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Feed Outlook

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In this report:

Reduced Corn and Sorghum Grind Dampens Disappearance

Projected corn used for ethanol in 2018/19 is reduced 50 million bushels to 5.6 billion, and sorghum food, seed, and industrial use is lowered 15 million bushels to 110 million based on reported use by USDA's National Agricultural Statistics Service through October and U.S. DOE Energy Information Administration weekly ethanol production data for November. With supply forecast down 5 million bushels on lower imports, corn ending stocks are raised 45 million bushels to 1.8 billion. As a result of the decreased ethanol use outlook, sorghum feed and residual is raised 15 million bushels.

Corn trade is boosted, while barley and oats trade is reduced. With a new record-high projection for Ukrainian corn production and exports, the country becomes the second largest world corn exporter after the United States. Brazilian corn exports are also up, reflecting an unusually high pace for the tail end of the 2017/18 season. U.S. corn exports are unchanged.

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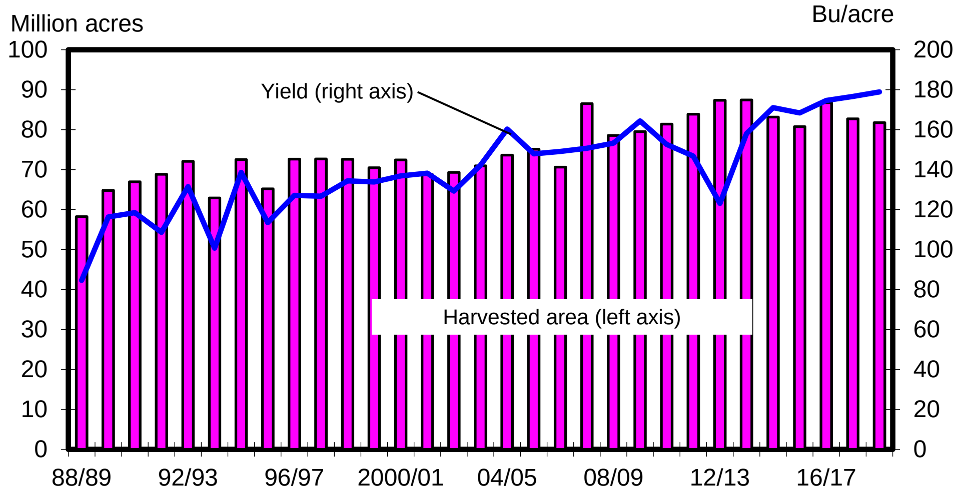
Domestic Outlook

U.S. Feed Grain Supplies Lowered

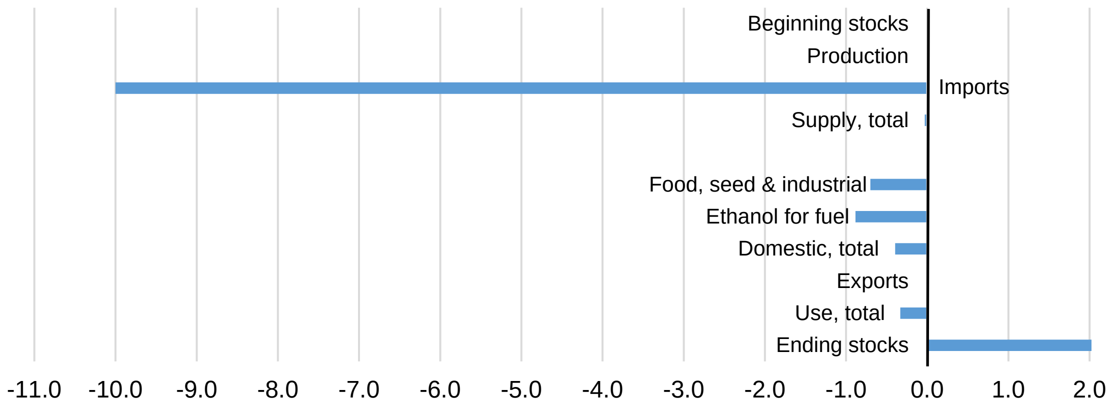
Projected 2018/19 U.S. feed grain supplies are lowered 0.2 million metric tons this month on lower corn and barley imports. Supply is projected at 445.8 million tons, 3.1 million below 2017/18. Projected feed grain use is lowered 1.3 million tons this month to 397.3 million but if realized would be 6.3 million higher than 2017/18. Feed and residual is raised 0.4 million tons to 145.2 million, while food, seed, and industrial (FSI) is down 1.7 million tons to 187.2 million due to lower corn and sorghum use for fuel ethanol. Exports are unchanged at 64.9 million tons. Resulting ending stocks are projected 1.0 million tons higher at 48.5 million, which is 9.4 million below 2017/18.

Figure 1
U.S. corn harvested area and yield



Sources: USDA, National Agricultural Statistics Service, *QuickStats* and USDA, World Agricultural Outlook Board, *Crop Projections, 2018.*

Figure 2
Corn supply and use: percent change from last month's forecast



Source: ERS Feed Grain Database.

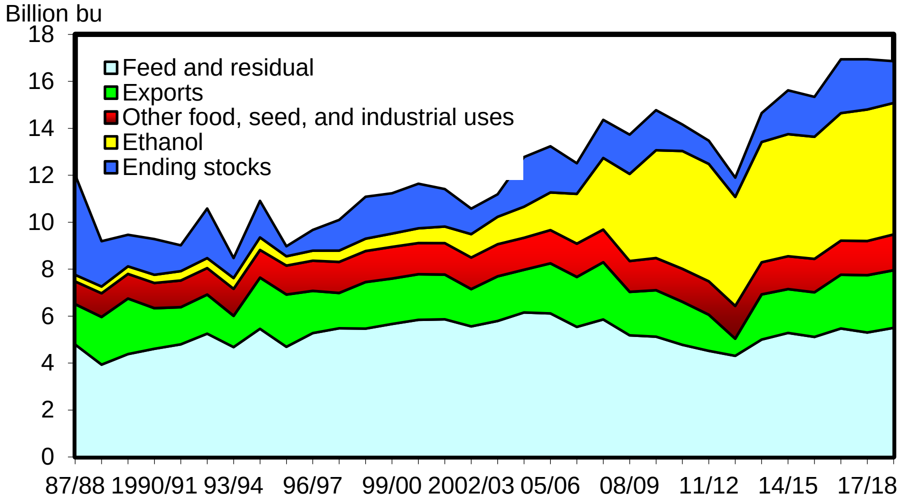
Grain Consuming Animal Units

Grain consuming animal units (GCAU) for 2018/19 are projected at 101.9 million units, up from last month's 101.1 million and 3.0 million units over last year. Compared with last month, broilers, dairy cows, and heifers are lower. Feed and residual use per GCAU is projected at 1.48 tons, down 1.47 from last month and 0.6 lower than last year's 1.42.

Feed and Residual Use: Four Grains and Wheat

Feed and residual use for the four feed grains (corn, sorghum, barley, and oats) and wheat, on a September-August marketing year basis, for 2018/19 is projected at 149.0 million metric tons, 0.4 million above last month's projection of 148.6 million and 8.3 million over 2017/18's 140.7 million. This month, higher sorghum and wheat feed and residual use account for the change. Sorghum feed and residual is raised due to reduced sorghum grind for ethanol.

Figure 3
U.S. corn utilization



Note: Marketing year 2018/19 is projected.
Source: USDA, World Agricultural Outlook Board, *WASDE.*

Projected 2018/19 Corn Supply Lowered on Reduced Imports

There were no new projections from USDA's National Agricultural Statistics Service (NASS), so area and yield are unchanged this month. A 5-million-bushel reduction in imports based on the current pace of trade puts this month's estimate at 45 million bushels and results in a similar reduction in supply to 16,811 million, 122 million below 2017/18.

