United States Department of Agriculture

Grain Transportation Report

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

Contact Us

October 11, 2018

Contents

The next release is October 18, 2018

WEEKLY HIGHLIGHTS

Flooding Stops Barge Traffic on Upper Mississippi River

Heavy rains and severe storms in Iowa, Illinois, Minnesota, Missouri, and Wisconsin, from June into October, have resulted in several instances of flooding through the region. As of October 10, the latest round of rain closed six locks on the Upper Mississippi River. The southern-most lock closure is at Lock 22, near Hannibal, MO, which has stopped all export-bound barge shipments originating from points north; including Minnesota, Iowa, Wisconsin, and parts of Missouri and Illinois. Forecasts from the National Weather Service indicate that water levels at Lock 22 will not recede to navigable levels, until October 23.

Railroad Congestion Stops Grain Crossings at Mexican Border

Citing congestion across the Mexican rail network, Union Pacific Railroad (UP) and BNSF Railways (BNSF) recently issued embargoes for grain, oilseeds, and other traffic interchanging with Mexican carriers along the Texas-Mexico border. Embargoes are a temporary restriction on the acceptance and handling of freight. UP announced slow interchanges with Kansas City Southern de Mexico (KCSM) have created severe congestion at the UP/KCSM interchange at Laredo, TX. Subsequently, it placed an embargo on southbound traffic through the congested area for intermodal, automotive, fuel, wheat, and corn traffic. Citing congestion at these crossings, BNSF announced an embargo on all grain, soybeans, dried distillers grain, soybean meal, and corn syrup destined for interchange with Mexican railroad, Ferromex (FXE), at Eagle Pass and El Paso, TX. FXE has issued an additional embargo on receiving grain, oilseeds, and grain products in order to prevent further congestion on its network.

Diesel Fuel Prices Spike

During the week ending October 8, **U.S. on-highway diesel fuel prices** increased, just over 7 cents per gallon, to $3.385. Prices have increased 11.2 cents over the past 2 weeks, and 17.2 cents over the last 7 weeks. Increases in the crude oil market are putting pressure on diesel fuel prices. The futures market continues to closely monitor global supply as volumes from Iran and Venezuela are reportedly shrinking.

Snapshots by Sector

Export Sales

For the week ending September 27, **unshipped balances** of wheat, corn, and soybeans totaled 37.0 mmt, up 12 percent from the same time last year. Net weekly **wheat export sales** were .435 mmt, up 4 percent from the previous week. Net **corn export sales** were 1.43 mmt, up 8 percent from the previous week. Net **soybean export sales** were 1.52 mmt, up 7 percent from the past week.

Rail

U.S. Class I railroads originated 21,870 **grain carloads** for the week ending September 29; down 6 percent from the previous week, 7 percent from last year, and 11 percent from the 3-year average.

Average October shuttle **secondary railcar** bids/offers per car were $54 above tariff for the week ending October 4, down $246 from last week, and $254 lower than last year. Average non-shuttle secondary railcar bids/offers per car were $138 above tariff, down $3 from last week, but $174 higher than last year.

Barge

For the week ending October 6, **barge grain movements** totaled 541,650 tons, 31 percent higher than the previous week and down 9 percent from the same period last year.

For the week ending October 6, 340 grain barges **moved down river**, 79 barges more than the previous week. There were 800 grain barges **unloaded in New Orleans**, 6 percent higher than the previous week.

Ocean

For the week ending October 4, 31 **ocean-going grain vessels** were loaded in the Gulf, 11 percent less than the same period last year. Sixty-one vessels are expected to be loaded within the next 10 days, 5 percent less than the same period last year.

For the week ending October 4, the ocean freight rate for shipping bulk grain, from the Gulf to Japan, was $47.50 per metric ton, 1 percent more than the previous week. The cost of shipping, from the PNW to Japan, was $26.75 per metric ton, 1 percent more than the previous week.

Preferred citation: U.S. Dept. of Agriculture, Agricultural Marketing Service. *Grain Transportation Report.* October 11, 2018.
Web: http://dx.doi.org/10.9752/TS056.10-11-2018

Feature Article/Calendar

High Grain Supplies and Low Basis May Lower Grain Transportation Demand

In recent weeks, grain shippers have expressed concern over grain storage capacity this harvest, due to already low crop prices, strong fall grain production, and possible effects from Chinese tariffs on imported U.S. soybeans, which could further increase grain held in storage. These factors—grain stocks, new production, storage capacity, and prices—are important determinants of the demand for grain transportation. Grain stocks in early September were the highest seen in the last 20 years. Similarly, fall production of corn, soybeans, and grain sorghum is forecast to be at near-record highs. On July 6, China placed tariffs on U.S. soybean imports, and grain prices (and basis) have since declined significantly. These factors are likely to contribute to more grain going into storage (subject to capacity constraints) and relatively low export transportation demand over the next few months. This article summarizes relevant data on grain production, stocks, basis (the difference between a current cash price and the futures price), and storage capacity to explain recent trends and assess their effects on grain transportation.

Grain Stocks, Production, and Basis

Wheat production (harvested earlier in the summer), along with significant carryover of soybeans, boosted grain stocks into September. According to USDA's National Agricultural Statistics Service (NASS), total grain stocks were 5.2 billion bushels (bbu) as of September 1, 2018, the highest seen in recent years (Figure 1).[1] Old crop corn stocks were 7 percent lower than the same time last year, at 2.14 bbu. However, wheat stocks were 2.38 bbu, up 5 percent from last year, and old crop soybean stocks were 438 million bushels, up 45 percent from last year.

More grain is already entering the supply chain, including on and off-farm storage and transportation channels. Farmers harvest corn, soybeans, and grain sorghum *after September 1*. As of October 7, farmers had completed 34 percent of the corn harvest and 32 percent of the soybean harvest. Corn was 8 percentage points ahead of the 5-year average by this time, but soybeans were 4 percentage points behind. NASS projects production of corn, soybeans, and grain sorghum to reach 19.9 bbu, 3 percent above last year, and slightly below the year of record corn production in 2016.[2] Figure 2 reflects a continued trend of increasingly large fall grain harvests, with corn and soybean production each forecast to increase from the previous year by 2 and 7 percent, respectively. If realized, this would be a new record for U.S. soybean production.

Figure 3 shows an average of **GTR Table 2** origin basis data by commodity and highlights how basis is affected by the Chinese tariffs. Since July, each commodity has seen a decline in basis. Wheat saw a large decline, but part of the decline is a seasonal effect of the wheat harvest increasing supplies. Soybeans stand out, with a drop from July to September. The drop is atypical for the season, as soybean supplies would typically be at their scarcest during the pre-harvest, summer months, making basis in July and August at its highest for the year.

The basis data helps to explain the high grain stocks, especially for soybeans. Basis is one of the main factors behind the decision to store or sell grain. A low basis reflects a relatively low current price and/or a relatively high future price. With relatively higher prices in the future, the incentive for farmers and elevators is to hold their grain and sell in the future. Soybeans generally have a

Figure 1: Grain Stocks, Quarterly Snapshots (mil. bushels)

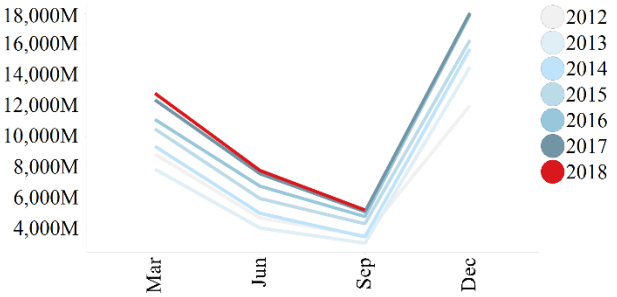


Figure 2: Fall grain production (mil. bushels)

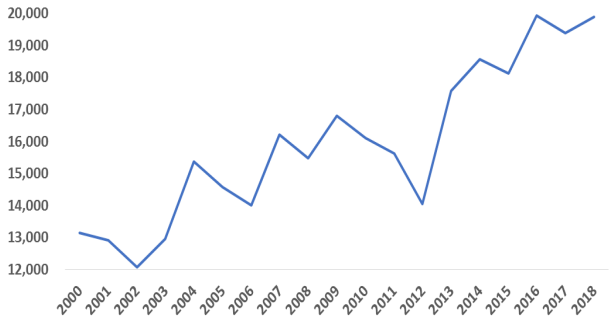
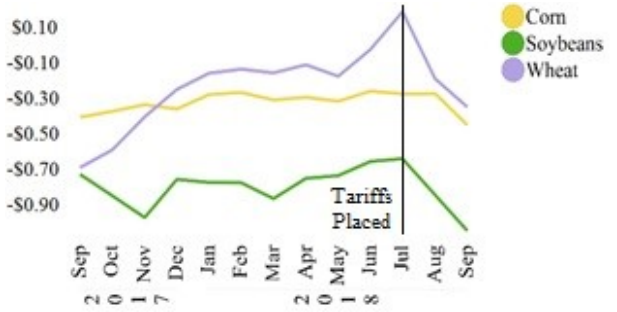


Figure 3: Grain Basis (Origin Cash Price - Futures Price) ($/bushel)



Note: Figure 2 includes corn, soybeans, and sorghum. 2018 forecast.
Sources: Figures 1 and 2: AMS analysis of USDA National Agricultural Statistics Service data; Figure 3: Grain Transportation Report data.

[1] This includes barley, corn, grain sorghum, oats, soybeans, and wheat. September grain stocks have trended upward since 2012 and were comparatively high in 1993 at 5.3 bbu. September grain stocks were much higher in the 1980s, averaging over 6.6 bbu.
[2] NASS, September *Crop Production* report. The October report is released today.

pronounced seasonal transportation pattern, peaking during and immediately after harvest. Corn and wheat, in contrast, tend to stay in storage longer and have a less pronounced seasonal transportation pattern. For this reason, the high soybean stocks are a clear reflection of low soybean demand, low basis, and a strong incentive to store.

