates for export grain originating from major shipping points were 17 to 29 percent lower than a week ago. However, barge rates have been above average for over a year due, in part, to persistent highwater conditions. Current

rates are 28 to 44 percent higher than the 3-year average.

Outlook

With the backdrop of ongoing flooding and high water along major U.S. river systems, NOAA released its spring flood outlook on March 21, forecasting widespread flooding to continue through May. The latest Significant River Flood Outlook from NOAA as of April 4 shows ongoing flooding along most of the Mississippi River, lower Illinois River, large sections of the Missouri River, and portions of the Dakotas (see map).



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Grain Transportation Indicators

Table 1 **Grain Transport Cost Indicators**

1

	Truck	Ra	il	Barge	0	cean
For the week ending		Unit Train	Shuttle		Gulf	Pacific
04/03/19	207	302	234	250	186	168
03/27/19	207	303	246	292	183	167

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); and ocean = routes to Japan (\$/metric ton) Source: Transportation & Marketing Program/AMS/USDA

Table 2

Market Update: U.S. Origins to Export Position Price Spreads (\$/bushel)

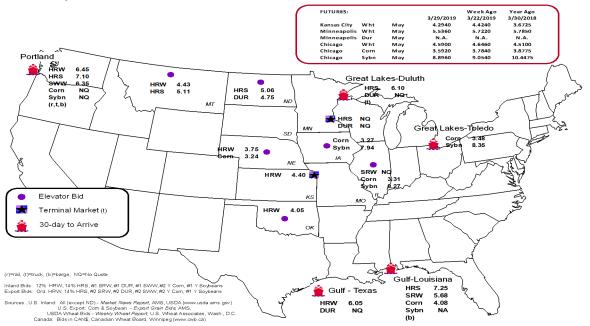
Commodity	OriginDestination	3/29/2019	3/22/2019
Corn	ILGulf	-0.77	-0.79
Corn	NEGulf	-0.84	-0.82
Soybean	IAGulf	n/a	-1.15
HRW	KSGulf	-1.65	-1.60
HRS	NDPortland	-2.04	-2.06

Note: nq = no quote; n/a = not available

Source: Transportation & Marketing Program/AMS/USDA

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
3/27/2019 ^p	1,349	1,030	6,862	336	9,577	3/23/2019	1,884
3/20/2019 ^r	1,148	896	6,412	258	8,714	3/16/2019	1,985
2019 YTD ^r	9,588	13,546	70,937	4,876	98,947	2019 YTD	27,145
2018 YTD ^r	5,848	20,943	82,738	3,784	113,313	2018 YTD	22,515
2019 YTD as % of 2018 YTD	164	65	86	129	87	% change YTD	121
Last 4 weeks as % of 2018 ²	309	46	86	91	87	Last 4wks % 2018	107
Last 4 weeks as % of 4-year avg. ²	226	47	98	73	94	Last 4wks % 4 yr	100
Total 2018	22,118	46,532	310,449	21,432	400,531	Total 2018	129,116
Total 2017	28,796	75,543	287,267	21,312	412,918	Total 2017	119,661

¹ Data is incomplete as it is voluntarily provided

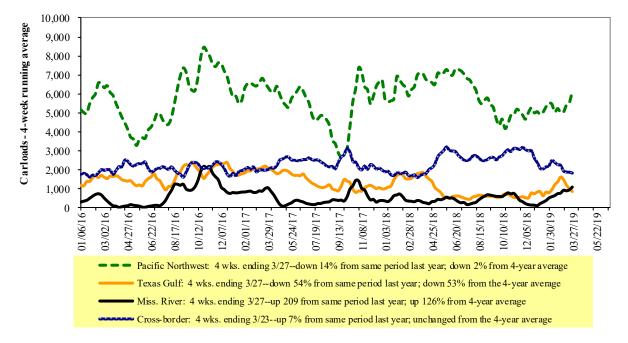
YTD = year-to-date; p = preliminary data; r = revised data; n/a = not available

Source: Transportation & Marketing Program/AMS/USDA

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: Transportation & Marketing Program/AMS/USDA

² Compared with same 4-weeks in 2018 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 KCSM and Grupo Mexico.

Table 4

Class I Rail Carrier Grain Car Bulletin (grain carloads originated)

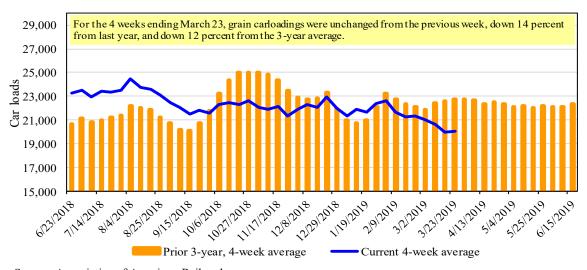
For the week ending:	Е	ast		West		U.S. total	Ca	nada
3/23/2019	CSXT	NS	BNSF	KCS	UP	U.S. total	CN	CP
This week	2,478	2,860	10,821	1,087	4,786	22,032	4,133	4,459
This week last year	1,775	2,474	13,181	966	5,123	23,519	4,286	4,872
2019 YTD	23,479	31,907	126,352	13,219	59,987	254,944	47,067	47,239
2018 YTD	21,815	29,227	142,165	11,212	61,834	266,253	41,283	51,288
2019 YTD as % of 2018 YTD	108	109	89	118	97	96	114	92
Last 4 weeks as % of 2018*	104	103	76	138	85	86	106	88
Last 4 weeks as % of 3-yr avg.**	109	100	82	130	81	88	108	92
Total 2018	98,978	133,116	635,458	48,638	267,713	1,183,903	211,857	244,697