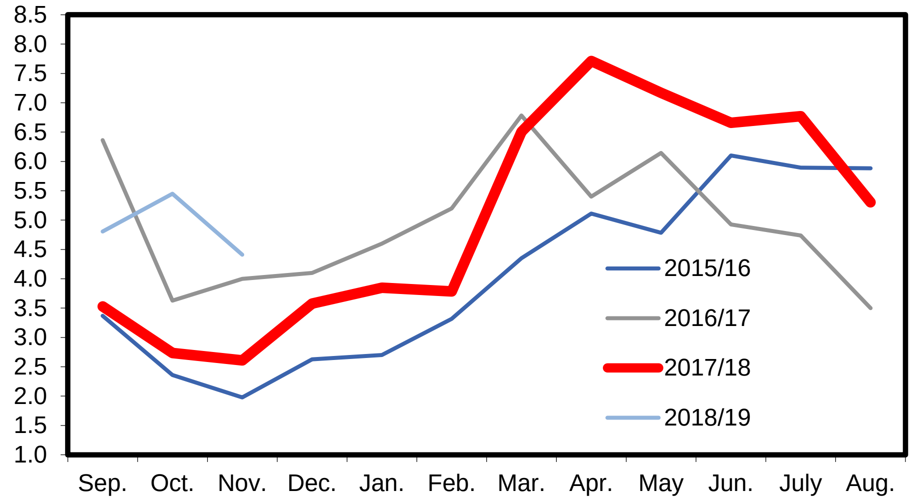
Disappearance Lowered on Slide in Ethanol Production for 2018/19

Projected 2018/19 corn for ethanol is reduced 50 million bushels this month to 5,600 million, with an expected decline in first quarter grind. Based on data from the *Grain Crushings and Co-Products Production* report from NASS and November production based on U.S. Energy Information Administration weekly data, first quarter ethanol production is projected lower year-to-year for the first time since 2012. Corn used for ethanol in 2017/18 totaled 5,605 million bushels.

As a result of lower corn used for ethanol, projected FSI is reduced by a similar amount to 7,080 million bushels, 23 million below 2017/18. Similarly, total disappearance is lowered to 15,030 million bushels, 237 below last year.

Ending stocks reflect reduced supply and disappearance for a 45-million bushel increase to 1,781 million, 359 million below 2017/18. Increased supplies relative to use are manifested in a 0.5 increase in the stocks-to-use ratio to 11.9 this month. The stocks-to-use ratio in 2017/18 is estimated at 14.5.

Figure 4
Monthly U.S. corn exports
Million metric tons

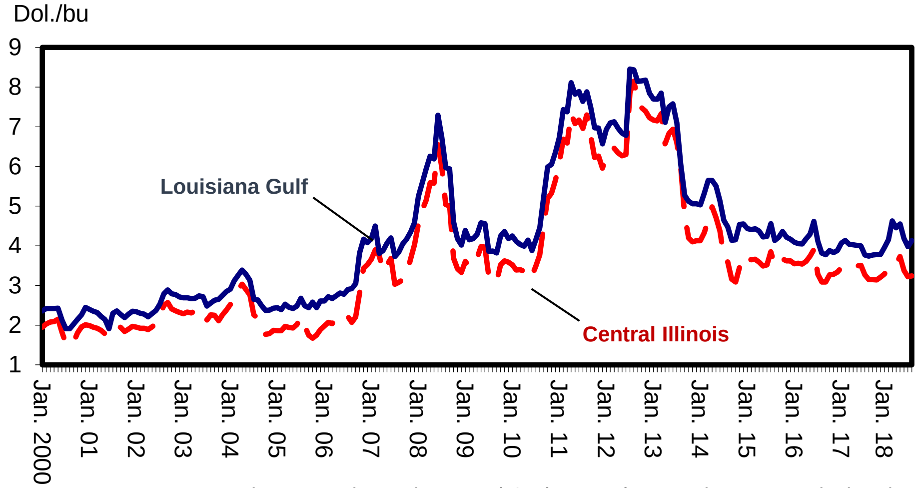


Source: USDC, U.S. Census, August 2018 *Grain Inspections*.

2018/19 Corn Price Unchanged

The projected average price received by corn farmers for 2018/19 has a range $3.20 to $4.00 per bushel for a midpoint price of $3.60, unchanged from last month's projection and $0.24 higher than the 2017/18 season-average price of $3.36 per bushel.

Figure 5
Monthly corn (yellow #2) prices for Central Illinois and Louisiana Gulf

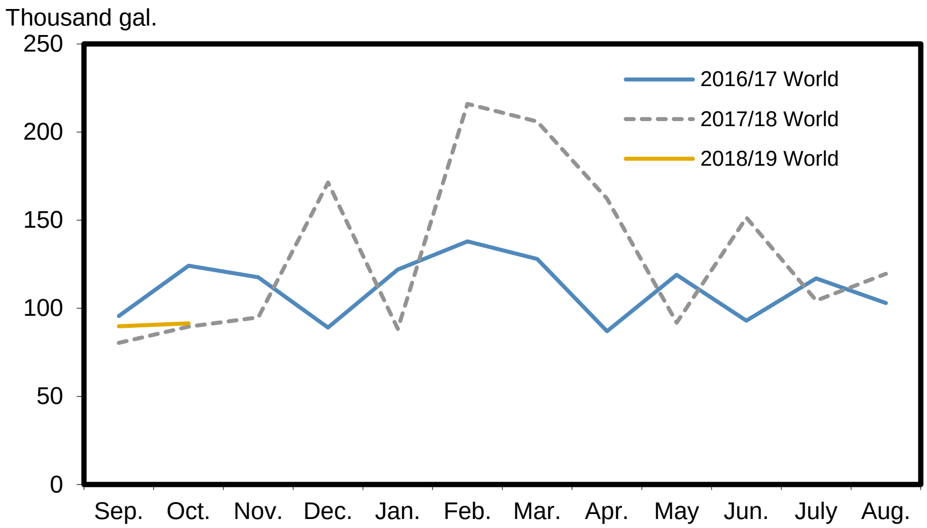


Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service, http://marketnews.usda.gov/portal/lg.

2017/18 Fuel Ethanol Exports

U.S. fuel ethanol production of 16,153 million gallons accounted for 5,605 million bushels of corn in 2017/18, 173 million over the previous year. Of total fuel ethanol production, 1,636 million gallons, or 10 percent of total use, was exported. In a mature market such as that for fuel ethanol in the United States, exports are a significant area for potential contraction or expansion since other sectors are relatively stable and dependent on gasoline consumption, which is expected to decline in the long term.

Figure 6
U.S. fuel ethanol exports

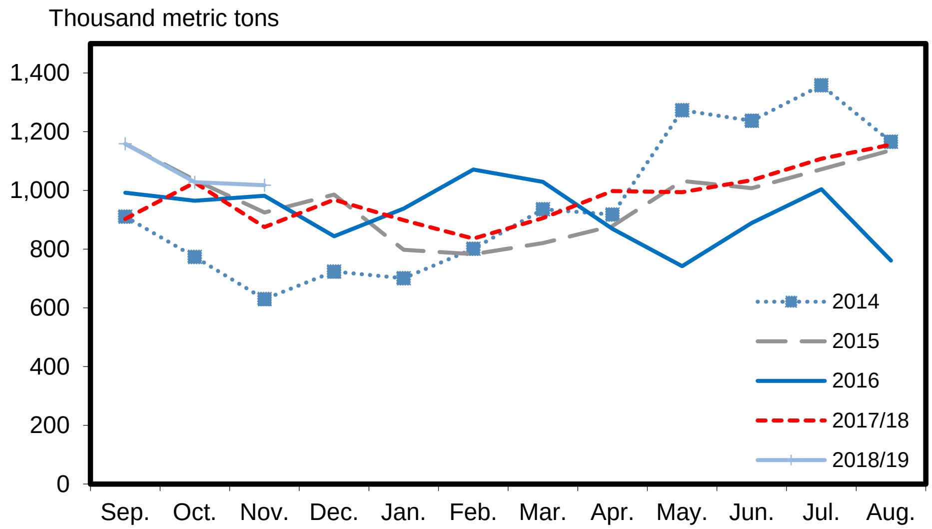


Source: USDC, U.S. Census Bureau.

Pace of Dried Distillers Grains With Solubles Exports Faster Than Last Year

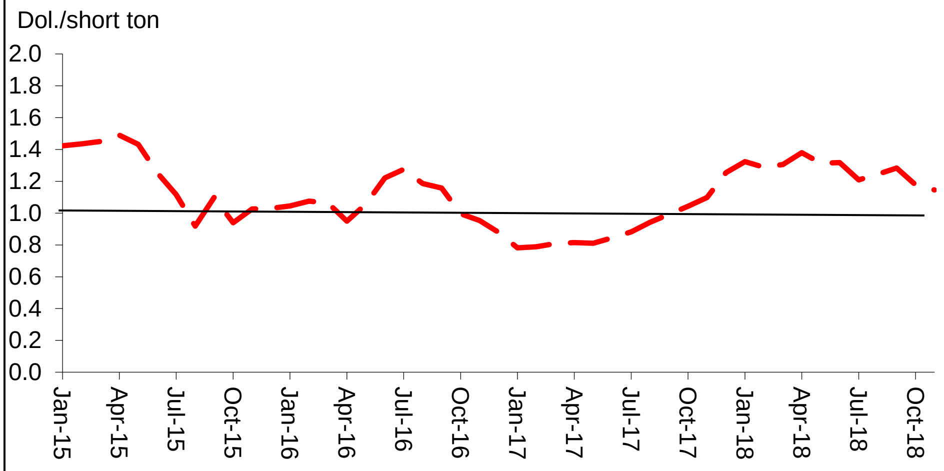
September-October shipments of dried distillers grains with solubles (DDGS) were 7.7 percent above last year at 2,046 million metric tons. For the 2 months, major destinations were Mexico, Vietnam, Thailand, South Korea, and Indonesia, with these countries accounting for over half of total shipments. Expanding animal protein consumption in these and other countries has created demand for DDGS for use in feed rations.