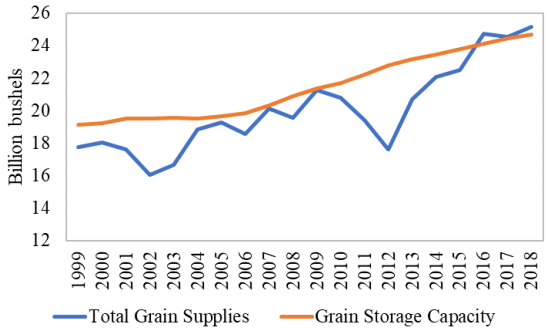
Recent transportation data also reflects these trends. This week, rail carloadings of grain, reflected in the four-week running average in **GTR Figure 3**, are below the prior three-year average for the first time since March. Barge movements of grain on the Mississippi River have also been average or below-average the last four weeks, with unseasonably low shipments of soybeans (**GTR Figure 10**).

A Look at Possible Storage Capacity Constraints

High grain supplies—from record September 1 grain stocks and strong (post September 1) harvests of corn and soybeans—put pressure on grain handling, storage, and transportation systems. As the corn and soybean harvests progress, grain can either go into storage or into transportation channels. Tight storage capacity, enhanced by low demand for grain in the near-term, is reflected in relatively low corn and soybean basis.

To better assess any potential storage constraints, Figure 4 plots total U.S. grain supplies—September 1 grain stocks plus production of corn, soybeans, and grain sorghum—and U.S. grain storage capacity over time. Although grain is not harvested all at one time, nor does it all go into storage as the figure implies, Figure 4 provides important insight. It shows that grain storage capacity and grain supplies have increased over the years. It also suggests that pressure on the transportation network during the fall harvest months has been higher in recent years than in the past, where the total amount of grain already in storage prior to harvest and the amount produced during harvest exceeded the total volume of storage capacity. In 2018, for instance, if no grain were transported, total grain supplies would exceed storage capacity by 447 million bushels (2 percent), slightly lower than in 2016 (616 million bushels).

Figure 4: Fall Grain Supplies vs. Grain Storage (U.S.)



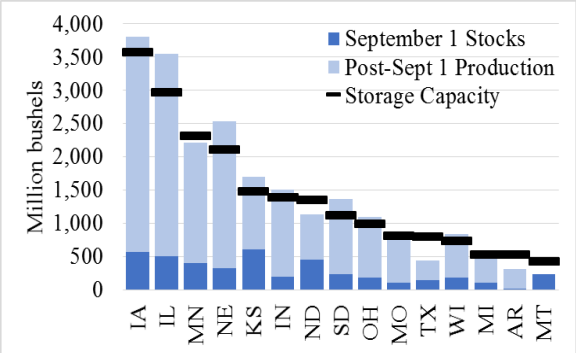
Source: AMS analysis of USDA National Agricultural Statistics Service data.

However, there are additional factors at play compared to 2016. One important factor is basis, which has been generally lower than previous years. For instance, basis for Iowa soybeans averaged -$0.52 in September of 2016 and -$.70 in September of 2017 but was -$1.03 in the same month of 2018. As mentioned previously, a lower basis tends to incentivize farmers to store. Another factor is crop quality. The Midwest has dealt with substantial rains which could affect basis and ultimately the decision to sell or store at harvest.

A limitation of Figure 4 is that it masks key geographic differences with respect to possible storage constraints. Among the top 15 grain states (ranked by total storage capacity), grain storage is relatively scarce in Illinois, Nebraska, South Dakota, Iowa, and Kansas (Figure 5). These states usually have a storage deficit each year, but notably this year's deficit is an additional 401 million bushels greater in Illinois and 166 million bushels in Nebraska, compared to the prior 3-year average.

Under its United States Warehouse Act authorities, USDA allows emergency and temporary storage of grain to mitigate storage shortfalls. Rules are specified in Section K of WA-402. As of October 5, USDA has authorized about 110 million bushels of emergency capacity and 852 million bushels of temporary capacity.

Figure 5: 2018 Grain Stocks, Production, and Storage Capacity



Source: AMS analysis of USDA National Agricultural Statistics Service data.

Conclusions

Grain supplies, in the form of higher September 1 stocks and fall production, along with storage capacity, have increased over time. Stocks were already high earlier in September and will be boosted even higher by near or record corn and soybean production (if realized). Low basis for corn, soybeans, and wheat may weaken the incentive for producers and elevators to sell now, which could lessen the demand for grain transportation in the near-term but increase pressure on handling and storage systems. Any pressure would likely vary state to state. In some areas, such as Illinois and Nebraska, storage capacity appears to be relatively limited, particularly compared to four or five years ago.

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Grain Transportation Indicators

Table 1

Grain Transport Cost Indicators[1]

	Truck	Rail		Barge	Ocean	
For the week ending		Unit Train	Shuttle		Gulf	Pacific
10/10/18	227	289	223	278	212	190
10/03/18	222	285	230	291	211	188

[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); and ocean = routes to Japan ($/metric ton)

Source: Transportation & Marketing Programs/AMS/USDA

Table 2

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

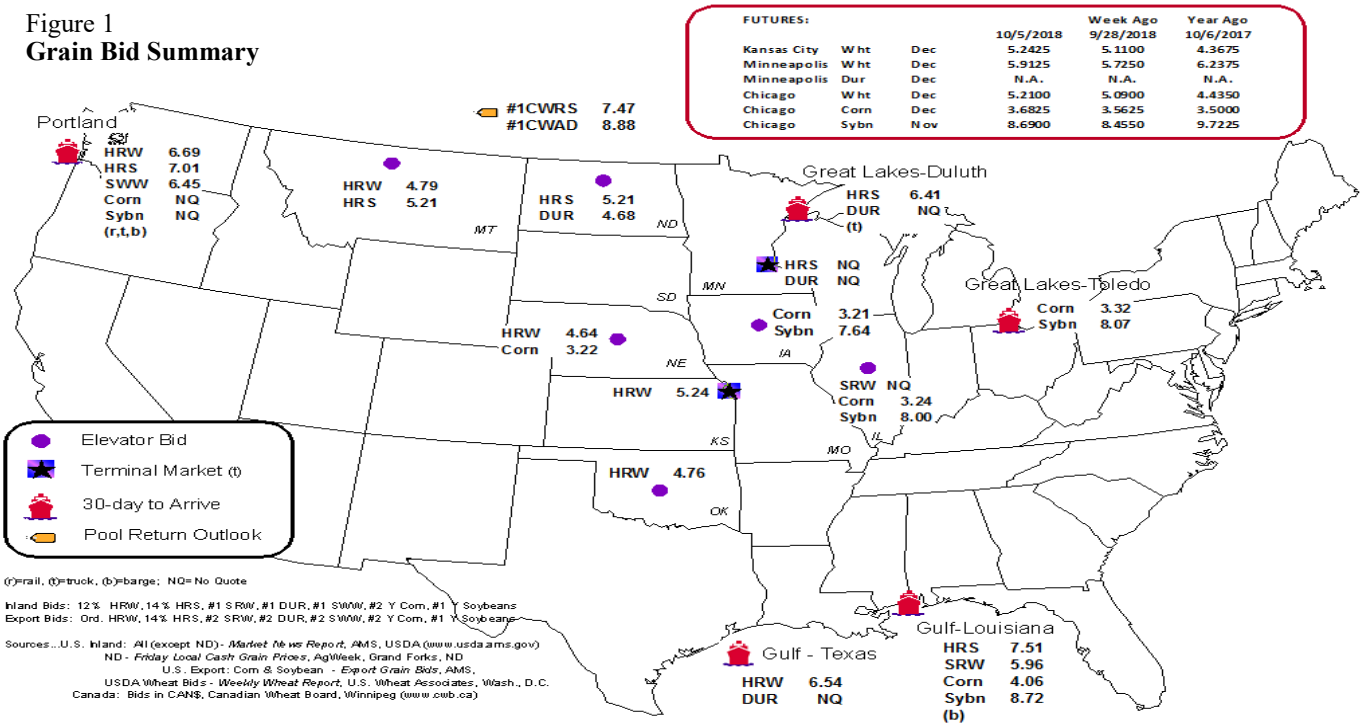
Commodity	Origin--Destination	10/5/2018	9/28/2018
Corn	IL--Gulf	-0.82	-0.83
Corn	NE--Gulf	-0.84	-0.81
Soybean	IA--Gulf	-1.08	-1.03
HRW	KS--Gulf	-1.30	-1.30
HRS	ND--Portland	-1.80	-1.77

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

Source: Transportation & Marketing Programs/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]
10/03/2018[p]	733	468	4,129	448	5,778	9/29/2018	3,487
09/26/2018[r]	636	409	4,085	348	5,478	9/22/2018	2,309
2018 YTD[r]	17,415	38,741	251,672	15,604	323,432	2018 YTD	94,084
2017 YTD[r]	19,976	64,202	211,139	14,273	309,590	2017 YTD	94,155
2018 YTD as % of 2017 YTD	87	60	119	109	104	% change YTD	100
Last 4 weeks as % of 2017[2]	105	31	140	119	106	Last 4wks % 2017	86
Last 4 weeks as % of 4-year avg.[2]	86	29	100	97	83	Last 4wks % 4 yr	111
Total 2017	28,796	76,545	289,178	21,999	416,518	Total 2017	119,661
Total 2016	36,925	88,035	299,604	29,007	453,571	Total 2016	92,982

[1] Data is incomplete as it is voluntarily provided

[2] Compared with same 4-weeks in 2017 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.