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

Source: Association of American Railroads (www.aar.org)

Figure 3

Total Weekly U.S. Class I Railroad Grain Car Loadings



Source: Association of American Railroads

Table 5
Railcar Auction Offerings 1 (\$/car)²

Fo	or the week ending:		<u>Delivery period</u>							
	3/28/2019	Apr-19	Apr-18	May-19	May-18	Jun-19	Jun-18	Jul-19	Jul-18	
BNSF ³	COT grain units COT grain single-car ⁵	n/a n/a	66 1	n/a n/a	0	n/a n/a	no bids 0	n/a n/a	no bids 0	
UP ⁴	GCAS/Region 1 GCAS/Region 2	no offer no offer	no offer no offer	no offer no offer	no offer no offer	no offer no offer	10 20	n/a n/a	n/a n/a	

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

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

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

 5 Range is shown because average is not available. Not available = n/a.

 $Source:\ Transportation\ \&\ Marketing\ Pro\ gram/AMS/USDA.$

^{**}The past 4 weeks as a percent of the same period from the prior 3-year average. YTD = year-to-date.

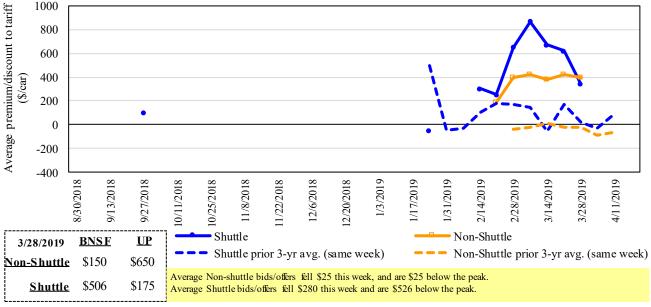
²Average premium/discount to tariff, last auction

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

⁴UP - GCAS = Grain Car Allocation System

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.

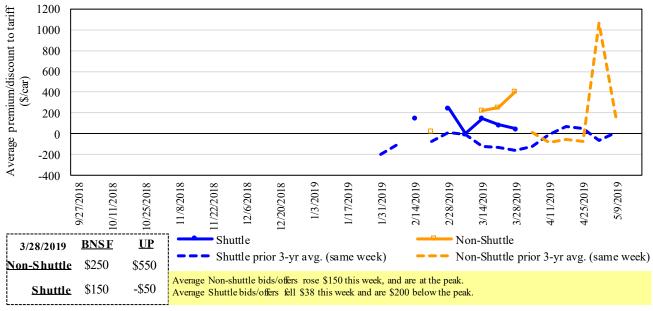
Figure 4
Bids/Offers for Railcars to be Delivered in April 2019, Secondary Market



Non-shuttle bids include unit-train and single-car bids. n/a = not available.

Source: Transportation & Marketing Program/AMS/USDA

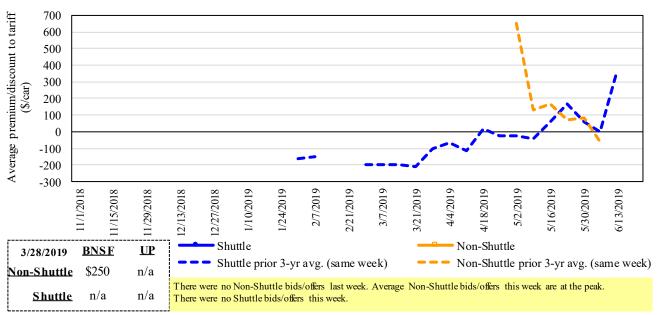
Figure 5
Bids/Offers for Railcars to be Delivered in May 2019, Secondary Market



Non-shuttle bids include unit-train and single-car bids. n/a = not available.

Source: Transportation & Marketing Program/AMS/USDA

Figure 6 Bids/Offers for Railcars to be Delivered in June 2019, Secondary Market



Non-shuttle bids include unit-train and single-car bids. n/a = not available. Source: Transportation & Marketing Program/AMS/USDA

Table 6 Weekly Secondary Railcar Market (\$/car)¹

	For the week ending:	()	,	Del	ivery period		
	3/28/2019	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19
	BNSF-GF	150	250	250	n/a	n/a	n/a
e	Change from last week	(100)	0	n/a	n/a	n/a	n/a
Jutt	Change from same week 2018	n/a	n/a	n/a	n/a	n/a	n/a
Non-shuttle	UP-Pool	650	550	n/a	n/a	n/a	n/a
ž	Change from last week	50	n/a	n/a	n/a	n/a	n/a
	Change from same week 2018	n/a	n/a	n/a	n/a	n/a	n/a
	BNSF-GF	506	150	n/a	n/a	n/a	n/a
	Change from last week	(561)	75	n/a	n/a	n/a	n/a
ttle	Change from same week 2018	(144)	n/a	n/a	n/a	n/a	n/a
Shuttle	UP-Pool	175	(50)	n/a	n/a	n/a	n/a
	Change from last week	0	(150)	n/a	n/a	n/a	n/a
	Change from same week 2018	(350)	(50)	n/a	n/a	n/a	n/a

 $^{^{1}}Average\ premium/dis\,count\ to\ tariff,\$/car-las\,t\ week$

Note: Bids listed are market INDICATORS only & are NOT guaranteed prices,

n/a = not available; GF = guaranteed freight; Pool = guaranteed pool

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

Source: Transportation and Marketing Program/AMS/USDA

The **tariff rail rate** is the base price of freight rail service, and together with **fuel surcharges** and any **auction and secondary rail** values constitute 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. High auction and secondary rail values, during times of high rail demand or short supply, can exceed the cost of the tariff rate plus fuel surcharge.