Figure 7
U.S. dried distillers grains with solubles exports



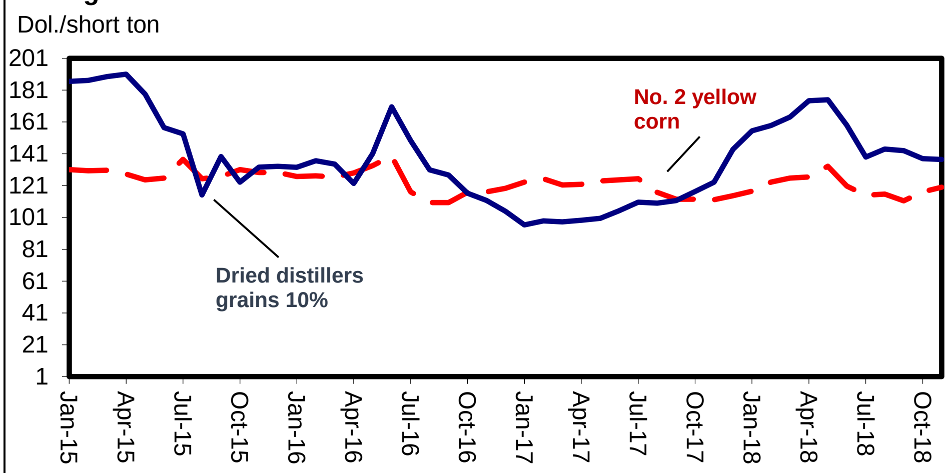
Source: USDA Economic Research service with data from U.S. Census Bureau.

Figure 8a
Monthly price ratio:Central Illinois distillers dried grains and corn



Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service, http://marketnews.usda.gov/portal/lg.

Figure 8b
Monthly prices for Central Illinois no. 2 yellow corn and corn distillers dried grain

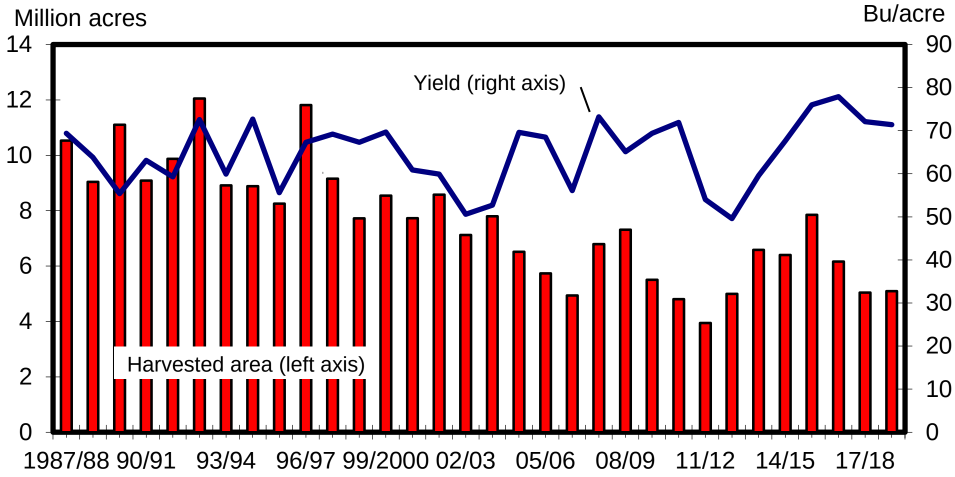


Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service, http://marketnews.usda.gov/portal/lg.

2018/19 Lower Sorghum Use for Ethanol Production

Total production and supply remain consistent from prior estimates at 363.7 million bushels and 398.5 million bushels, respectively.

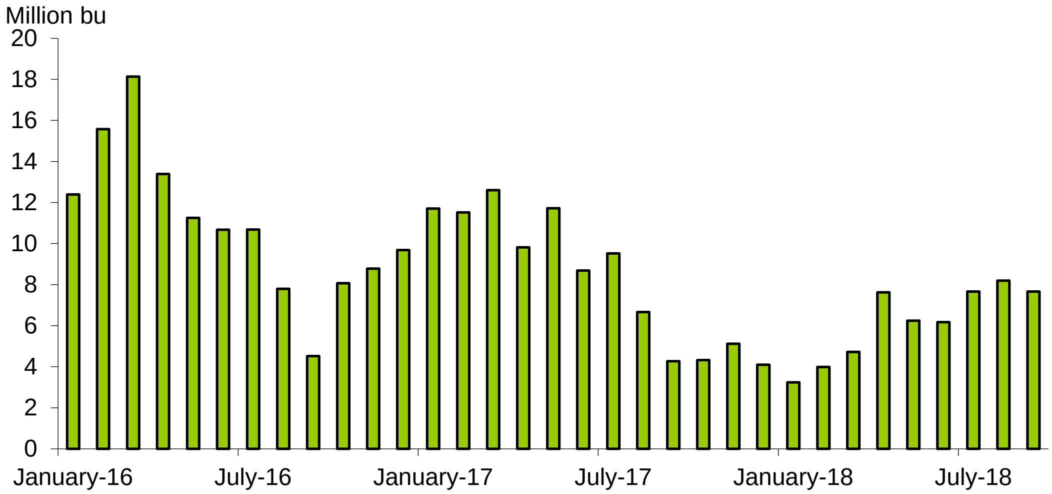
Figure 9
U.S. sorghum harvested area and yield



Sources: USDA, National Agricultural Statistics Service, *Quick Stats* and USDA, World Agricultural Outlook Board*, WASDE.*

Total use in 2018/19 is projected to be 360.0 million bushels. However, there is an estimated 15.0-million-bushel increase in feed and residual. This change is driven by a 15.0-million-bushel decrease in use for ethanol production.

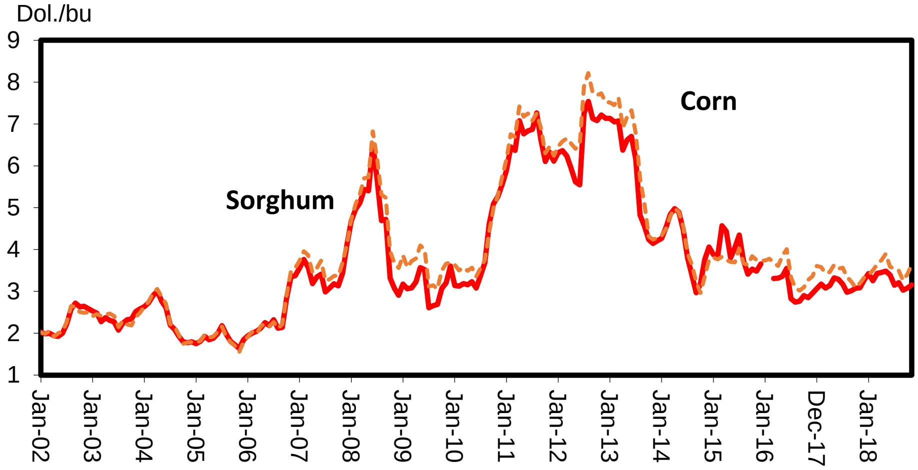
Figure 10
U.S. sorghum for ethanol use by month



Note: Months for which data were withheld to avoid disclosure are shown as null.
Source: USDA, National Agricultural Statistics Service, *Grain Crushings and Co-Products Production.*

The season-average price remains constant for the prior estimate at $3.40, with the estimated price ranging from $3.00 to $3.80 per bushel. This would be the highest price observed since 2014/15 if realized.

Figure 11
Monthly yellow no.2 grain sorghum and corn prices for Kansas City



Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service, http://marketnews.usda.gov/portal/lg.

2018/19 Barley Supply Falls Due to Smaller Imports

Barley production in 2018/19 remains unchanged at 94.5 million bushels. Total supply is reduced by 5.0 million bushels due to a reduced estimate of barley imports. Imports are anticipated to be 10.0 million bushels, down from 15.0 million.

There are no changes to barley use in 2018/19, with total domestic use anticipated at 175.0 million bushels. Ending stocks are projected down 5.0 million bushels to 82.6 million due to the change in imports.

The season-average price is lowered by $0.10 from the prior estimate at $4.55, with the estimated price ranging from $4.10 to $5.00 per bushel.