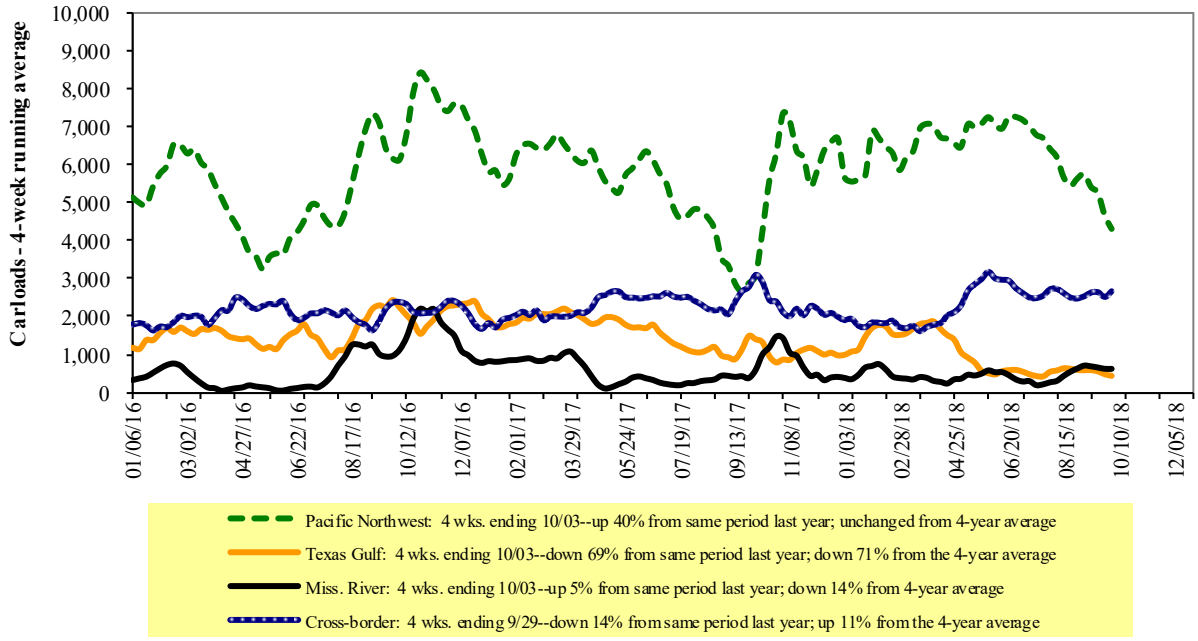
YTD = year-to-date; p = preliminary data; r = revised data; n/a = not available

Source: Transportation & Marketing Programs/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 Programs/AMS/USDA

Table 4

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

For the week ending:	East		West			U.S. total	Canada	
9/29/2018	CSXT	NS	BNSF	KCS	UP		CN	CP
This week	2,205	2,523	11,068	915	5,159	21,870	4,894	4,638
This week last year	2,056	3,220	11,143	1,189	6,021	23,629	3,515	5,560
2018 YTD	74,001	99,717	482,370	36,677	204,630	897,395	153,656	181,297
2017 YTD	63,727	106,938	430,201	36,888	221,961	859,715	145,074	178,025
2018 YTD as % of 2017 YTD	116	93	112	99	92	104	106	102
Last 4 weeks as % of 2017*	119	98	113	78	100	106	140	95
Last 4 weeks as % of 3-yr avg.**	107	104	103	80	91	99	131	96
Total 2017	89,465	142,745	578,964	50,223	289,574	1,150,971	198,416	244,766

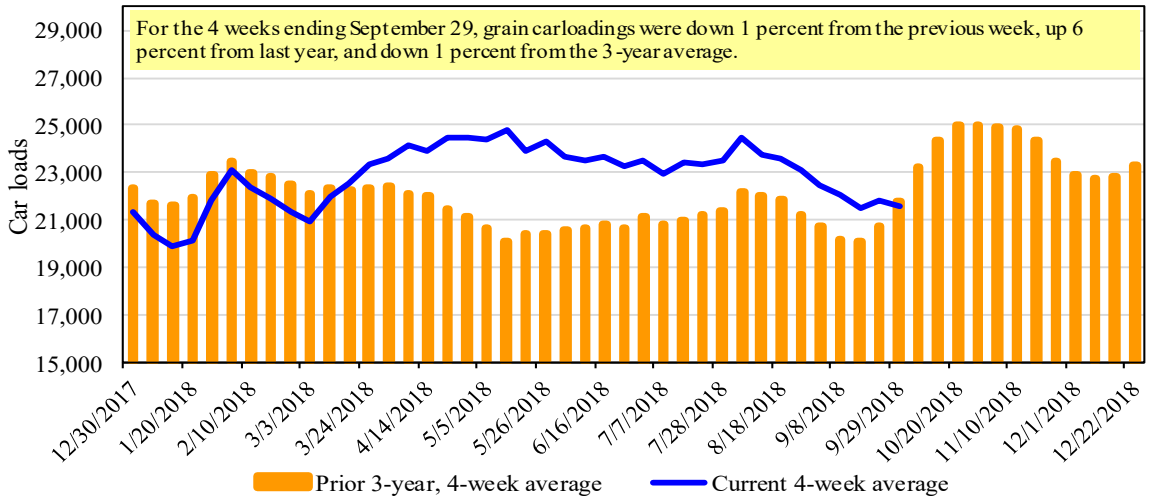
*The past 4 weeks of this year as a percent of the same 4 weeks last year.

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

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]

For the week ending:		Delivery period							
10/4/2018		Oct-18	Oct-17	Nov-18	Nov-17	Dec-18	Dec-17	Jan-19	Jan-18
BNSF[3]	COT grain units	no bids	no bids	no bids	no bids	no bids	no bids	no bids	no bids
	COT grain single-car[5]	no offer	0	no offer	0	1	0	0	0
UP[4]	GCAS/Region 1	no offer	no bids	no offer	no bids	no offer	no bids	n/a	n/a
	GCAS/Region 2	no offer	no bids	no offer	no bids	no offer	no bids	n/a	n/a

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

[2]Average premium/discount to tariff, last auction

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

[4]UP - GCAS = Grain Car Allocation System

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

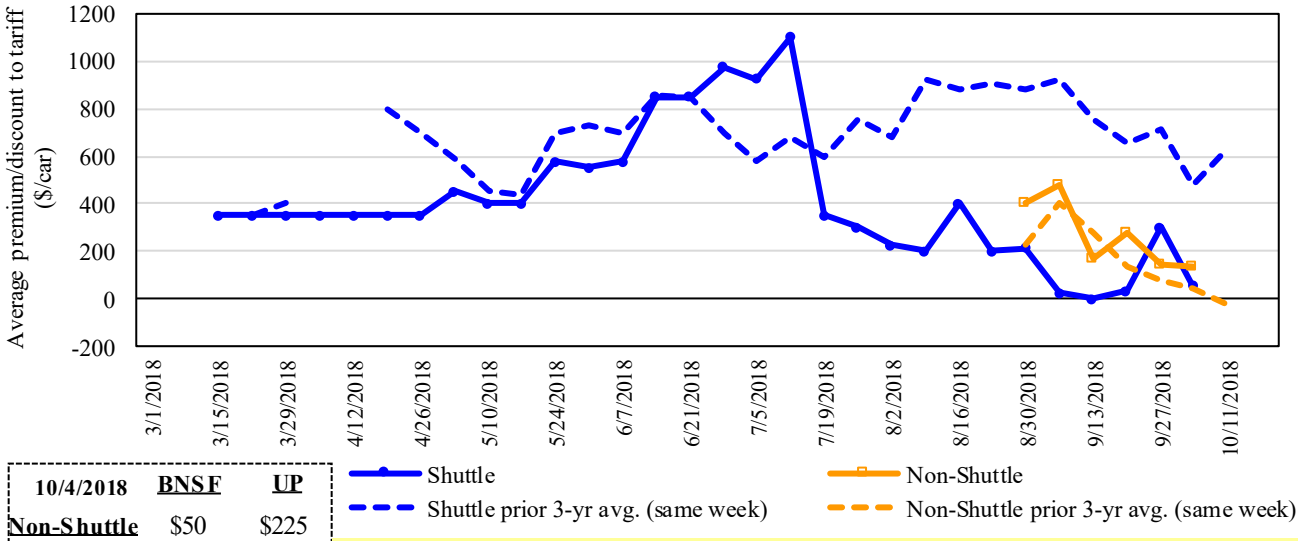
Region 2 includes: CO, IA, KS, MN, NE, WY, and Kansas City and St. Joseph, MO.

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

Source: Transportation & Marketing Programs/AMS/USDA.

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 October 2018, Secondary Market

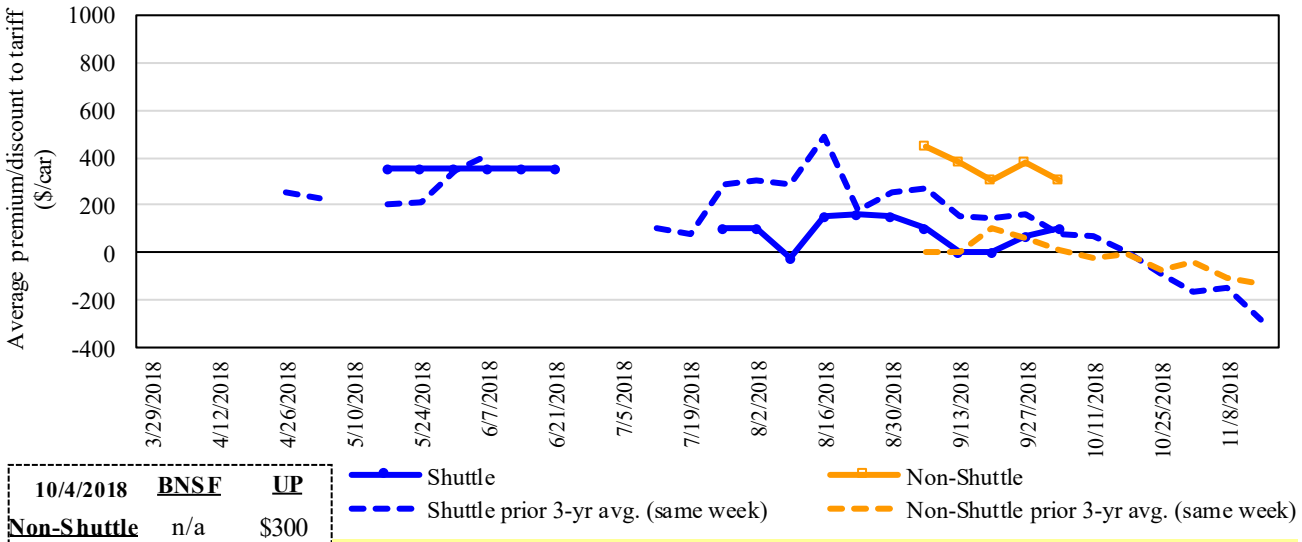


10/4/2018	BNSF	UP
Non-Shuttle	$50	$225
Shuttle	-$25	$133

Average Non-shuttle bids/offers fell $3 this week, and are $338 below the peak.
Average Shuttle bids/offers fell $246 this week and are $1,046 below the peak.