Table 7

Tariff Rail Rates for Unit and Shuttle Train Shipments 1

				Fuel			Percent
			Tariff	surcharge_	Tariff plus surc		change
April, 2019	Origin region ³	Destination region ³	rate/car	per car	metric ton	bushel ²	Y/Y ⁴
<u>Unit train</u>							
Wheat	Wichita, KS	St. Louis, MO	\$3,983	\$91	\$40.46	\$1.10	2
	Grand Forks, ND	Duluth-Superior, MN	\$4,268	\$0	\$42.38	\$1.15	3
	Wichita, KS	Los Angeles, CA	\$7,175	\$0	\$71.25	\$1.94	2
	Wichita, KS	New Orleans, LA	\$4,540	\$160	\$46.68	\$1.27	0
	Sioux Falls, SD	Galveston-Houston, TX	\$6,911	\$0	\$68.63	\$1.87	2
	Northwest KS	Galveston-Houston, TX	\$4,816	\$176	\$49.57	\$1.35	0
	Amarillo, TX	Los Angeles, CA	\$5,121	\$244	\$53.28	\$1.45	2
Corn	Champaign-Urbana, IL	New Orleans, LA	\$4,000	\$181	\$41.52	\$1.05	1
	Toledo, OH	Raleigh, NC	\$6,581	\$0	\$65.35	\$1.66	4
	Des Moines, IA	Davenport, IA	\$2,258	\$38	\$22.80	\$0.58	0
	Indianapolis, IN	Atlanta, GA	\$5,646	\$0	\$56.07	\$1.42	4
	Indianapolis, IN	Knoxville, TN	\$4,704	\$0	\$46.71	\$1.19	4
	Des Moines, IA	Little Rock, AR	\$3,609	\$113	\$36.96	\$0.94	0
	Des Moines, IA	Los Angeles, CA	\$5,327	\$328	\$56.16	\$1.43	0
Soybeans	Minneapolis, MN	New Orleans, LA	\$4,131	\$179	\$42.80	\$1.16	0
	Toledo, OH	Huntsville, AL	\$5,459	\$0	\$54.21	\$1.48	3
	Indianapolis, IN	Raleigh, NC	\$6,698	\$0	\$66.51	\$1.81	4
	Indianapolis, IN	Huntsville, AL	\$4,937	\$0	\$49.03	\$1.33	4
	Champaign-Urbana, IL	New Orleans, LA	\$4,745	\$181	\$48.92	\$1.33	0
Shuttle Train							
Wheat	Great Falls, MT	Portland, OR	\$4,078	\$0	\$40.50	\$1.10	3
	Wichita, KS	Galveston-Houston, TX	\$4,296	\$0	\$42.66	\$1.16	3
	Chicago, IL	Albany, NY	\$5,896	\$0	\$58.55	\$1.59	4
	Grand Forks, ND	Portland, OR	\$5,736	\$0	\$56.96	\$1.55	2
	Grand Forks, ND	Galveston-Houston, TX	\$6,056	\$0	\$60.14	\$1.64	2
	Northwest KS	Portland, OR	\$5,912	\$288	\$61.57	\$1.68	1
Corn	Minneapolis, MN	Portland, OR	\$5,180	\$0	\$51.44	\$1.31	4
	Sioux Falls, SD	Tacoma, WA	\$5,140	\$0	\$51.04	\$1.30	4
	Champaign-Urbana, IL	New Orleans, LA	\$3,800	\$181	\$39.53	\$1.00	2
	Lincoln, NE	Galveston-Houston, TX	\$3,880	\$0	\$38.53	\$0.98	5
	Des Moines, IA	Amarillo, TX	\$4,060	\$142	\$41.72	\$1.06	2
	Minneapolis, MN	Tacoma, WA	\$5,180	\$0	\$51.44	\$1.31	4
	Council Bluffs, IA	Stockton, CA	\$5,000	\$0	\$49.65	\$1.26	4
Soybeans	Sioux Falls, SD	Tacoma, WA	\$5,750	\$0	\$57.10	\$1.55	3
-	Minneapolis, MN	Portland, OR	\$5,800	\$0	\$57.60	\$1.57	3
	Fargo, ND	Tacoma, WA	\$5,650	\$0	\$56.11	\$1.53	3
	Council Bluffs, IA	New Orleans, LA	\$4,775	\$209	\$49.49	\$1.35	0
	Toledo, OH	Huntsville, AL	\$4,634	\$0	\$46.02	\$1.25	6
	Grand Island, NE	Portland, OR	\$5,710	\$295	\$59.63	\$1.62	0

¹A 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.