2018/19 Oats Prices Anticipated To Be Slightly Down

Oats supply, use, and ending stocks in 2017/18 and 2018/19 remain unchanged in December from November. The season-average oats price is reduced by $0.05 to $2.65. This is due to the low end of the price range being reduced from $3.00 to $2.90, while the high end of the estimate remains constant at $2.40 per bushel.

International Outlook

Ukrainian Corn Yields Push Record Further

World coarse grain production for 2018/19 is projected slightly higher this month, as higher projections for Ukraine and the European Union (EU) are almost offset by lower crops for South Africa and Canada. The Black Sea region has been enjoying off-the-chart favorable weather, and record corn yields are especially pronounced in countries such as Ukraine, Romania, Bulgaria, Slovakia, and Moldova.

Ukraine's corn production forecast for 2018/19 is up another 1.5 million tons this month to 35.0 million, 13 percent higher than the previous record output of 30.9 million tons in 2013/14. Late harvest reports in the north-central part of the country indicate even higher yields than projected before. The currently projected corn yield is 18 percent above the previous record and exceeds corn yields in the EU. As already discussed in the November outlook report, Ukraine has been enjoying ideal corn-growing conditions this year, and the country is expanding investment in its corn production technology.

Corn output is boosted for the ***EU***, with yields in ***Romania***, the country that borders Ukraine, topping last year's record. Romanian corn yields substantially improved after farmers started to plant corn much earlier than usual, so that the crop went through pollination earlier and escaped predictable July heat. ***EU*** corn is projected up 0.9 million tons this month to 60.4 million.

South Africa is in the middle of its corn-planting period, but drought in some of its major corn-producing areas—the Free State and North West—delayed planting for more than 40 days. In some areas, precipitation for October-November was the lowest since 1981, and farmers planted only about 5 percent of intended area. Although the planting window in the eastern part of the country's Corn Belt is open through mid-January, it is going to close soon in the western part. That will make it increasingly unlikely that farmers will be able to plant the area that they intended to sow at the beginning of October. Corn area in South Africa is reduced by 0.2 million hectares to 2.4 million, with corn output down 1.0 million tons to 12.0 million.

Statistics Canada reported survey-based production for 2018 crops, with minor adjustments for coarse grains, specifically for corn, down 0.6 million tons to 13.9 million. Total coarse grain production in ***Canada*** is down 0.7 million tons this month to 26.2 million.

For at a glance information and specific causes of the revisions and details of this month's changes in coarse grain production, see tables A1 and A2 below.

Table A1 - World and U.S. coarse grain production at a glance (2018/19), December 2018

	Region or country	Production	Change from previous month[1]	YoY change[2]	Comments
		Million tons			c
Coarse grain production (total)					
	World	1,373.6	+0.3	+16.3	
	Foreign	988.5	+0.3	+15.4	Changes for coarse grains are mainly offsetting. See table A2.
	United States	385.1	No change	+0.9	See section on U.S. domestic output.
World production of coarse grains by type of grain					
CORN					
	World	1,099.9	+1.0	+23.7	
	Foreign	728.4	+1.0	+23.2	Increases for Ukraine, the EU[3], and Thailand are partly offset by reductions for South Africa and Canada. See table A2.
	United States	371.5	No change	+0.5	See section on U.S. domestic output.
BARLEY					
	World	140.7	-0.6	-3.3	
	Foreign	138.0	-0.6	-3.5	Lower EU[3], Australian, and Canadian barley output. See table A2.
	United States	3.3	No change	+0.2	See section on U.S. domestic output.
SORGHUM					
	World	58.9	+0.1	+1.1	
	Foreign	49.7	+0.1	+1.1	Higher projection for Mexico is partly offset by a small reduction in Brazil. See table A2.
	United States	9.2	No change	No change	See section on U.S. domestic output.
OATS					
	World	22.7	-0.2	-0.7	
	Foreign	21.9	-0.2	-0.8	Lower projection for Australia. See table A2.
	United States	0.8	No change	+0.1	See section on U.S. domestic output.
RYE					
	World	10.5	-0.1	-1.8	
	Foreign	10.3	-0.1	-1.8	Lower projection for Canada. See table A2.
	United States	0.2	No change	No change	See section on U.S. domestic output.

[1]Change from previous month. [2]YoY: year over year changes. [3]European Union. Fractional changes are also made for Canadian mixed grains.

For changes and notes by country, see table A2.

Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online database.

See table A2 for the whole list and explanations of this month's coarse grain production revisions by country and type of grain.

Table A2 - Coarse grain foreign production by country at a glance, December 2018						
	Type of crop	Crop year	Production	Change in forecast[1]	YoY[2] change	Comments
			Million tons			
Coarse grain production by country and by type of grain (2018/19)						
UKRAINE						
↑	Corn	*Oct-Sep*	35.0	+1.5	+10.9	With about 98 percent of area harvested, corn yields moved further up, pushing record yields higher. See report text.
EUROPEAN UNION (EU)						
↑	Corn	*Oct-Sep*	60.4	+0.9	-1.7	This month, corn yields and production in ***Romania*** (which borders Ukraine in the north) are projected to exceed previous records, with corn output reaching 13.5 million tons.
↓	Barley	*Jul-Jun*	57.0	-0.4	-1.9	The reduction comes mainly from lower projected barley yield in Spain, based on the latest national Agricultural Ministry data.
SOUTH AFRICA						
↓	Corn	*May-Apr*	12.0	-1.0	-1.5	Dry conditions in the major corn areas are causing planting delays and are expected to reduce corn area in the North West and Free State. October-November precipitation is the lowest since 1981.
CANADA						
↓	Corn	*Sep-Aug*	13.9	-0.6	-0.2	The change is based on the November Statistics Canada Farm Survey, indicating lower area and yields for corn.
↓	Barley	*Aug-Jul*	8.4	-0.1	+0.5	The change is based on the November Statistics Canada Farm Survey, indicating slightly higher area but lower yields for barley.
↑	Mixed grain	*Aug-Jul*	0.3	+0.1	+0.1	The change is based on the November Statistics Canada Farm Survey, indicating slightly higher area and yields for mixed grain.
↓	Rye	*Aug-Jul*	0.3	-0.1	-0.1	The change is based on the November Statistics Canada Farm Survey, indicating slightly lower area and yields for rye.
AUSTRALIA						
↓	Barley	*Nov-Oct*	7.3	-0.1	-1.6	The Australian Bureau of Agricultural and Resource Economics and Sciences (ABARES) reported preliminary forecasts for area and yields for 2018/19 grains. Based on ABARES area information and a complicated mix of favorable (in the west) and drastic (in the east) growing conditions, projected harvested area is reduced further as more drought-damaged fields are being cut to hay in the eastern part of the country. However, in Western Australia, despite early dryness, timely rains improved crops considerably and near-record yields boost production.
↓	Oats	*Nov-Oct*	0.9	-0.2	-0.2	Projected harvested area and yield for oats are both reduced based on the December ABARES report. See above.
MEXICO						
↑	Sorghum	*Oct-Sep*	4.6	+0.2	+0.1	Higher planting intensions for winter sorghum, which is about 60 percent of the total sorghum crop.
THAILAND						
↑	Corn	*Jul-Jun*	5.3	+0.2	+0.3	Higher area for off-season corn driven by government incentives.

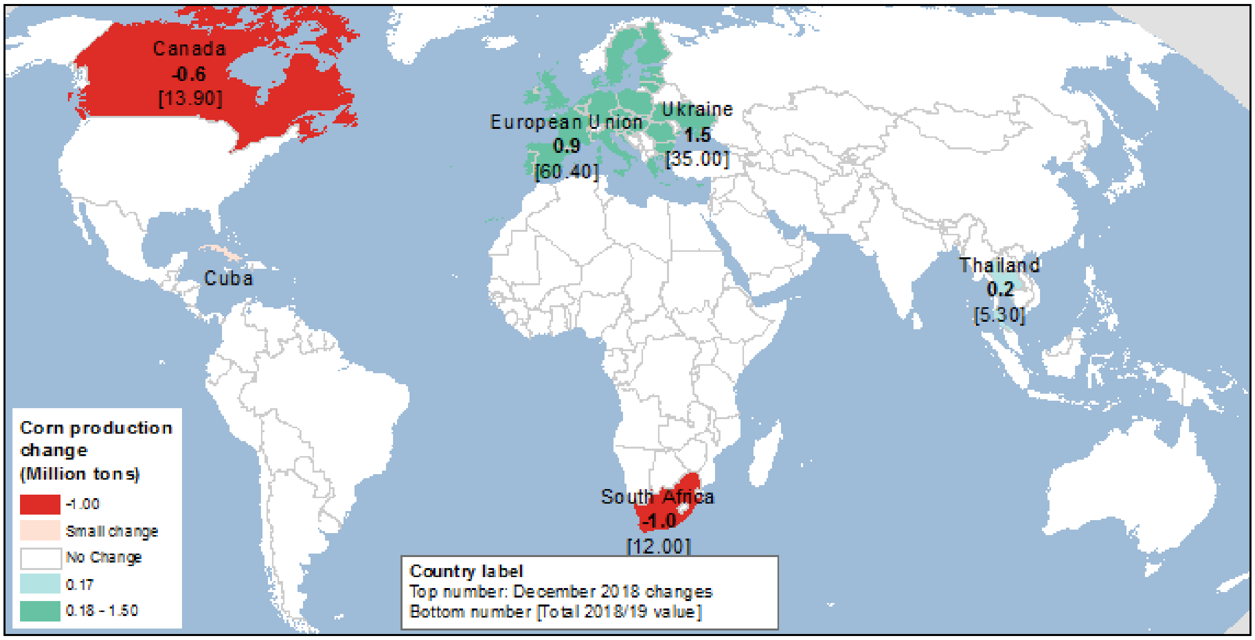
[1]Change from previous month. Smaller changes are made for several countries, see map A for changes in ***corn*** production.