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

Figure 5
Bids/Offers for Railcars to be Delivered in November 2018, Secondary Market



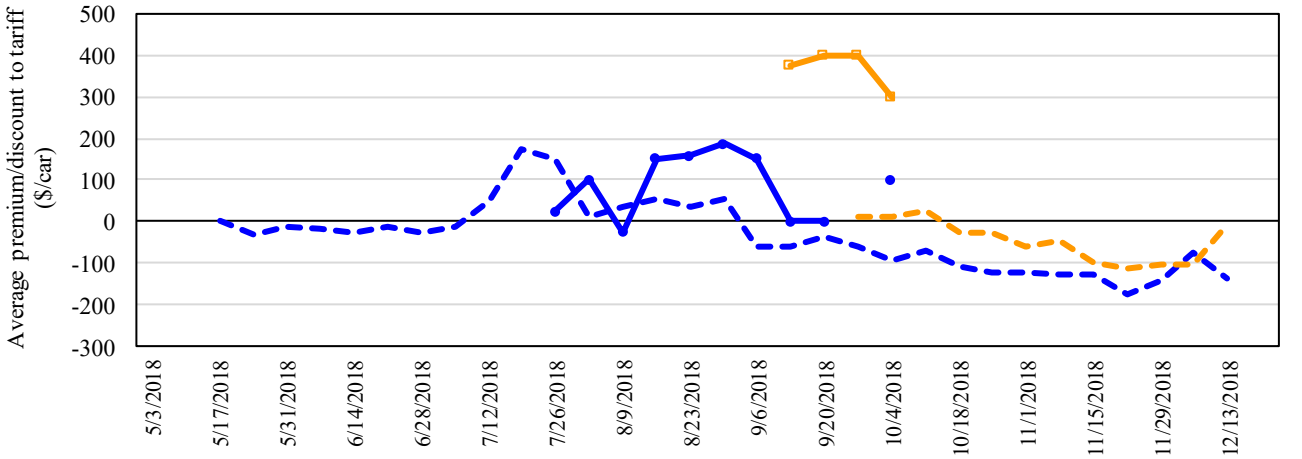
10/4/2018	BNSF	UP
Non-Shuttle	n/a	$300
Shuttle	n/a	$100

Average Non-shuttle bids/offers fell $75 this week, and are $150 below the peak.
Average Shuttle bids/offers rose $33 this week and are $250 below the peak.

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

Figure 6

Bids/Offers for Railcars to be Delivered in December 2018, Secondary Market



10/4/2018	BNSF	UP
Non-Shuttle	n/a	$300
Shuttle	n/a	$100

Average Non-shuttle bids/offers fell $100 this week, and are $100 below the peak.
There were no Shuttle bids/offers last week. Average Non-Shuttle bids/offers this week are $88 below the peak.

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

Table 6

Weekly Secondary Railcar Market ($/car)[1]

	For the week ending: 10/4/2018	Delivery period					
		Oct-18	Nov-18	Dec-18	Jan-19	Feb-19	Mar-19
Non-shuttle	**BNSF-GF**	**50**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**
	Change from last week	44	n/a	n/a	n/a	n/a	n/a
	Change from same week 2017	150	n/a	n/a	n/a	n/a	n/a
	UP-Pool	**225**	**300**	**300**	**n/a**	**n/a**	**n/a**
	Change from last week	(50)	(75)	(100)	n/a	n/a	n/a
	Change from same week 2017	198	288	300	n/a	n/a	n/a
Shuttle	**BNSF-GF**	**(25)**	**n/a**	**n/a**	**500**	**n/a**	**n/a**
	Change from last week	(192)	n/a	n/a	n/a	n/a	n/a
	Change from same week 2017	(442)	n/a	n/a	n/a	n/a	n/a
	UP-Pool	**133**	**100**	**100**	**n/a**	**n/a**	**50**
	Change from last week	(300)	n/a	n/a	n/a	n/a	n/a
	Change from same week 2017	(67)	100	267	n/a	n/a	n/a

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

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

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

Sources: Transportation and Marketing Programs/AMS/USDA

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

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]

October, 2018	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	$121	$40.76	$1.11	4
	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	$214	$47.21	$1.28	3
	Sioux Falls, SD	Galveston-Houston, TX	$6,911	$0	$68.63	$1.87	2
	Northwest KS	Galveston-Houston, TX	$4,816	$234	$50.15	$1.36	3
	Amarillo, TX	Los Angeles, CA	$5,121	$326	$54.09	$1.47	6
Corn	Champaign-Urbana, IL	New Orleans, LA	$4,000	$241	$42.12	$1.07	5
	Toledo, OH	Raleigh, NC	$6,581	$0	$65.35	$1.66	4
	Des Moines, IA	Davenport, IA	$2,258	$51	$22.93	$0.58	1
	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	$150	$37.33	$0.95	2
	Des Moines, IA	Los Angeles, CA	$5,327	$438	$57.24	$1.45	5
Soybeans	Minneapolis, MN	New Orleans, LA	$4,131	$231	$43.32	$1.18	18
	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	$241	$49.52	$1.35	3
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	$384	$62.52	$1.70	5
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	$241	$40.13	$1.02	5
	Lincoln, NE	Galveston-Houston, TX	$3,880	$0	$38.53	$0.98	5
	Des Moines, IA	Amarillo, TX	$4,060	$189	$42.19	$1.07	5
	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	$278	$50.18	$1.37	3
	Toledo, OH	Huntsville, AL	$4,634	$0	$46.02	$1.25	6
	Grand Island, NE	Portland, OR	$5,710	$393	$60.60	$1.65	4

[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 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 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

Date: October, 2018							
Commodity	Origin state	Destination region	Tariff rate/car[1]	Fuel surcharge per car[2]	Tariff plus surcharge per: metric ton[3]	Tariff plus surcharge per: bushel[3]	Percent change[4] Y/Y
Wheat	MT	Chihuahua, CI	$7,284	$0	$74.43	$2.02	-2
	OK	Cuautitlan, EM	$6,743	$167	$70.61	$1.92	3
	KS	Guadalajara, JA	$7,371	$411	$79.51	$2.16	3
	TX	Salinas Victoria, NL	$4,292	$100	$44.88	$1.22	1
Corn	IA	Guadalajara, JA	$8,528	$379	$91.01	$2.31	5
	SD	Celaya, GJ	$7,880	$0	$80.51	$2.04	2
	NE	Queretaro, QA	$8,134	$336	$86.55	$2.20	4
	SD	Salinas Victoria, NL	$6,905	$0	$70.55	$1.79	2
	MO	Tlalnepantla, EM	$7,500	$328	$79.98	$2.03	4
	SD	Torreon, CU	$7,480	$0	$76.43	$1.94	2
Soybeans	MO	Bojay (Tula), HG	$8,284	$350	$88.22	$2.40	4
	NE	Guadalajara, JA	$8,842	$382	$94.24	$2.56	4
	IA	El Castillo, JA	$9,110	$0	$93.08	$2.53	2
	KS	Torreon, CU	$7,714	$283	$81.71	$2.22	5
Sorghum	NE	Celaya, GJ	$7,527	$350	$80.49	$2.04	4
	KS	Queretaro, QA	$8,000	$209	$83.87	$2.13	4
	NE	Salinas Victoria, NL	$6,633	$168	$69.48	$1.76	4
	NE	Torreon, CU	$6,962	$271	$73.91	$1.88	4

[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

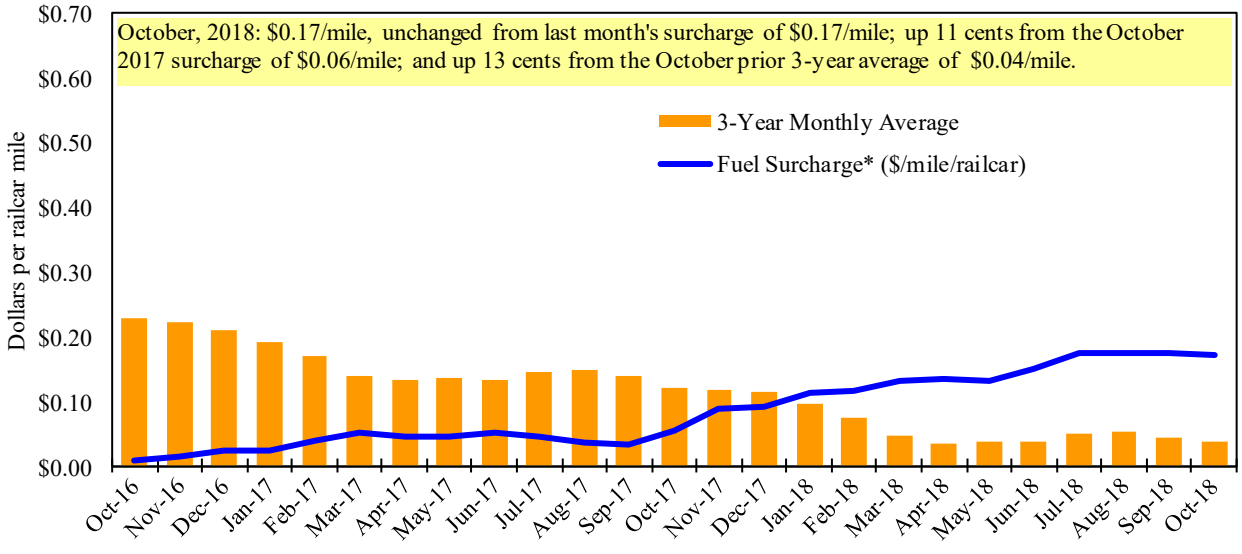
[3]Approximate load per car = 97.87 metric tons: Corn & Sorghum 56 lbs/bu, Wheat & Soybeans 60 lbs/bu

[4]Percentage change calculated using tariff rate plus fuel surchage

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.