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

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

⁴Percentage change year over year calculated using tariff rate plus fuel surcharge

Sources: www.bnsf.com, www.cn.ca, www.csx.com, www.up.com

Table 8
Tariff Rail Rates for U.S. Bulk Grain Shipments to Mexico

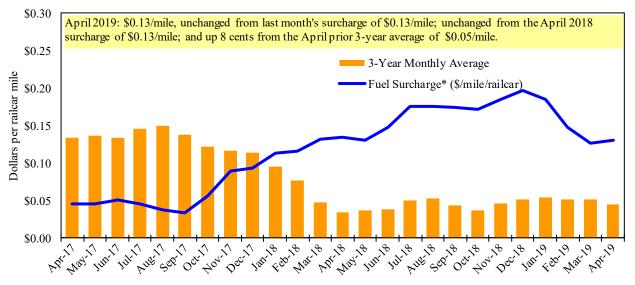
	: April, 2019)	•	Fuel			Percent
	Origin		Tariff	surcharge	Tariff plus surc	harge per:	change ⁴
Commodity	state	Destination region	rate/car ¹	per car ²	metric ton ³	bushel ³	Y/Y
Wheat	MT	Chihuahua, CI	\$7,284	\$0	\$74.43	\$2.02	-2
	OK	Cuautitlan, EM	\$6,743	\$125	\$70.18	\$1.91	2
	KS	Guadalajara, JA	\$7,371	\$431	\$79.72	\$2.17	2
	TX	Salinas Victoria, NL	\$4,329	\$77	\$45.02	\$1.22	1
Corn	IA	Guadalajara, JA	\$8,528	\$370	\$90.92	\$2.31	3
	SD	Celaya, GJ	\$7,880	\$0	\$80.51	\$2.04	2
	NE	Queretaro, QA	\$8,207	\$265	\$86.56	\$2.20	2
	SD	Salinas Victoria, NL	\$6,905	\$0	\$70.55	\$1.79	2
	MO	Tlalnepantla, EM	\$7,573	\$258	\$80.02	\$2.03	2
	SD	Torreon, CU	\$7,480	\$0	\$76.43	\$1.94	2
Soybeans	MO	Bojay (Tula), HG	\$8,284	\$344	\$88.16	\$2.40	3
	NE	Guadalajara, JA	\$8,842	\$370	\$94.12	\$2.56	2
	IA	El Castillo, JA	\$9,110	\$0	\$93.08	\$2.53	2
	KS	Torreon, CU	\$7,714	\$265	\$81.52	\$2.22	4
Sorghum	NE	Celaya, GJ	\$7,527	\$335	\$80.33	\$2.04	3
	KS	Queretaro, QA	\$8,000	\$157	\$83.34	\$2.11	2
	NE	Salinas Victoria, NL	\$6,633	\$126	\$69.05	\$1.75	3
	NE	Torreon, CU	\$6,962	\$247	\$73.66	\$1.87	3

¹Rates 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.

Sources: www.bnsf.com, www.uprr.com, www.kcsouthern.com

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.

Sources: www.bnsf.com, www.cn.ca, www.cpr.ca, www.csx.com, www.kcsi.com, www.nscorp.com, www.uprr.com

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

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

⁴Percentage change calculated using tariff rate plus fuel surchage

^{*} 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.

Barge Transportation

Figure 8

Illinois River Barge Freight Rate^{1,2}



¹Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); ²4-week moving average of the 3-year average. Source: Transportation & Marketing Program/AMS/USDA

Table 9
Weekly Barge Freight Rates: Southbound Only

		Twin Cities	Mid- Mississippi	Lower Illinois River	St. Louis	Cincinnati	Lower Ohio	Cairo- Memphis
Rate ¹	4/2/2019	_	_	450	350	413	422	348
	3/26/2019	-	-	525	457	492	492	433
\$/ton	4/2/2019	_	_	20.88	13.97	19.37	17.05	10.93
	3/26/2019	-	-	24.36	18.23	23.07	19.88	13.60
Curren	t week % change	from the sa	me week:					
	Last year	-	-	-19	-29	-21	-20	-14
	3-year avg. ²	-	-	28	30	35	38	44
Rate ¹	May	483	442	442	340	378	378	322
	July	483	428	425	328	358	358	308

¹Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); ²4-week moving average; ton = 2,000 pounds; "-" n/a due to closure Source: Transportation & Marketing Programs/AMS/USDA

Figure 9 Benchmark tariff rates

Calculating barge rate per ton:

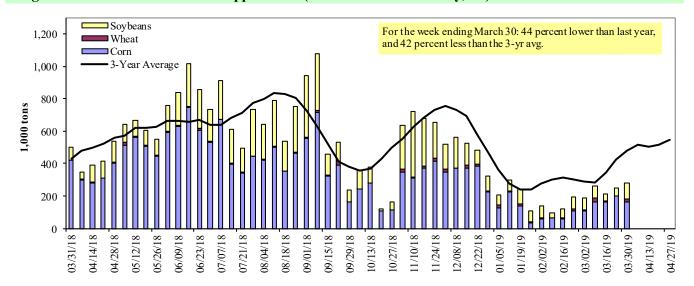
(Rate * 1976 tariff benchmark rate per ton)/100