[2] YoY: year over year changes.

Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online database.

For a visual display of this month's changes in corn production, see map A.

Map A – Corn production changes for 2018/19 December 2018



Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online database.

Coarse Grain Use Driven by Changes for the United States

Global coarse grain disappearance projected for 2018/19 is down 1.2 million tons this month to 1,407.7 million. A reduction of 1.3 million tons for the forecast for U.S. use is driving the global change, while changes in coarse grain foreign use are minimal. Coarse grain use is projected up 0.8 million tons for Vietnam, where price-competitive corn feeding is expected to grow, which will support expansion of the pork sector. Corn feeding is also projected 0.7 million tons higher for the EU, where extra corn production by Romania is expected to be used for feeding within the region. Corn feeding is also up 0.5 million tons for Iran, where higher corn imports from Ukraine will be used for feeding poultry. Smaller increases are projected for Australia, Canada, Japan, Taiwan, and several other countries (see map B for the changes in corn feed and residual use). For South Africa (lower corn supplies) and China (lower barley imports and feeding), coarse grain use is lowered this month, down 0.9 and 0.6 million tons, respectively.

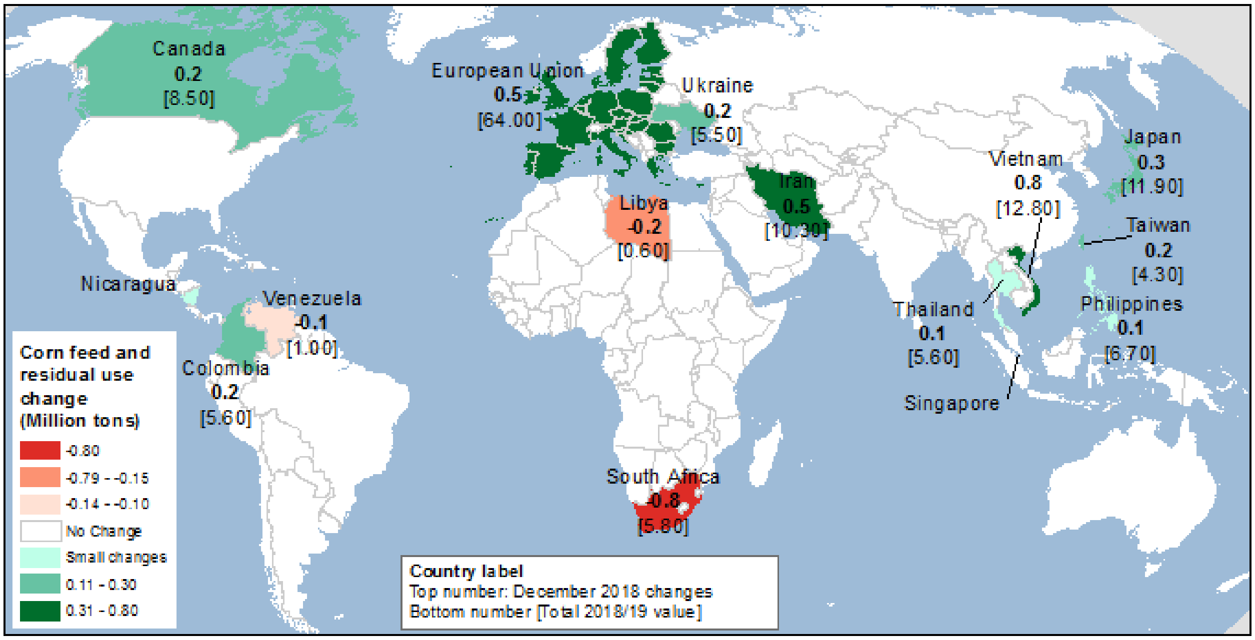
In the United States, slightly higher feed use is more than offset by a decrease in use of corn and sorghum for ethanol production (see domestic section for a discussion).

It is important to recognize that in USDA's *World Agricultural Supply and Demand Estimates*, world use is not a simple sum of all countries' domestic consumption. Rather, it is adjusted for global net trade, with local marketing year exports added to use and imports deducted. This adjustment is made based on the assumption that, at the global level, world trade must balance.

However, given differences in data sources, country coverage, and timing of shipments, the difference between exports and imports at the global level is often difficult to project in any given year. Often, a change in projected world use is the result of changes in local marketing year trade (for a detailed explanation of this, see *Feed Outlook*, February 2011, page 7).

Map B provides a visual display of this month's country changes in corn feed and residual use.

Map B – Corn feed and residual use changes for 20118/19, December 2018



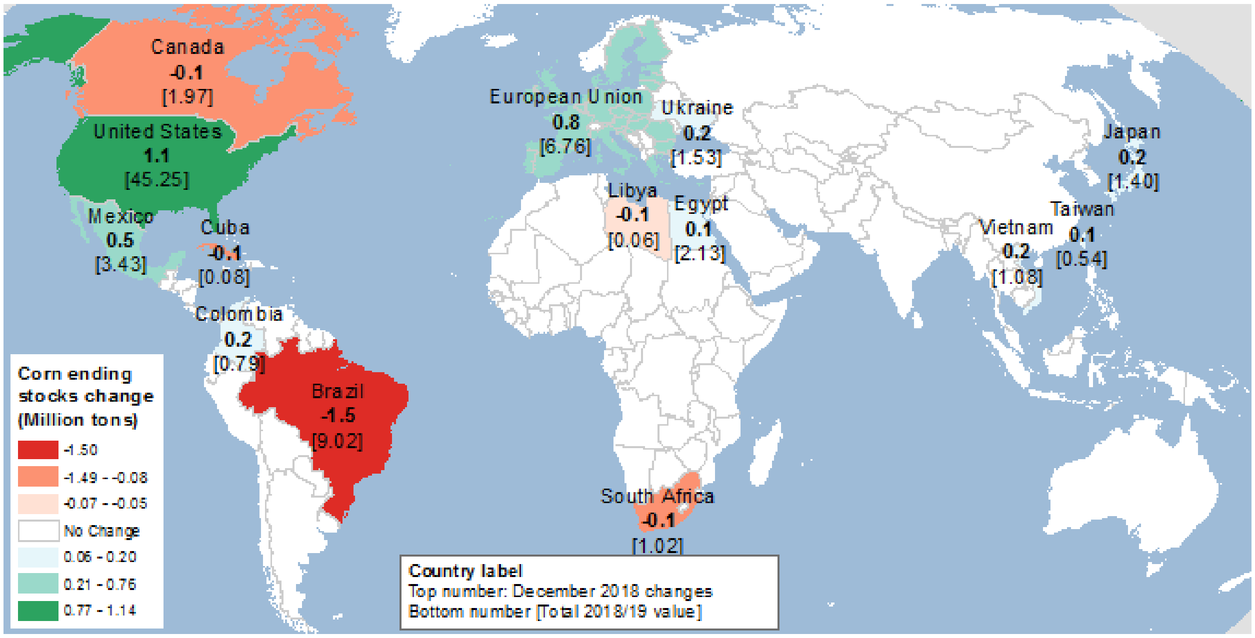
Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution database.

Coarse Grain Stocks Are Up

Both global coarse grain use and supplies are reduced this month, boosting expected global ending stocks. World 2018/19 coarse grain ending stocks are forecast 1.1 million tons higher than the November projection, to reach 335.2 million. The changes in foreign coarse grain stocks are virtually offsetting, and the global change is driven mainly by higher U.S. corn stocks (see the discussion in the domestic section). The largest change in foreign stocks is a projected reduction in corn stocks for Brazil, down 1.5 million tons due to increased corn exports. All other country changes are smaller, the largest being increases for Mexico, up 0.6 million tons, reflecting higher sorghum production and lower corn exports, and for the EU, up 0.5 million tons, because of higher corn output (see map C).