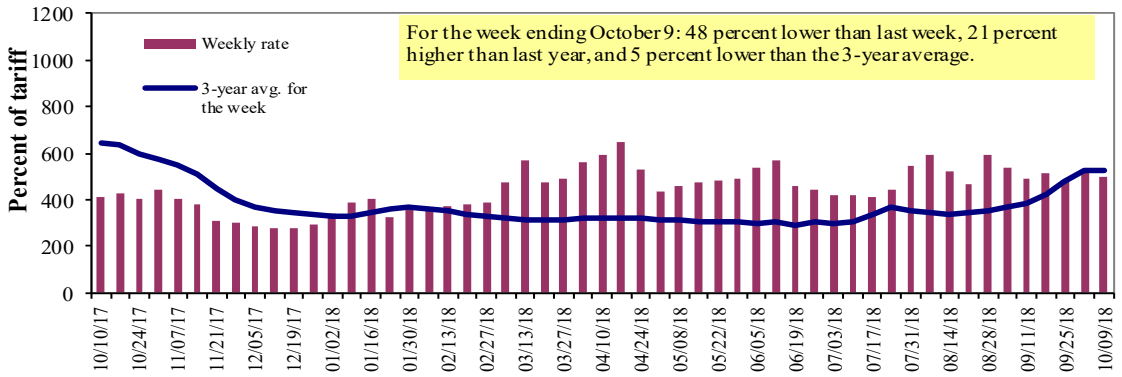
* Beginning January 2009, the Canadian Pacific fuel surcharge is computed by a monthly average of the bi-weekly fuel surcharge.

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

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

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: Transportation & Marketing Programs/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]	10/9/2018	500	492	500	463	450	450	475
	10/2/2018	513	538	523	450	495	495	388
$/ton	10/9/2018	30.95	26.17	23.20	18.47	21.11	18.18	14.92
	10/2/2018	31.75	28.62	24.27	17.96	23.22	20.00	12.18
Current week % change from the same week:								
	Last year	11	19	21	28	6	6	27
	3-year avg. [2]	-9	-8	-5	2	-19	-19	2
Rate[1]	November	483	450	437	367	392	392	333
	January	-	-	412	312	367	367	277

[1]Rate = percent of 1976 tariff benchmark index (1976 = 100 percent); [2]4-week moving average; ton = 2,000 pounds;
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.

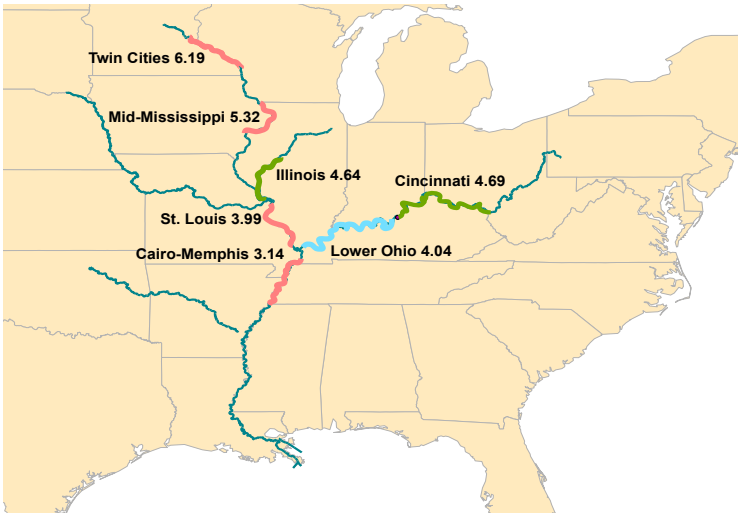
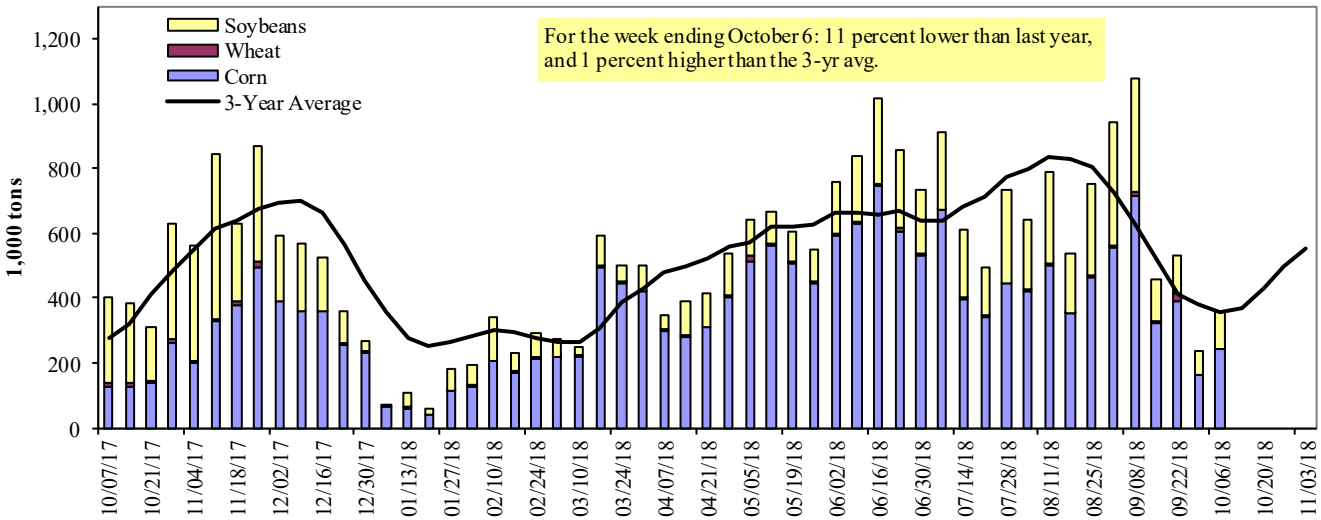


Figure 10

Barge Movements on the Mississippi 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 10/06/2018	Corn	Wheat	Soybeans	Other	Total
Mississippi River					
Rock Island, IL (L15)	66	0	42	0	108
Winfield, MO (L25)	168	2	81	0	251
Alton, IL (L26)	222	5	101	0	327
Granite City, IL (L27)	241	5	111	0	357
Illinois River (L8)	63	0	24	0	87
Ohio River (L52)	102	0	44	0	146
Arkansas River (L1)	0	15	24	0	39
Weekly total - 2018	343	20	178	0	542
Weekly total - 2017	145	31	414	6	596
2018 YTD[1]	18,783	1,407	9,402	88	29,680
2017 YTD	18,107	1,977	10,997	246	31,327
2018 as % of 2017 YTD	104	71	85	36	95
Last 4 weeks as % of 2017[2]	163	56	50	0	93
Total 2017	22,242	2,210	16,123	360	40,936

[1] Weekly total, YTD (year-to-date) and calendar year total includes Miss/27, Ohio/52, and Ark/1; "Other" refers to oats, barley, sorghum, and rye.

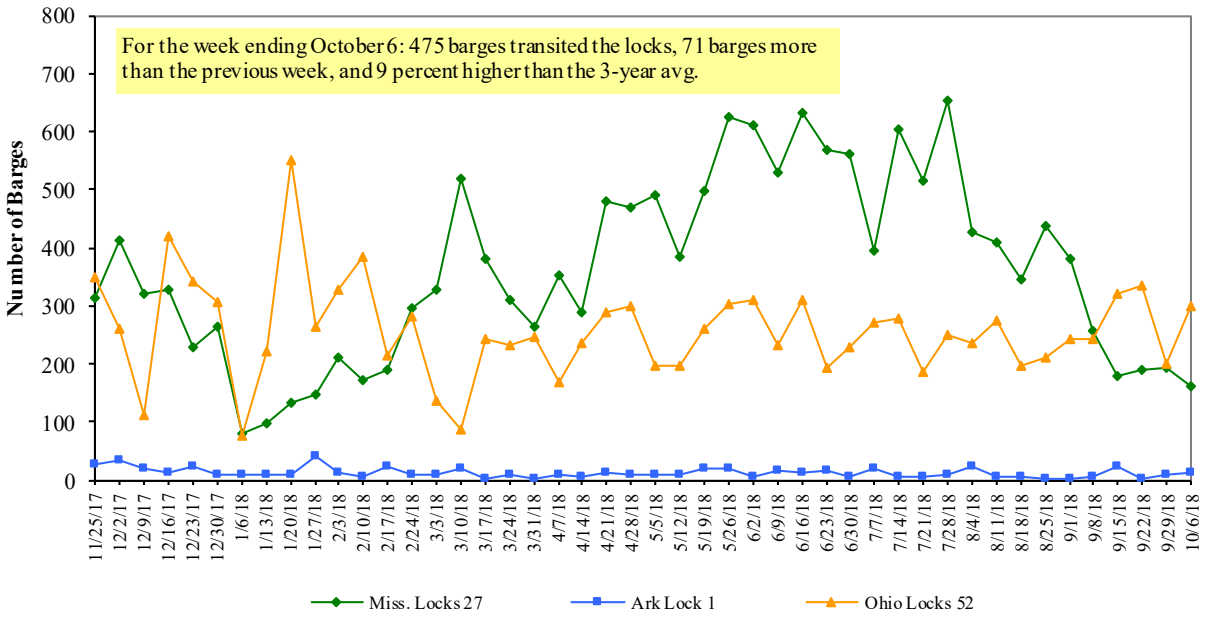
[2] As a percent of same period in 2017.