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



Figure 10

Barge Movements on the Mississippi River¹ (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 03/30/2019	Corn	Wheat	Soybeans	Other	Total
Mississippi River					
Rock Island, IL (L15)	0	0	0	0	0
Winfield, MO (L25)	0	0	0	0	0
Alton, IL (L26)	223	19	99	0	340
Granite City, IL (L27)	166	18	94	0	277
Illinois River (L8)	189	29	63	0	282
Ohio River (OLMS TED)	167	37	148	4	356
Arkansas River (L1)	0	15	22	0	38
Weekly total - 2019	333	70	264	4	671
Weekly total - 2018	526	7	161	3	697
2019 YTD ¹	2,897	589	2,610	38	6,135
2018 YTD ¹	4,025	374	2,757	45	7,201
2019 as % of 2018 YTD	72	158	95	84	85
Last 4 weeks as % of 2018 ²	62	155	126	133	83
Total 2018	23,349	1,674	12,819	133	37,975

¹ Weekly total, YTD (year-to-date) and calendar year total includes Miss/27, Ohio/OLMSTED, and Ark/1; "Other" refers to oats, barley, sorghum, and rye.

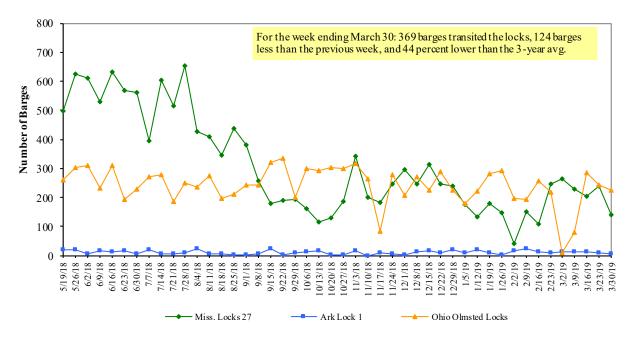
Note: 1. Total may not add exactly, due to rounding.

Source: U.S. Army Corps of Engineers

² As a percent of same period in 2018.

^{2.} Starting from 11/24/2018, weekly movement through Ohio 52 is replaced by Olmsted.

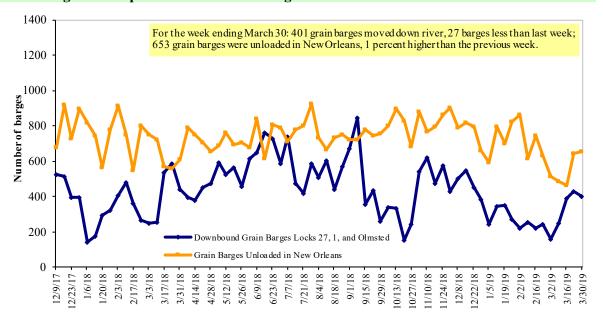
Figure 11
Upbound Empty Barges Transiting Mississippi River Locks 27, Arkansas River Lock and Dam 1, and Ohio River Olmsted Locks and Dam



Source: U.S. Army Corps of Engineers

Figure 12

Grain Barges for Export in New Orleans Region



Source: U.S. Army Corps of Engineers and AMS FGIS

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.

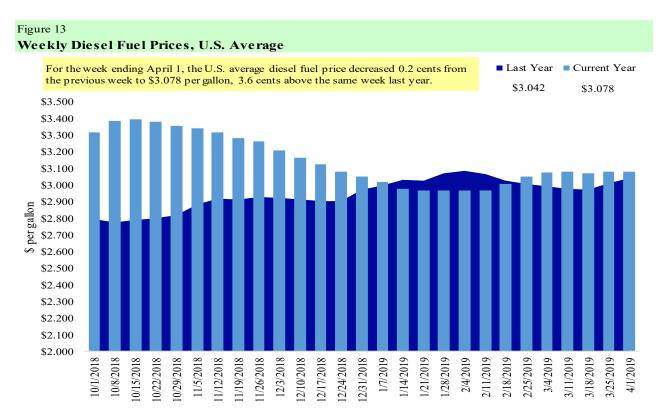
Table 11

Retail on-Highway Diesel Prices, Week Ending 4/1/2019 (US \$/gallon)

	,		Change	
Region	Location	Price	Week ago	Year ago
I	East Coast	3.127	-0.005	0.061
	New England	3.196	-0.018	0.084
	Central Atlantic	3.309	-0.001	0.076
	Lower Atlantic	2.991	-0.004	0.053
II	Midwest	2.984	-0.009	0.022
III	Gulf Coast	2.872	-0.004	0.021
IV	Rocky Mountain	3.007	0.033	-0.037
V	West Coast	3.541	0.015	0.054
	West Coast less California	3.153	-0.003	-0.049
	California	3.849	0.030	0.135
Total	U.S.	3.078	-0.002	0.036

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

Source: Energy Information Administration/U.S. Department of Energy (www.eia.doe.gov)



Source: Retail On-Highway Diesel Prices, Energy Information Administration, Dept. of Energy

Grain Exports

Table 12
U.S. Export Balances and Cumulative Exports (1,000 metric tons)