All other changes for foreign corn stocks are less than 0.3 million tons. Map C provides a visual display of this month's country changes in corn ending stocks.

Map C – Corn ending stocks changes for 2018/19, December 2018



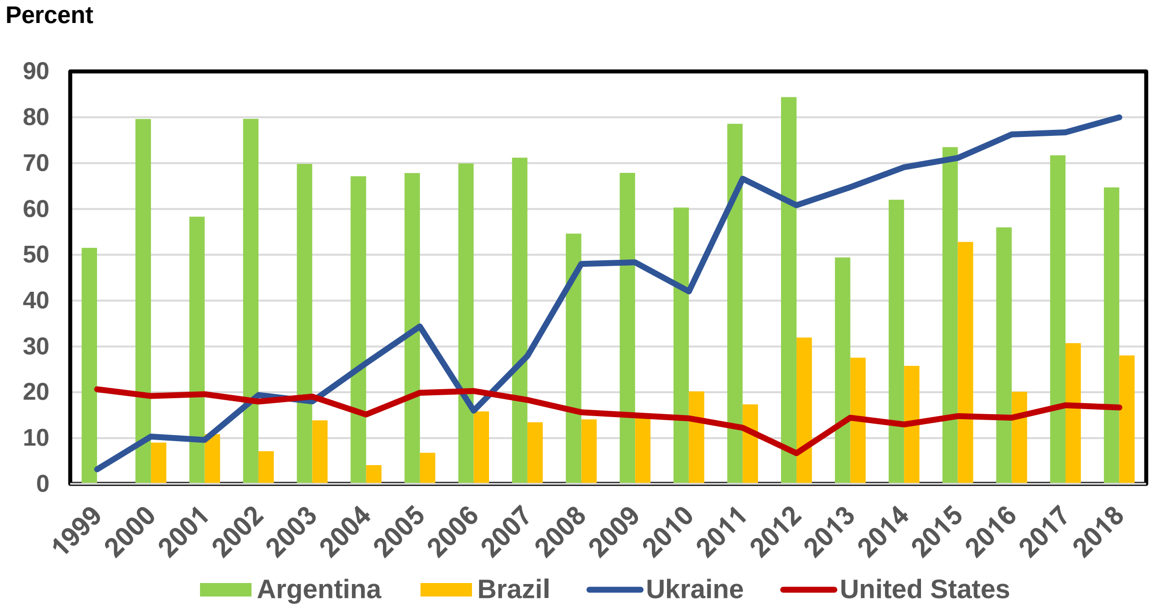
Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution database

Ukraine and Brazil Lead Rise in Corn Exports

Projected 2018/19 world coarse grain trade for the international trade year (October-September) is up 1.6 million tons to 198.6 million this month, with higher corn trade that is partly offset by a small reduction in barley.

Corn trade is projected up 2.3 million tons this month to reach 163.2 million. Corn supplies are projected even higher this month in Ukraine, as record corn yields expand supplies of this export-oriented country (see figure 12). Also, the low cost of production and long-term currency depreciation make the country a formidable competitor in the global corn market. Ukrainian corn exports are projected 1.0 million tons higher to reach 28.0 million, slightly ahead of Brazil and Argentina, making the country the second largest corn exporter after the United States. Since 2010, Ukraine has more than tripled its corn production, as well as increased exports almost sixfold. Ukrainian corn is very price competitive, which facilitates expansion of export markets. China has become the top single country destination for Ukrainian corn, with Egypt, EU countries, and the countries of South and Southeast Asia becoming Ukraine's major foreign markets. In most of these countries, consumer incomes, and therefore demand for livestock products, are growing, and the appetite for feed grains is supporting corn import growth.

Figure 12. Share of exports in corn output for major exporters



Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution database

In the second part of October, the pace of Brazilian corn exports started to accelerate, and by the end of November, weekly shipments exceeded those from a year before. The export growth at this time of the crop season is not typical and probably can be attributed to the country's transportation problems that slowed down corn exports in previous months when Brazil was heavily exporting soybeans. Grain crop cycles in the southern and northern hemispheres differ substantially, which makes comparing annual trade volumes between the two hemispheres challenging. For this reason, USDA's Foreign Agricultural Service created the concept of an international October-September trade year that allows such comparison. Brazilian corn exports in the months of October through February can be allocated to both the local marketing year (March-February) and to the international trade year (October-September), which is one year ahead of the local year. For example, the current December 2018 is part of both the local 2017/18 year and the 2018/19 trade year. Consequently, the higher recent pace of Brazilian corn exports is boosting both the local 2017/18 and trade 2018/19 year by 1.5 million tons, each. With this increase, Brazilian trade-year corn exports are now projected to reach 26.5 million tons.

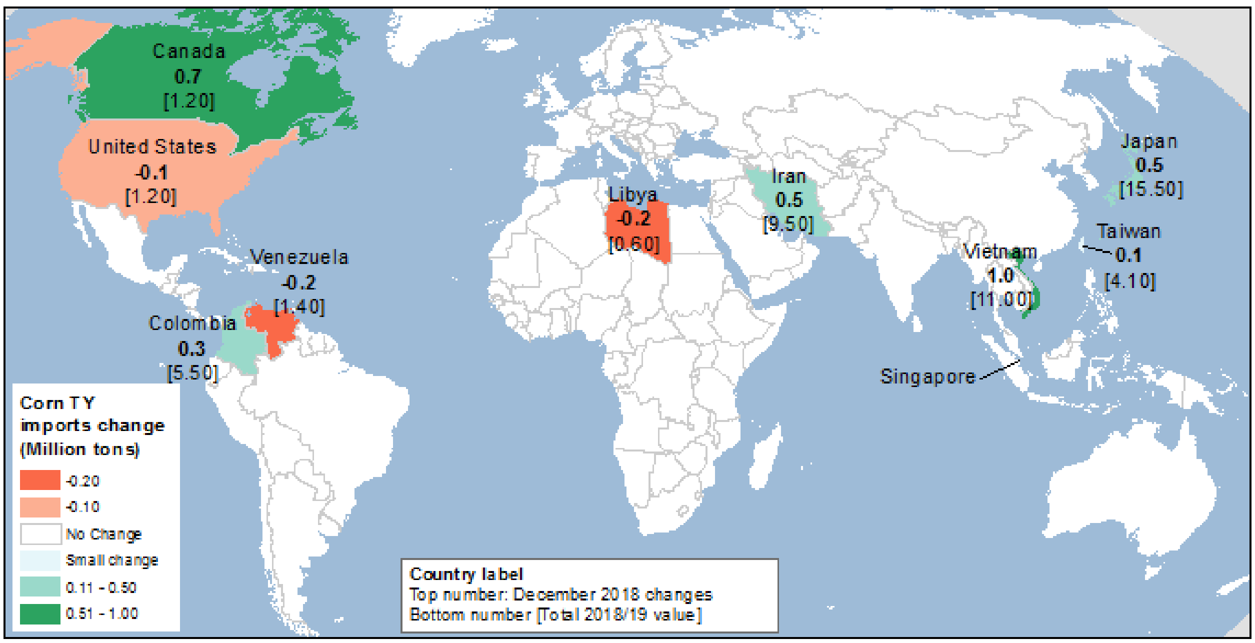
U.S. corn exports are unchanged this month at 62.0 million tons, a close-to-record level, as the October census came in with much higher exports than inspections previously indicated. This was likely because truck and railroad shipments to Mexico and Canada are by law exempted from being inspected. U.S. corn imports are lowered by 0.1 million tons because of very low outstanding sales that will have to improve to reach the forecast.

Barley global trade is down 0.3 million tons this month to 27.5 million. Smaller barley supplies in Australia are expected to reduce that country's exports, such that China will be unable to import the previously projected quantities from its main barley supplier. Consequently, both Australian barley exports and Chinese imports are down 0.3 million tons each. U.S. barley imports are also reduced, down 0.1 million tons to 0.3 million, reflecting the low pace of imports.

Oats trade is also down 0.4 million tons to 2.1 million, with lower supplies in Australia and the EU. Oats imports are reduced 0.3 million tons for China.

For information on this month's main changes in 2017/18 corn imports, see map D.

Map D – Corn trade year import changes for 2018/19, December 2018



Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online database.