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

Source: U.S. Army Corps of Engineers

Figure 11

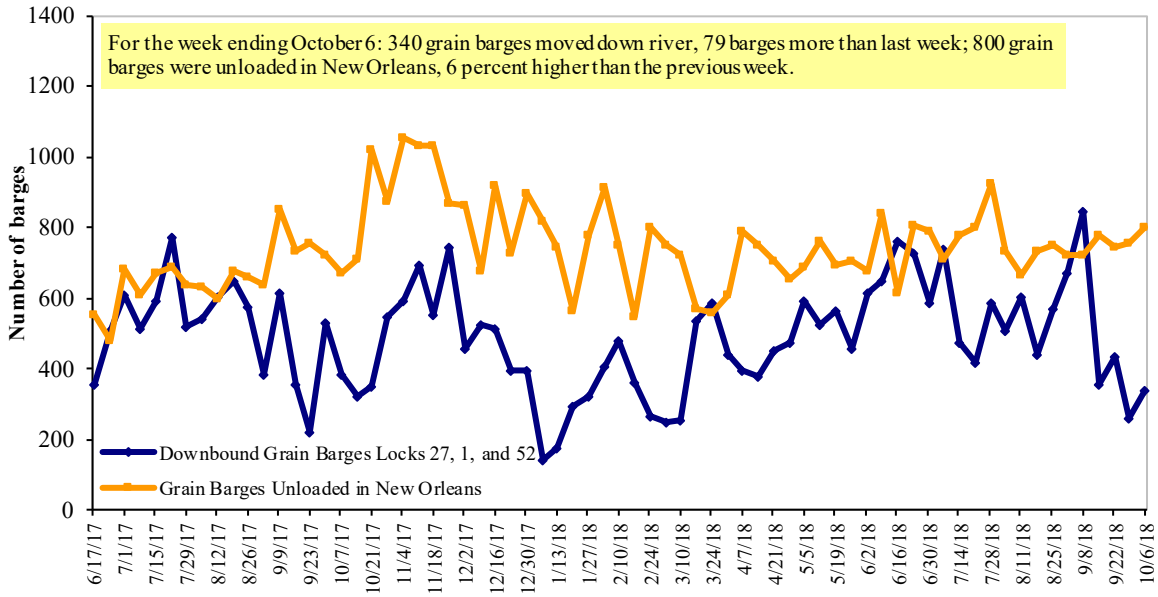
Upbound Empty Barges Transiting Mississippi River Locks 27, Arkansas River Lock and Dam 1, and Ohio River Locks and Dam 52



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 GIPSA

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 10/8/2018 (US $/gallon)

Region	Location	Price	Change from Week ago	Change from Year ago
I	East Coast	3.360	0.068	0.567
	New England	3.344	0.039	0.593
	Central Atlantic	3.531	0.084	0.612
	Lower Atlantic	3.243	0.063	0.531
II	Midwest[2]	3.351	0.073	0.613
III	Gulf Coast[3]	3.169	0.090	0.570
IV	Rocky Mountain	3.390	0.023	0.534
V	West Coast	3.866	0.064	0.778
	West Coast less California	3.558	0.052	0.565
	California	4.111	0.073	0.945
Total	U.S.	3.385	0.072	0.609

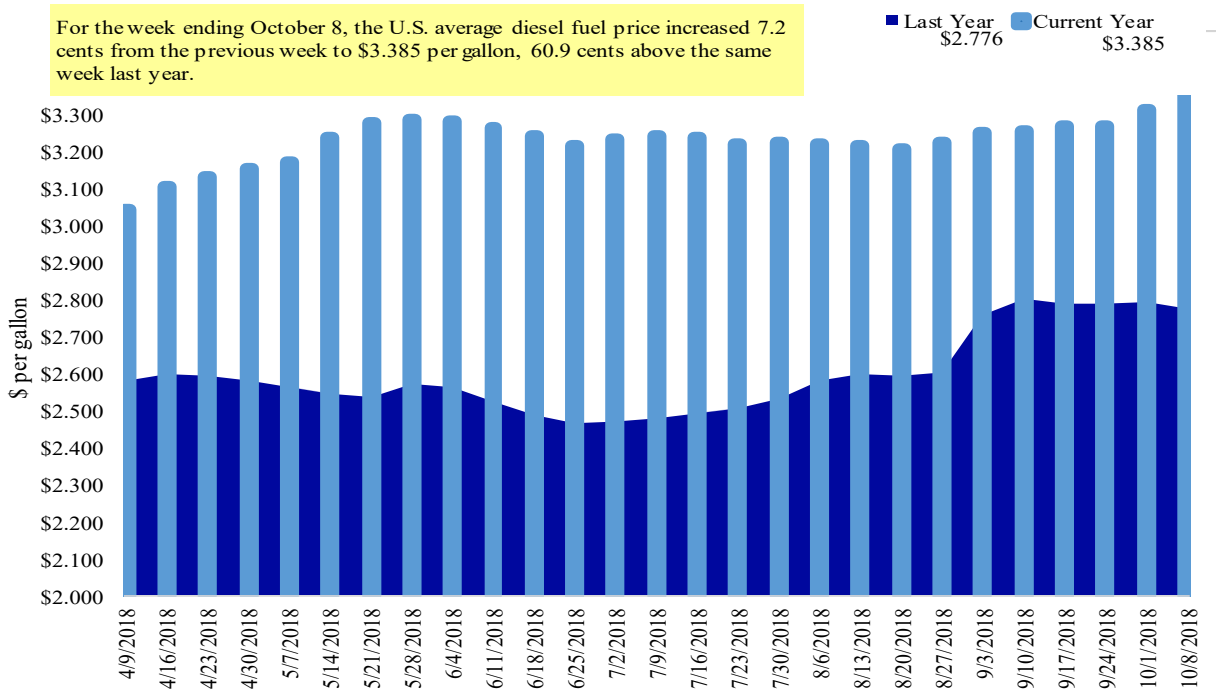
[1]Diesel fuel prices include all taxes. Prices represent an average of all types of diesel fuel.

[2]Same as North Central [3]Same as South Central

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

Figure 13

Weekly Diesel Fuel Prices, U.S. Average



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)

	Wheat						Corn	Soybeans	Total
For the week ending	HRW	SRW	HRS	SWW	DUR	All wheat			
Export Balances[1]									
9/27/2018	1,447	659	1,400	1,169	124	4,799	15,127	17,088	37,015
This week year ago	1,448	536	1,294	1,247	107	4,632	9,052	19,263	32,948
Cumulative exports-marketing year[2]									
2018/19 YTD	1,845	752	2,010	1,726	166	6,500	4,572	3,101	14,173
2017/18 YTD	3,794	829	2,548	2,058	150	9,379	3,043	4,001	16,422
YTD 2018/19 as % of 2017/18	49	91	79	84	111	69	150	77	86
Last 4 wks as % of same period 2017/18	98	111	106	84	139	99	164	85	109
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

[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

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

Table 13

Top 5 Importers[1] of U.S. Corn

For the week ending 9/27/2018	Total Commitments[2]		% change	Exports[3]
	2018/19 Current MY	2017/18 Last MY	current MY from last MY	3-year avg 2015-2017
	- 1,000 mt -			
Mexico	6,108	5,438	12	13,691
Japan	2,926	1,400	109	11,247
Korea	1,681	194	765	4,754
Colombia	529	889	(41)	4,678
Peru	657	609	8	2,975
Top 5 Importers	**11,901**	**8,530**	**40**	**37,344**
Total US corn export sales	**19,699**	**12,095**	**63**	**53,184**
% of Projected	32%	20%		
Change from prior week[2]	**1,431**	**745**		
Top 5 importers' share of U.S. corn export sales	60%	71%		70%
USDA forecast, September 2018	**61,069**	**61,705**	**(1)**	
Corn Use for Ethanol USDA forecast, September 2018	**143,510**	**142,240**	**1**	

(n) indicates negative number.

[1]Based on FAS Marketing Year Ranking Reports for 2017/18 - www.fas.usda.gov; Marketing year (MY) = Sep 1 - Aug 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 previous week's outstanding sales or accumulated sales.

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

Table 14

Top 5 Importers[1] of U.S. Soybeans

For the week ending 9/27/2018	Total Commitments[2] 2018/19 Current MY	2017/18 Last MY	% change current MY from last MY	Exports[3] 3-yr avg. 2015-2017
	- 1,000 mt -			- 1,000 mt -
China	1,266	10,667	(88)	31,228
Mexico	2,996	1,317	127	3,716
Indonesia	660	514	28	2,250
Japan	651	641	2	2,145
Netherlands	183	0	0	2,209
Top 5 importers	**5,755**	**13,139**	**(56)**	**41,549**
Total US soybean export sales	**20,189**	**23,264**	**(13)**	**55,113**
% of Projected	36%	40%		
Change from prior week[2]	**1,521**	**950**		
Top 5 importers' share of U.S. soybean export sales	29%	56%		**75%**
USDA forecast, September 2018	**56,131**	**58,038**	**97**	

(n) indicates negative number.

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

Table 15

Top 10 Importers[1] of All U.S. Wheat

For the week ending 9/27/2018	Total Commitments[2] 2018/19 Current MY	2017/18 Last MY	% change current MY from last MY	Exports[3] 3-yr avg 2015-2017
	- 1,000 mt -			- 1,000 mt -
Mexico	1,332	1,715	(22)	2,781
Japan	1,362	1,347	1	2,649
Philippines	1,718	1,742	(1)	2,441
Korea	849	1,032	(18)	1,257
Nigeria	580	718	(19)	1,254
Indonesia	357	633	(44)	1,076
Taiwan	497	656	(24)	1,066
China	0	600	(100)	944
Colombia	298	198	50	714
Thailand	537	440	22	618
Top 10 importers	**7,530**	**9,080**	(17)	**14,800**
Total US wheat export sales	**11,300**	**14,011**	**(19)**	**22,869**
% of Projected	40%	57%		
Change from prior week[2]	**435**	**492**		
Top 10 importers' share of U.S. wheat export sales	67%	65%		65%
USDA forecast, September 2018	**27,929**	**24,550**	**14**	

(n) indicates negative number.