		(00 1110 01	, , , , ,					
			Who	eat			Corn	Soybeans	Total
For the week ending	HRW	SRW	HRS	SWW	DUR	All wheat			
Export Balances ¹									
3/21/2019	2,463	854	1,322	1,062	121	5,821	13,879	12,430	32,129
This week year ago	1,230	562	1,429	1,059	66	4,346	23,491	9,352	37,189
Cumulative exports-marketing year ²									
2018/19 YTD	5,907	2,231	5,199	4,101	360	17,798	28,779	29,239	75,816
2017/18 YTD	7,709	1,832	4,515	4,099	308	18,463	22,963	40,999	82,425
YTD 2018/19 as % of 2017/18	77	122	115	100	117	96	125	71	92
Last 4 wks as % of same period 2017/18	201	161	96	101	176	136	60	139	89
2017/18 Total	9,150	2,343	5,689	4,854	384	22,419	57,209	56,214	135,842
2016/17 Total	11,096	2,285	7,923	4,254	484	26,042	41,864	51,156	119,062

¹ Current unshipped (outstanding) export sales to date

Source: Foreign Agricultural Service/USDA (www.fas.usda.gov)

Table 13 **Top 5 Importers**¹ of U.S. Corn

For the week ending 3/21/2019	Total Commitments ²		% change	Exports ³
	2018/19	2017/18	current MY	3-year avg
	Current MY	Last MY	from last MY	2015-2017
	-	1,000 mt -		
Mexico	13,648	11,897	15	13,691
Japan	9,089	8,375	9	11,247
Korea	3,406	3,646	(7)	4,754
Colombia	3,340	3,153	6	4,678
Peru	1,873	2,387	(22)	2,975
Top 5 Importers	31,356	29,457	6	37,344
Total US corn export sales	42,658	46,455	(8)	53,184
% of Projected	68%	75%		
Change from prior week ²	905	1,353		
Top 5 importers' share of U.S. corn				
export sales	74%	63%		70%
USDA forecast, March 2019	62,341	62,036	0	
Corn Use for Ethanol USDA forecast,				
March 2019	140,970	142,367	(1)	

⁽n) indicates negative number.

 $^{^2}$ Shipped export sales to date; new marketing year now in effect for corn, soybeans, and wheat Note: YTD = year-to-date. Marketing Year: wheat = 6/01-5/31, corn & soybeans = 9/01-8/31

¹Based on FAS Marketing Year Ranking Reports for 2017/18 - www.fas.usda.gov; Marketing year (MY) = Sep 1 - Aug 31.

²Cumulative Exports (shipped) + Outstanding Sales (unshipped), FAS Weekly Export Sales Report, or Export Sales Query--http://www.fas.usda.gov/esrquery/. Total commitments change (net sales) from prior week could include revisions from previous week's outstanding sales or accumulated sales.

³FAS Marketing Year Ranking Reports - http://apps.fas.usda.gov/export-sales/myrkaug.htm; 3-yr average

Table 14 **Top 5 Importers** of U.S. Soybeans

For the week ending 3/21/2019	Total	Commitments ²	% change	Exports ³
	2018/19	2017/18	current MY	3-yr avg.
	Current MY	Last MY	from last MY	2015-2017
		- 1,000 mt -		- 1,000 mt -
China	11,222	28,537	(61)	31,228
Mexico	4,575	3,624	26	3,716
Indonesia	1,602	1,574	2	2,250
Japan	1,984	1,728	15	2,145
Netherlands	1,762	1,109	59	2,209
Top 5 importers	21,145	36,571	(42)	41,549
Total US soybean export sales	41,668	50,351	(17)	55,113
% of Projected	82%	87%		
Change from prior week ²	182	317		
Top 5 importers' share of U.S.				
soybean export sales	51%	73%		75%
USDA forecast, March 2019	51,090	58,011	88	

⁽n) indicates negative number.

Table 15 **Top 10 Importers** of All U.S. Wheat

For the week ending 3/21/2019	Total Co	ommitments ²	% change	Exports ³
_	2018/19	2017/18	current MY	3-yr avg
	Current MY	Last MY	from last MY	2015-2017
	- 1,000	mt -		- 1,000 mt -
Mexico	2,911	2,773	5	2,781
Japan	2,656	2,771	(4)	2,649
Philippines	2,930	2,511	17	2,441
Korea	1,554	1,419	9	1,257
Nigeria	1,429	1,187	20	1,254
Indonesia	1,199	1,214	(1)	1,076
Taiwan	1,100	1,106	(1)	1,066
China	42	926	(95)	944
Colombia	592	301	97	714
Thailand	742	636	17	618
Top 10 importers	15,155	14,843	2	14,800
Total US wheat export sales	23,619	22,809	4	22,869
% of Projected	90%	93%		
Change from prior week ²	476	354		
Top 10 importers' share of U.S.				
wheat export sales	64%	65%		65%
USDA forecast, March 2019	26,294	24,550	7	•

⁽n) indicates negative number.

Based on FAS Marketing Year Ranking Reports for 2017/18 - www.fas.usda.gov; Marketing year (MY) = Sep 1 - Aug 31.

²Cumulative Exports (shipped) + Outstanding Sales (unshipped), FAS Weekly Export Sales Report, or Export Sales Query-http://www.fas.usda.gov/esrquery/. The total commitments change (net sales) from prior week could include reivisions from previous week's outstanding sales and/or accumulated sales

³ FAS Marketing Year Final Reports - www.fas.usda.gov/export-sales/myfi_rpt.htm. (Carryover plus Accumulated Exports)

¹ Based on FAS Marketing Year Ranking Reports for 2017/18 - www.fas.usda.gov; Marketing year = Jun 1 - May 31.