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Table 1--Feed grains: U.S. quarterly supply and disappearance (million bushels), 12/13/2018

Commodity, market year, and quarter 1/			Beginning stocks	Production	Imports	Total supply	Food, seed, and industrial use	Feed and residual use	Exports	Total disappear-ance	Ending stocks	Farm price 2/ (dollars per bushel)
Corn	2015/16	Sep-Nov	1,731	13,602	13	15,346	1,631	2,178	301	4,111	11,235	3.65
		Dec-Feb	11,235		18	11,253	1,652	1,438	341	3,431	7,822	3.64
		Mar-May	7,822		21	7,843	1,655	914	563	3,132	4,711	3.60
		Jun-Aug	4,711		16	4,727	1,709	587	694	2,990	1,737	3.55
		Mkt yr	1,731	13,602	68	15,401	6,647	5,118	1,899	13,664	1,737	3.61
	2016/17	Sep-Nov	1,737	15,148	14	16,899	1,689	2,277	548	4,514	12,386	3.26
		Dec-Feb	12,386		12	12,398	1,711	1,525	539	3,776	8,622	3.39
		Mar-May	8,622		17	8,639	1,741	982	687	3,410	5,229	3.46
		Jun-Aug	5,229		14	5,243	1,743	686	520	2,949	2,293	3.40
		Mkt yr	1,737	15,148	57	16,942	6,885	5,470	2,294	14,649	2,293	3.36
	2017/18	Sep-Nov	2,293	14,604	11	16,908	1,744	2,248	349	4,342	12,567	3.21
		Dec-Feb	12,567		9	12,575	1,738	1,503	441	3,683	8,892	3.30
		Mar-May	8,892		8	8,900	1,781	943	871	3,595	5,305	3.58
		Jun-Aug	5,305		9	5,314	1,793	603	777	3,174	2,140	3.46
		Mkt yr	2,293	14,604	36	16,934	7,058	5,298	2,438	14,793	2,140	3.36
	2018/19	Mkt yr	2,140	14,626	45	16,811	7,080	5,500	2,450	15,030	1,781	3.25-3.95
Sorghum	2015/16	Sep-Nov	18.41	596.75	3.60	618.76	22.14	159.65	114.44	296.23	322.54	3.54
		Dec-Feb	322.54		0.98	323.51	41.77	-6.14	86.30	121.93	201.58	3.17
		Mar-May	201.58		0.01	201.59	43.31	-5.53	73.46	111.24	90.35	3.10
		Jun-Aug	90.35		0.01	90.36	29.73	-43.65	67.65	53.73	36.63	3.33
		Mkt yr	18.41	596.75	4.59	619.75	136.95	104.32	341.85	583.12	36.63	3.31
	2016/17	Sep-Nov	36.63	480.26	0.00	516.90	21.65	145.29	41.81	208.75	308.15	2.62
		Dec-Feb	308.15		0.00	308.15	33.06	5.04	89.32	127.41	180.75	2.69
		Mar-May	180.75		0.00	180.75	34.62	2.41	59.02	96.04	84.71	2.79
		Jun-Aug	84.71		1.73	86.44	25.30	-19.99	47.67	52.98	33.46	3.53
		Mkt yr	36.63	480.26	1.74	518.63	114.61	132.75	237.82	485.18	33.46	2.79
	2017/18	Sep-Nov	33.46	363.83	1.91	399.20	13.92	112.09	45.71	171.71	227.49	3.05
		Dec-Feb	227.49		0.05	227.55	9.24	6.72	71.33	87.29	140.26	3.18
		Mar-May	140.26		0.01	140.27	15.47	-14.11	73.58	74.93	65.33	3.40
		Jun-Aug	65.33		0.04	65.38	20.45	-4.46	14.53	30.52	34.85	3.78
		Mkt yr	33.46	363.83	2.02	399.31	59.07	100.24	205.15	364.46	34.85	3.22
	2018/19	Mkt yr	34.85	363.67		398.52	110.00	150.00	100.00	360.00	38.52	3.05-3.75

Table 1--Feed grains: U.S. quarterly supply and disappearance, cont. (million bushels), 12/13/2018

Commodity, market year, and quarter 1/			Beginning stocks	Production	Imports	Total supply	Food, seed, and industrial use	Feed and residual use	Exports	Total disappear-ance	Ending stocks	Farm price 2/ (dollars per bushel)
Barley	2015/16	Jun-Aug	79	218	4	301	41	38	3	82	219	5.39
		Sep-Nov	219		4	223	37	1	4	43	180	5.52
		Dec-Feb	180		7	187	36	11	3	50	138	5.66
		Mar-May	138		4	141	44	-5	1	39	102	5.43
		Mkt yr	79	218	19	315	158	44	11	213	102	5.52
	2016/17	Jun-Aug	102	200	2	304	41	32	1	74	230	4.99
		Sep-Nov	230		2	232	39	-0	1	40	193	4.78
		Dec-Feb	193		2	195	37	12	1	50	145	5.04
		Mar-May	145		3	148	45	-6	2	41	106	4.96
		Mkt yr	102	200	10	312	162	39	4	205	106	4.96
	2017/18	Jun-Aug	106	142	2	251	41	29	2	71	180	
		Sep-Nov	180		2	182	38	-17	2	23	159	
		Dec-Feb	159		2	161	35	-6	1	31	130	
		Mar-May	130		3	133	43	-5	1	38	94	
		Mkt yr	106	142	9	257	157	1	5	163	94	4.47
	2018/19	Jun-Aug	94	153	1	249	40	33	1	74	175	
		Mkt yr	94	153	10	258	155	15	5	175	83	4.10-5.00
Oats	2015/16	Jun-Aug	54	90	18	161	18	49	0	68	94	2.15
		Sep-Nov	94		26	120	18	19	1	37	83	2.08
		Dec-Feb	83		25	108	17	15	0	33	75	2.09
		Mar-May	75		16	91	23	10	1	34	57	2.11
		Mkt yr	54	90	86	229	77	94	2	172	57	2.12
	2016/17	Jun-Aug	57	65	21	142	19	44	1	64	79	1.87
		Sep-Nov	79		28	106	18	12	1	31	75	2.03
		Dec-Feb	75		24	100	17	18	1	36	63	2.35
		Mar-May	63		18	81	22	8	1	31	50	2.42
		Mkt yr	57	65	90	212	76	82	3	161	50	2.06
	2017/18	Jun-Aug	50	49	19	119	19	27	1	47	72	2.35
		Sep-Nov	72		30	102	18	17	1	36	66	2.58
		Dec-Feb	66		20	86	18	13	1	31	55	3.03
		Mar-May	55		20	75	23	11	1	34	41	2.94
		Mkt yr	50	49	89	189	78	68	2	148	41	2.59
	2018/19	Jun-Aug	41	56	19	116	19	22	0	41	75	2.55
		Mkt yr	41	56	95	192	79	75	2	156	36	2.40-2.90

Latest market year is projected; previous market year is estimated. Totals may not add due to rounding.
1/ Corn and sorghum, September 1-August 31 marketing year; Barley and oats, June 1-May 31 marketing year.
2/ Average price received by farmers based on monthly price weighted by monthly marketings. For the latest market year, quarterly prices are calculated by using the current monthly prices weighted by the monthly marketings for those months for the previous 5 years divided by the sum of marketings for those months.
Source: USDA, World Agricultural Outlook Board, World Agricultural Supply and Demand Estimates and supporting materials.

Data run: 12/13/2018

Table 2--Feed and residual use of wheat and coarse grains, 12/13/2018

Market year and quarter 1/		Corn (million metric tons)	Sorghum (million metric tons)	Barley (million metric tons)	Oats (million metric tons)	Feed grains (million metric tons)	Wheat (million metric tons)	Energy feeds (million metric tons)	Grain consuming animal units (millions)	Energy feeds per grain consuming animal unit (tons)
2016/17	Q1 Sep-Nov	57.8	3.7	-0.0	0.2	61.8	-0.8	60.9		
	Q2 Dec-Feb	38.7	0.1	0.3	0.3	39.5	-0.4	39.1		
	Q3 Mar-May	24.9	0.1	-0.1	0.2	25.0	-1.7	23.3		
	Q4 Jun-Aug	17.4	-0.5	0.6	0.4	18.0	4.5	22.5		
	MY Sep-Aug	138.9	3.4	0.8	1.2	144.3	1.6	145.9	95.7	1.5
2017/18	Q1 Sep-Nov	57.1	2.8	-0.4	0.3	59.9	-1.5	58.4		
	Q2 Dec-Feb	38.2	0.2	-0.1	0.2	38.5	-0.4	38.1		
	Q3 Mar-May	23.9	-0.4	-0.1	0.2	23.7	-1.2	22.5		
	Q4 Jun-Aug	15.3	-0.1	0.7	0.4	16.3	5.4	21.7		
	MY Sep-Aug	134.6	2.5	0.1	1.2	138.4	2.3	140.7	98.9	1.4
2018/19	MY Sep-Aug	139.7	3.8	0.5	1.3	145.4	3.6	149.0	100.9	1.5

1/ Corn and sorghum, September 1-August 31 marketing year; Barley and oats, June 1-May 31 marketing year.
Source: USDA, World Agricultural Outlook Board, World Agricultural Supply and Demand Estimates and supporting materials.