[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)

Port Regions	For the Week Ending 10/04/18	Previous Week*	Current Week as % of Previous	2018 YTD*	2017 YTD*	2018 YTD as % of 2017 YTD	Last 4-weeks as % of: Last Year	Last 4-weeks as % of: Prior 3-yr. avg.	2017 Total*
Pacific Northwest									
Wheat	320	277	116	9,986	12,394	81	86	86	14,805
Corn	501	348	144	16,711	10,237	163	610	263	10,928
Soybeans	11	0	n/a	6,412	6,038	106	17	16	13,246
Total	**833**	**624**	**133**	**33,109**	**28,669**	**115**	**136**	**113**	**38,978**
Mississippi Gulf									
Wheat	53	46	117	3,046	3,599	85	105	74	4,198
Corn	737	750	98	27,261	24,495	111	170	134	28,690
Soybeans	404	525	77	18,747	19,842	94	62	76	32,911
Total	**1,194**	**1,320**	**90**	**49,054**	**47,935**	**102**	**96**	**98**	**65,800**
Texas Gulf									
Wheat	32	0	n/a	2,344	5,380	44	19	17	6,354
Corn	7	0	n/a	628	653	96	60	35	733
Soybeans	0	0	n/a	69	14	499	0	0	292
Total	**40**	**0**	**n/a**	**3,040**	**6,047**	**50**	**25**	**20**	**7,379**
Interior									
Wheat	35	23	152	1,268	1,468	86	148	98	1,727
Corn	75	253	30	6,743	6,925	97	80	99	8,758
Soybeans	77	113	68	5,054	3,840	132	90	125	5,508
Total	**187**	**389**	**48**	**13,065**	**12,233**	**107**	**89**	**105**	**15,993**
Great Lakes									
Wheat	5	46	11	662	529	125	224	119	711
Corn	0	3	0	345	173	199	66	84	192
Soybeans	52	22	234	628	392	160	139	314	890
Total	**57**	**71**	**81**	**1,635**	**1,094**	**149**	**157**	**152**	**1,793**
Atlantic									
Wheat	0	1	n/a	69	44	155	224	7	46
Corn	7	0	n/a	110	18	609	391	47	32
Soybeans	55	3	n/a	1,493	1,012	148	141	194	2,001
Total	**62**	**4**	**n/a**	**1,671**	**1,074**	**156**	**171**	**92**	**2,079**
U.S. total from ports*									
Wheat	446	391	114	17,375	23,414	74	79	69	27,841
Corn	1,327	1,353	98	51,798	42,501	122	177	140	49,333
Soybeans	599	663	90	32,402	31,137	104	62	75	54,847
Total	**2,372**	**2,408**	**99**	**101,575**	**97,052**	**105**	**100**	**97**	**132,021**

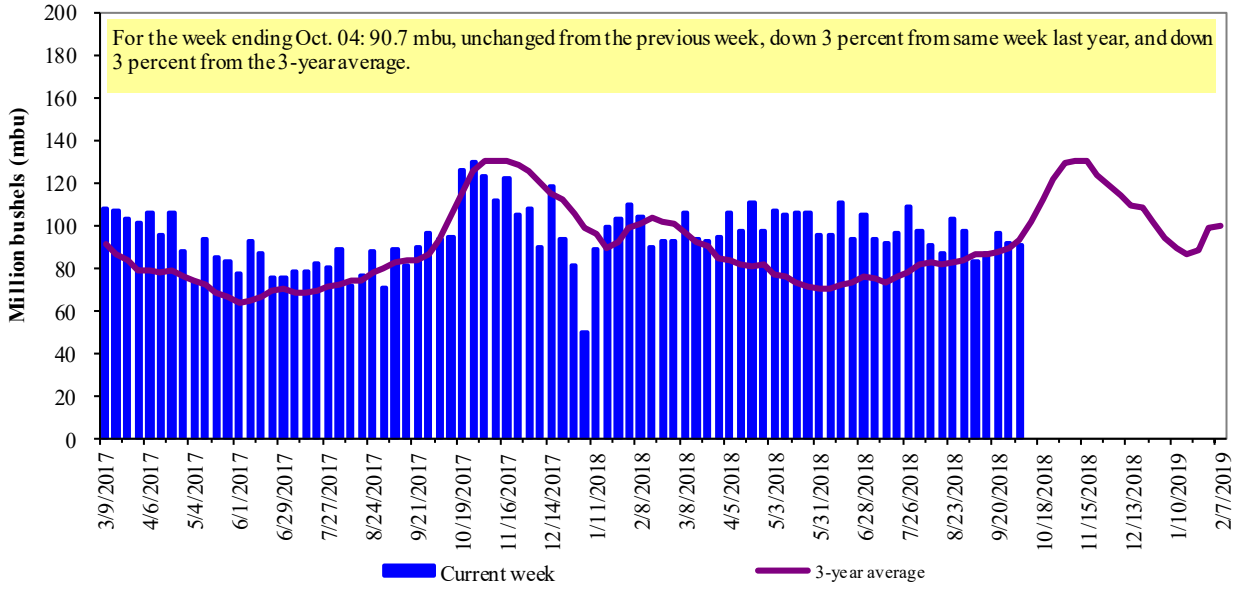
*Data includes revisions from prior weeks; some regional totals may not add exactly due to rounding.

Source: Grain Inspection, Packers and Stockyards Administration/USDA (www.gipsa.usda.gov); 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 55 percent of the U.S. export grain shipments departed through the U.S. Gulf region in 2017.

Figure 14

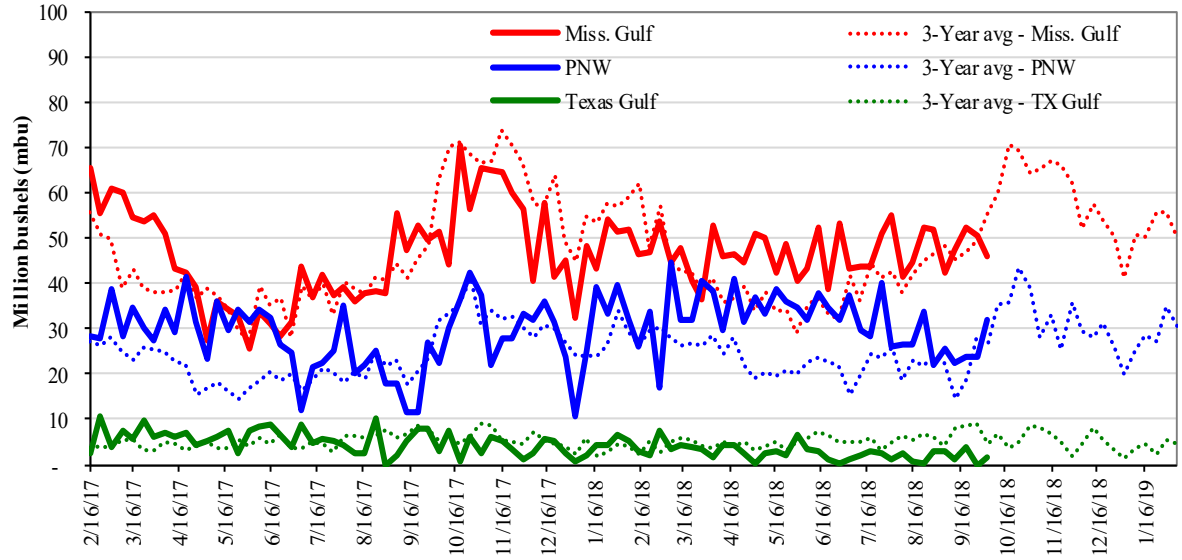
U.S. grain inspected for export (wheat, corn, and soybeans)



Source: Grain Inspection, Packers and Stockyards Administration/USDA (www.gipsa.usda.gov)
Note: 3-year average consists of 4-week running average

Figure 15

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



Week ending 10/04/18 inspections (mbu):	
Mississippi Gulf:	45.8
PNW:	31.9
Texas Gulf:	1.5

Percent change from:	MS Gulf	TX Gulf	U.S. Gulf	PNW
Last Week:	down 9	n/a	down 6	up 34
Last Year (same week):	down 11	down 53	down 13	up 43
3-yr avg. (4-wk.mov. Avg):	down 7	down 81	down 17	up 45

Source: Grain Inspection, Packers and Stockyards Administration/USDA (www.gipsa.usda.gov)

Table 17

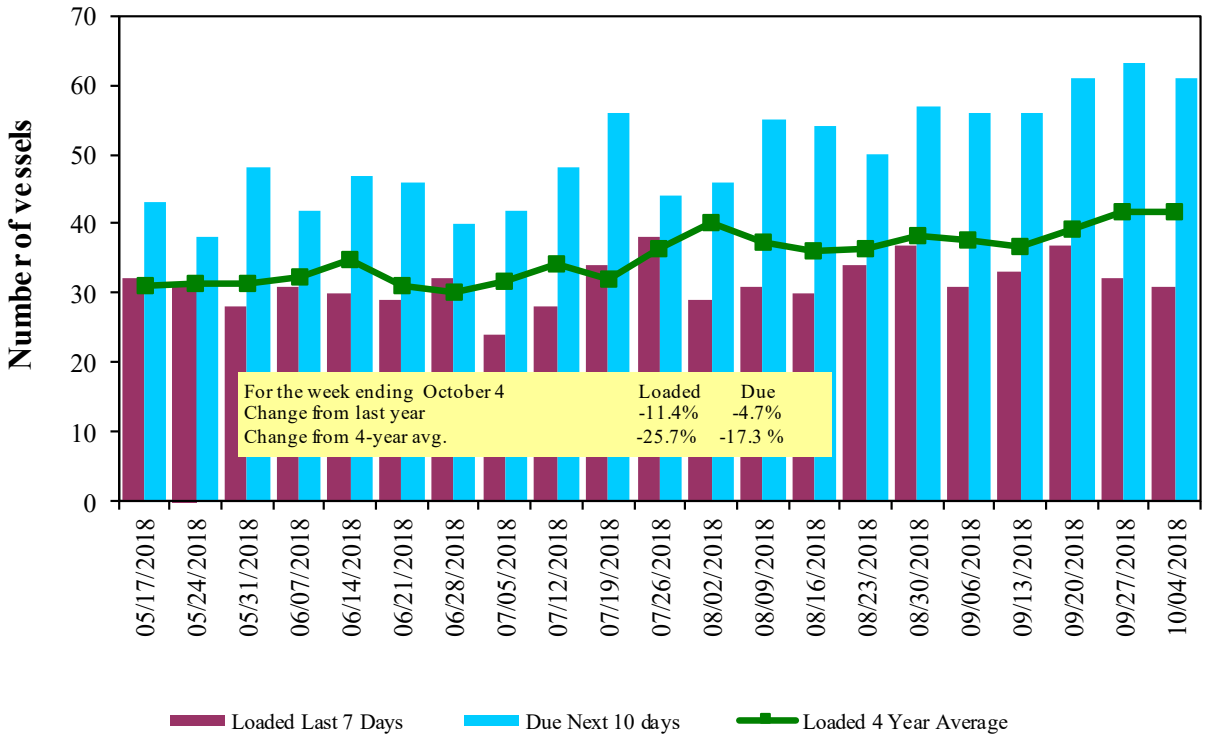
Weekly Port Region Grain Ocean Vessel Activity (number of vessels)