² Cumulative Exports (shipped) + Outstanding Sales (unshipped), FAS Weekly Export Sales Report, or Export Sales Query-http://www.fas.usda.gov/esrquery/. 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 - www.fas.usda.gov/export-sales/myfi_rpt.htm.

Table 16
Grain Inspections for Export by U.S. Port Region (1,000 metric tons)

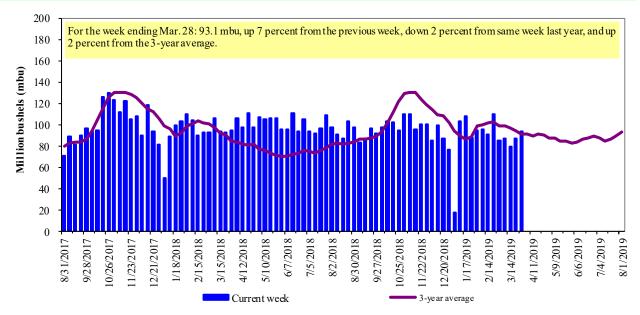
	For the Week Ending	Previous	Current Week			2019 YTD as	Last 4-we	eks as % of:	
Port Regions	03/28/19	Week*	as % of Previous	2019 YTD*	2018 YTD*	% of 2018 YTD	Last Year	Prior 3-yr. avg.	2018 Total*
Pacific Northwest									
Wheat	202	162	124	3,087	2,712	114	94	84	13,315
Com	343	239	143	2,756	4,414	62	46	66	20,024
Soybeans	279	353	79	3,465	3,589	97	131	160	7,719
Total	824	755	109	9,308	10,716	87	76	92	41,058
Mississippi Gulf				. ,	-, -				,
Wheat	129	63	205	1,272	1,106	115	118	130	3,896
Corn	761	594	128	6,606	7,114	93	81	75	33,735
Soybeans	339	429	79	7,339	7,544	97	129	128	28,124
Total	1,229	1,086	113	15,217	15,764	97	98	94	65,755
Texas Gulf									
Wheat	104	152	68	1,458	1,247	117	143	110	3,198
Com	0	30	0	146	131	112	258	139	730
Soybeans	0	0	n/a	0	0	n/a	n/a	n/a	69
Total	104	182	57	1,604	1,377	116	153	113	3,997
Interior									
Wheat	6	28	22	367	378	97	127	93	1,614
Com	126	115	110	1,644	1,740	95	89	93	8,650
Soybeans	120	110	109	1,558	1,497	104	90	121	6,729
Total	252	253	100	3,569	3,615	99	92	103	16,993
Great Lakes									
Wheat	0	0	n/a	30	19	157	n/a	300	894
Com	0	0	n/a	0	0	n/a	n/a	n/a	404
Soybeans	0	0	n/a	16	0	n/a	n/a	n/a	1,192
Total	0	0	n/a	47	19	242	n/a	300	2,491
Atlantic									
Wheat	0	0	n/a	1	64	1	0	0	69
Com	7	0	n/a	42	0	n/a	n/a	469	138
Soybeans	31	13	236	372	582	64	94	93	2,047
Total	38	13	290	415	646	64	72	83	2,253
U.S. total from ports	·								
Wheat	440	405	109	6,215	5,526	112	108	97	22,986
Com	1,237	979	126	11,195	13,399	84	69	75	63,682
Soybeans	769	905	85	12,750	13,212	97	120	134	45,879
Total	2,447	2,288	107	30,160	32,137	94	90	95	132,547

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

Source: Federal Grain Inspection Service/USDA (www.gipsa.usda.gov/fgis); YTD= year-to-date; n/a = not applicable

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 53 percent of the U.S. export grain shipments departed through the U.S. Gulf region in 2018.

Figure 14
U.S. grain inspected for export (wheat, corn, and soybeans)

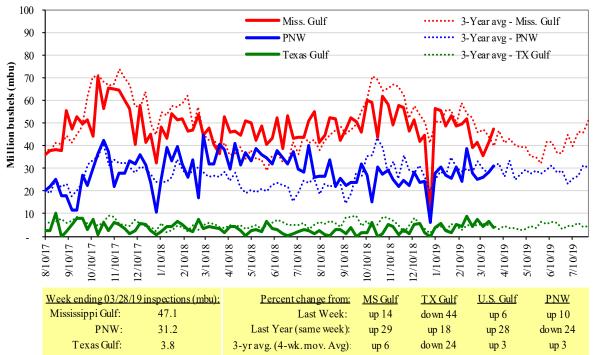


Source: Federal Grain Grain Inspection Service/USDA (www.gipsa.usda.gov/fgis)

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

Figure 15

U.S. Grain Inspections: U.S. Gulf and PNW¹ (wheat, corn, and soybeans)



Source: Federal Grain Grain Inspection Service/USDA (www.gipsa.usda.gov/fgis)

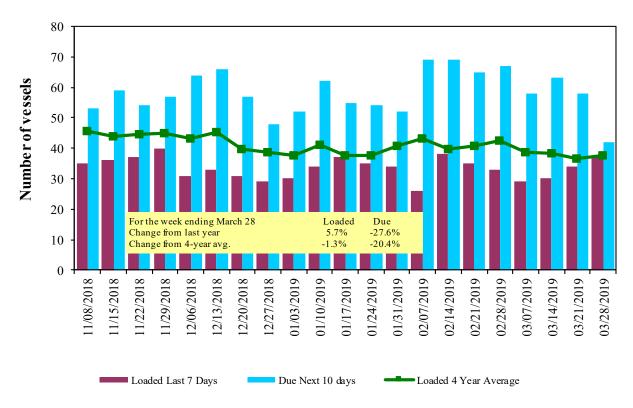
Ocean Transportation

Table 17
Weekly Port Region Grain Ocean Vessel Activity (number of vessels)