	Gulf			Pacific Northwest
Date	In port	Loaded 7-days	Due next 10-days	In port
10/4/2018	43	31	61	9
9/27/2018	35	32	63	12
2017 range	(25..66)	(28..54)	(37..87)	(5..44)
2017 avg.	46	38	56	20

Source: Transportation & Marketing Programs/AMS/USDA

Figure 16

U.S. Gulf Vessel Loading Activity

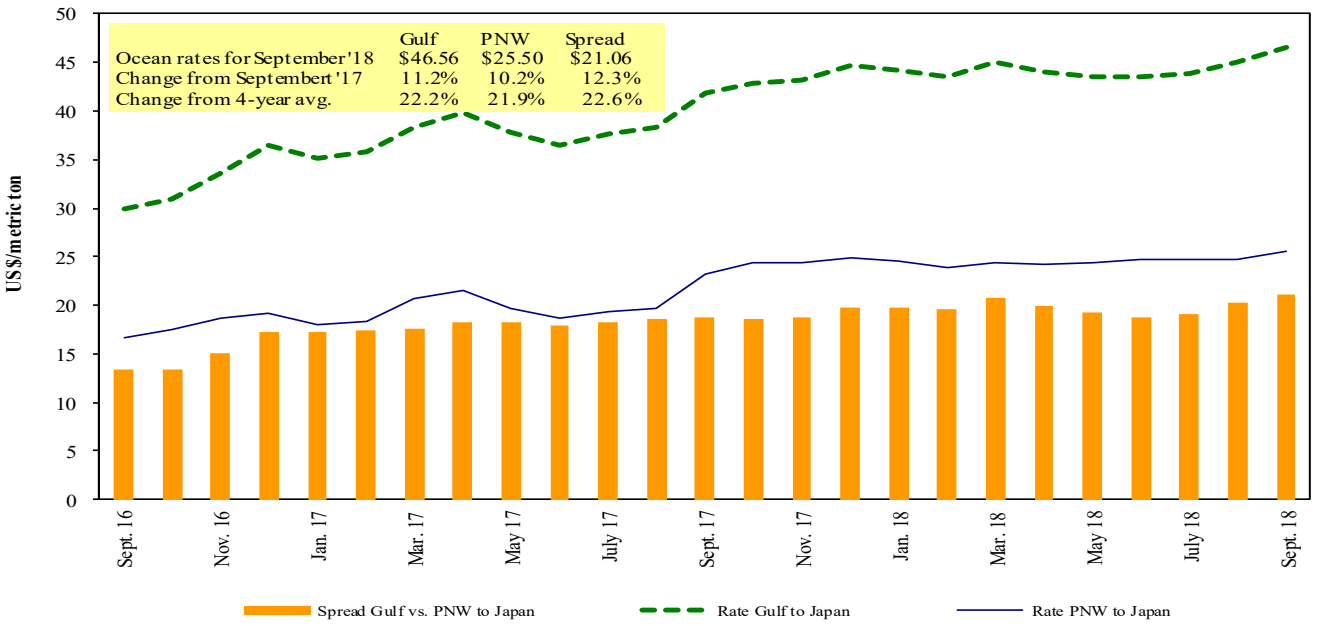


Source: Transportation & Marketing Programs/AMS/USDA

[1]U.S. Gulf includes 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 10/06/2018

Export region	Import region	Grain types	Loading date	Volume loads (metric tons)	Freight rate (US$/metric ton)
U.S. Gulf	Djibouti	Wheat	Nov 2/12	21,470	85.44*
U.S. Gulf	Djibouti	Wheat	Oct 1/15	25,340	77.65*
U.S. Gulf	Honduras	Soybean Meal	Oct 1/10	12,500	85.00*
PNW	Taiwan	Heavy Grain	Sep 15/Oct 31	63,000	25.00
Brazil	China	Heavy Grain	Nov 1/10	60,000	34.00
Brazil	China	Heavy Grain	Oct 5/15	60,000	33.75
Brazil	China	Heavy Grain	Sep 25/30	60,000	34.50
Brazil	China	Heavy Grain	Sep 10/20	60,000	35.75
Brazil	China	Heavy Grain	Aug 21/30	60,000	36.00
Brazil	China	Heavy Grain	Aug 18/28	60,000	36.00
Brazil	Malaysia	Heavy Grain	Aug 17/24	65,000	31.00

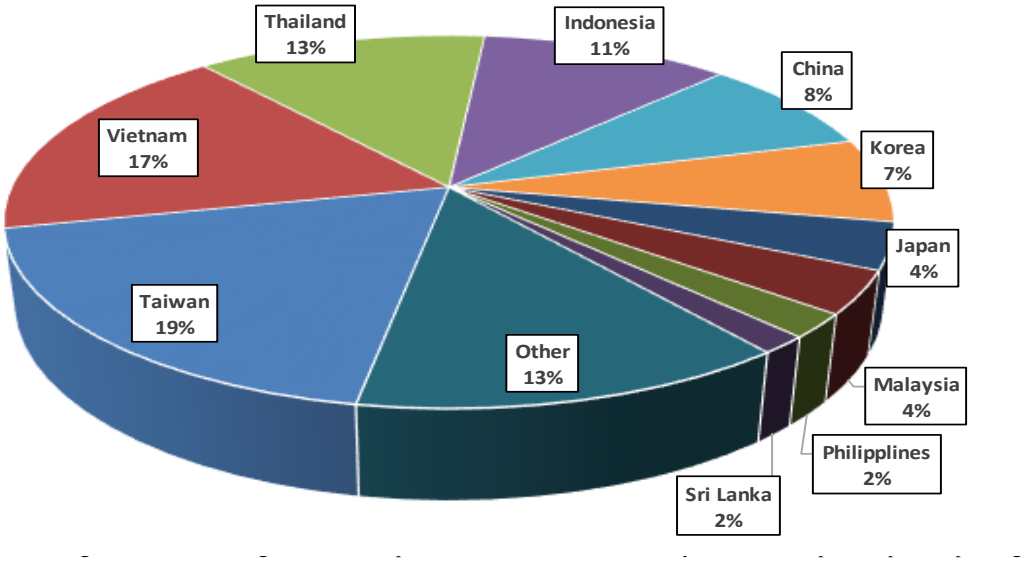
Rates shown are per metric ton (2,204.62 lbs. = 1 metric ton), F.O.B., except where otherwise indicated; op = option

*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.

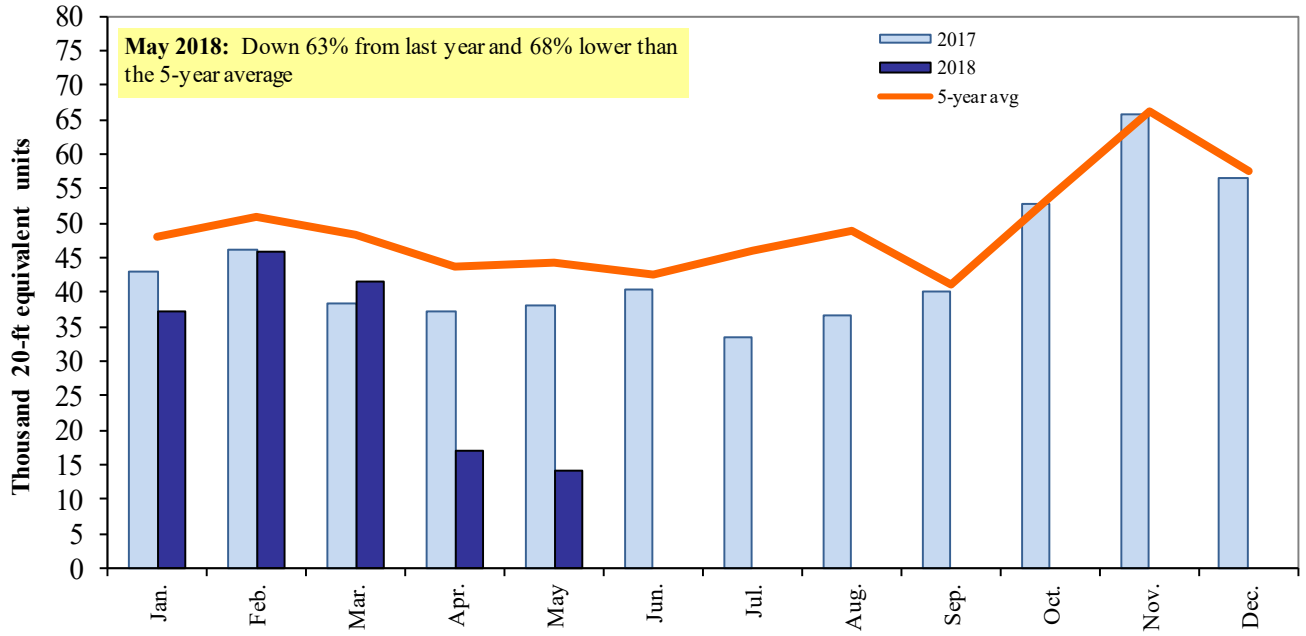
Figure 18
Top 10 Destination Markets for U.S. Containerized Grain Exports, January-May 2018



Service (PIERS) data

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



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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Preferred citation: U.S. Dept. of Agriculture, Agricultural Marketing Service. *Grain Transportation Report.* October 11, 2018. Web: **http://dx.doi.org/10.9752/TS056.10-11-2018**