, 8				Pacific
		Gulf		Northwest
		Loaded	Due next	
Date	In port	7-days	10-days	In port
3/28/2019	47	37	42	31
3/21/2019	41	34	58	33
2018 range	(2388)	(2441)	(3867)	(430)
2018 avg.	40	34	54	17

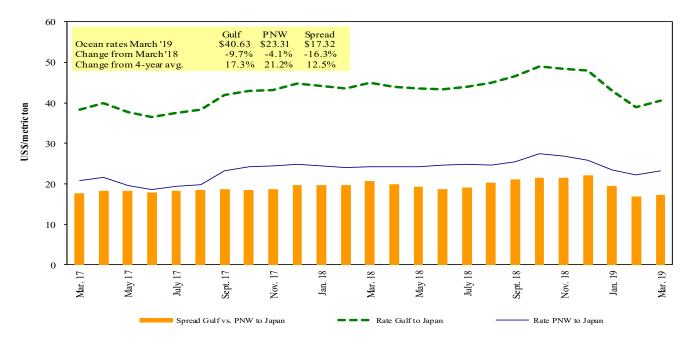
Source: Transportation & Marketing Programs/AMS/USDA

Figure 16
U.S. Gulf Vessel Loading Activity



Source: Transportation & Marketing Program/AMS/USDA ¹U.S. Gulfineludes Mississippi, Texas, and East Gulf.

Figure 17 **Grain Vessel Rates, U.S. to Japan**



Data Source: O'Neil Commodity Consulting

Table 18

Ocean Freight Rates For Selected Shipments, Week Ending 03/30/2019

Export	Import	Grain	Loading	Volume loads	Freight rate
region	region	types	date	(metric tons)	(US \$/metric ton)
U.S. Gulf	China	Heavy Grain	Mar 15/Apr 15	63,000	40.00
PNW	China	Heavy Grain	Mar 2/18	60,000	27.50
PNW	Oman	Wheat	Feb 18/28	25,000	69.94*
PNW	Taiwan	Heavy Grain	Sep 15/Oct 31	63,000	25.00
Brazil	China	Heavy Grain	Apr 15/30	63,000	32.50
Brazil	China	Heavy Grain	Mar 20/30	66,000	13.30
Brazil	China	Heavy Grain	Mar 3/11	63,000	27.50
Brazil	China	Heavy Grain	Feb 26/M ar 4	66,000	24.75
Brazil	China	Heavy Grain	Feb 20/25	65,000	26.00
Brazil	China	Heavy Grain	Feb 13/26	60,000	26.75
Brazil	China	Heavy Grain	Jan 22/30	60,000	29.50
Brazil	China	Heavy Grain	Dec 15/20	60,000	37.50
Brazil	China	Heavy Grain	Dec 1/10	60,000	36.25
Brazil	China	Heavy Grain	Nov 20/30	60,000	38.00
Brazil	China	Heavy Grain	Nov 1/10	60,000	34.00
Brazil	S.Korea	Heavy Grain	Nov 5/10	66,000	43.00
River Plate	China	Heavy Grain	Apr 21/30	65,000	37.85

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

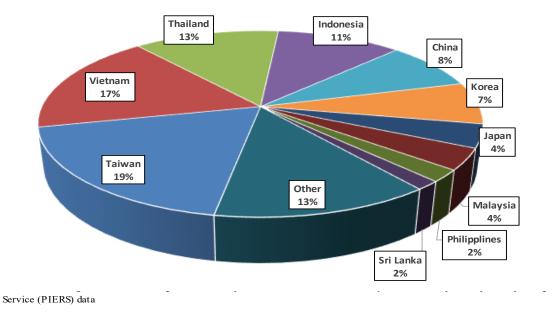
 *50 percent of food aid from the United States is required to be shipped on U.S.-flag vessels.

Source: Maritime Research Inc. (www.maritime-research.com)

In 2017, containers were used to transport 7 percent of total U.S. waterborne grain exports. Approximately 62 percent of U.S. waterborne grain exports in 2017 went to Asia, of which 10 percent were moved in containers. Approximately 93 percent of U.S. waterborne containerized grain exports were destined for Asia.

Figure 18

Top 10 Destination Markets for U.S. Containerized Grain Exports, January-May 2018



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

Figure 19 Monthly Shipments of Containerized Grain to Asia 80 2017 75 May 2018: Down 63% from last year and 68% lower than 2018 the 5-year average 70 5-year avg 65 Thousand 20-ft equivalent units 60 55 50 45 40 35 30 25 20 15 10 5 0 May Mar. Apr. Nov. Jun. Dec. Feb. Jul. Jan.

Source: USDA/Agricultural Marketing Service/Transportation Services Division analysis of Port Import Export Reporting Service (PIERS) data. Note: The following Harmonized Tariff Codes are used to calculate containerized grains movements: 100190, 100200, 100300, 100400, 100590, 100700, 110100, 110220, 110290, 120100, 120810, 230210, 230310, 230330, and 230990.

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