Table 3--Cash feed grain prices, 12/13/2018

Mkt year and month 1/	Corn, No. 2 yellow, Central IL (dollars per bushel)			Corn, No. 2 yellow, Gulf ports, LA (dollars per bushel)			Sorghum, No. 2 yellow, Gulf ports, LA (dollars per cwt)
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17
Sep	3.09	3.15	3.12	3.78	3.74	3.93	
Oct	3.27	3.15	3.28	3.88	3.77	4.07	
Nov	3.28	3.14	3.36	3.83	3.78	4.09	
Dec	3.34	3.21		3.88	3.79		
Jan	3.45	3.29		4.07	3.96		
Feb	3.51	3.45		4.14	4.15		
Mar	3.40	3.52		4.04	4.36		
Apr	3.41	3.54		3.98	4.46		
May	3.47	3.73		4.03	4.55		
Jun	3.49	3.38		4.01	4.19		7.56
Jul	3.51	3.22		4.00	3.98		
Aug	3.27	3.24		3.77	4.13		
Mkt year	3.37	3.34		3.95	4.07		7.56

	Barley, No. 2 feed, Minneapolis, MN (dollars per bushel)			Barley, No. 3 malting, Minneapolis, MN (dollars per bushel)		Oats, No. 2 white heavy, Minneapolis, MN (dollars per bushel)		
	2016/17	2017/18	2018/19	2016/17	2017/18	2016/17	2017/18	2018/19
Jun	2.36	2.05	2.85		4.70	2.58	2.95	2.88
Jul	2.33	2.05	2.85		4.67	2.61	3.17	2.84
Aug	2.08	2.10	2.78		4.70	2.34	2.98	2.91
Sep	1.95	2.10	2.60		4.70	2.29	2.87	2.91
Oct	2.00	2.10	2.60		4.70	2.67	2.97	3.18
Nov	2.00	2.36	2.60			2.84	2.94	3.22
Dec	2.00	2.61			4.85	2.92	2.73	
Jan	2.00	2.65			4.85	2.97	2.90	
Feb	2.00	2.81			4.85	3.07	2.96	
Mar	2.02	2.85		4.70	4.50	2.90	2.79	
Apr	2.05	2.85				2.86	2.72	
May	2.05	2.85				2.88	2.89	
Mkt year	2.07	2.45		4.70	4.72	2.74	2.90	

1/ Corn and sorghum, September 1-August 31 marketing year; Barley and oats, June 1-May 31 marketing year. Simple average of monthly prices for the marketing year.
Source: USDA, Agricultural Marketing Service, http://marketnews.usda.gov/portal/lg.

Data run: 12/12/2018

Table 4--Selected feed and feed byproduct prices (dollars per ton), 12/13/2018

Mkt year and month 1/	Soybean meal, high protein, Central Illinois, IL			Cottonseed meal, 41% solvent, Memphis, TN			Corn gluten feed, 21% protein, Midwest		Corn gluten meal, 60% protein, Midwest	
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2016/17	2017/18
Oct	323.26	319.24	319.15	241.88	229.00	249.00	77.00	80.70	466.13	469.30
Nov	322.42	313.52	310.62	221.00	228.75	240.00	83.50	93.00	477.50	487.24
Dec	321.03	327.17		217.50	232.50		92.83	96.25	501.67	482.88
Jan	332.34	322.60		223.50	259.00		97.50	98.80	502.50	477.60
Feb	334.32	362.85		221.88	303.13		88.13	106.25	516.50	483.13
Mar	320.34	379.85		210.63	323.13		87.13	105.50	505.63	524.75
Apr	305.67	385.85		195.00	263.13		75.00		501.13	
May	293.68	393.55		179.50	262.50		71.00		485.30	
Jun	258.75	355.71		179.38	257.50		68.38		475.75	
Jul	326.04	341.08		200.84	253.13		71.35		467.88	
Aug	301.05	332.50		198.50	260.00		73.10		475.50	
Sep	307.70	318.33		213.75	258.75		75.00		469.25	
Mkt yr	312.22	346.02		208.61	260.88		79.99	96.75	487.06	487.48

	Meat and bone meal, Central US			Distillers dried grains, Central Illinois, IL			Wheat middlings, Kansas City, MO			Alfalfa hay, weighted-average farm price 2/		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19
Oct	237.50	228.00	267.50	116.25	117.30	137.50	79.43	70.36	80.00	135.00	153.00	178.00
Nov	229.00	219.38	257.50	111.70	123.13	137.50	85.53	86.85	105.00	130.00	150.00	
Dec	211.67	221.67		104.84	143.75		101.62	107.88		127.00	149.00	
Jan	255.60	220.00		96.30	155.50		98.25	123.68		126.00	153.00	
Feb	285.00	225.84		98.88	158.88		84.66	114.61		127.00	155.00	
Mar	284.38	275.00		98.25	164.13		80.76	99.69		134.00	165.00	
Apr	266.25	316.25		99.25	174.38		58.03	100.22		150.00	183.00	
May	245.50	293.00		100.50	174.90		48.41	98.90		156.00	189.00	
Jun	248.13	288.75		105.25	158.50		60.39	89.50		154.00	181.00	
Jul	276.25	283.75		110.63	139.30		67.10	64.50		153.00	179.00	
Aug	318.50	265.63		110.00	144.00		63.15	83.50		147.00	177.00	
Sep	301.88	266.25		111.63	142.50		67.48	84.00		149.00	180.00	
Mkt yr	263.31	258.63		105.29	149.69		74.57	93.64		136.00	154.00	

1/ October 1-September 30 except for hay. Simple average of monthly prices for the marketing year except for hay.

2/ May 1-April 30 marketing year. U.S. season-average price based on monthly price received by farmers weighted by monthly marketings.

Source: USDA, Agricultural Marketing Service, http://marketnews.usda.gov/portal/lg, and USDA, National Agricultural Statistics Service, http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp.

Table 5--Corn: Food, seed, and industrial use (million bushels), 12/13/2018

Mkt year and qtr 1/		High-fructose corn syrup (HFCS)	Glucose and dextrose	Starch	Alcohol for fuel	Alcohol for beverages and manufacturing	Cereals and other products	Seed	Total food, seed, and industrial use
2016/17	Q1 Sep-Nov	113.13	88.81	58.20	1,343.08	35.78	49.92	0.00	1,688.92
	Q2 Dec-Feb	106.71	88.53	56.36	1,371.21	36.35	52.33	0.00	1,711.49
	Q3 Mar-May	120.23	96.89	59.70	1,346.10	36.72	54.45	27.25	1,741.34
	Q4 Jun-Aug	126.90	97.13	61.09	1,371.56	37.15	47.60	2.05	1,743.49
	MY Sep-Aug	466.98	371.35	235.35	5,431.95	146.00	204.30	29.30	6,885.23
2017/18	Q1 Sep-Nov	112.55	93.67	59.72	1,391.29	36.46	50.38	0.00	1,744.06
	Q2 Dec-Feb	105.21	87.91	56.87	1,397.46	38.23	52.82	0.00	1,738.50
	Q3 Mar-May	117.97	94.42	58.56	1,388.64	38.50	55.27	28.10	1,781.46
	Q4 Jun-Aug	124.13	95.51	60.88	1,427.43	35.83	48.23	1.50	1,793.50
	MY Sep-Aug	459.86	371.50	236.03	5,604.83	149.00	206.70	29.60	7,057.52
2018/19	MY Sep-Aug	460.00	390.00	240.00	5,600.00	150.00	209.10	30.90	7,080.00

1/ September-August. Latest data may be preliminary or projected.

Source: Calculated by USDA, Economic Research Service.

Date run: 12/12/2018

Table 6--Wholesale corn milling product and byproduct prices, 12/13/2018

Mkt year and month 1/	Corn meal, yellow, Chicago, IL (dollars per cwt) 2017/18	2018/19	Corn meal, yellow, New York, NY (dollars per cwt) 2017/18	2018/19	Corn starch, Midwest 3/ (dollars per cwt) 2017/18	2018/19	Dextrose, Midwest (cents per pound) 2017/18	2018/19	High-fructose corn syrup (42%), Midwest (cents per pound) 2017/18
Sep	16.01	14.97	17.68	16.64	14.41	14.35	39.00	39.25	28.25
Oct	15.94	15.24	17.61	16.91	13.87	13.69	39.00	39.25	28.25
Nov	15.78	15.09	17.45	16.76	13.90	14.14	39.00	39.25	28.25
Dec	15.69		17.35		13.75		39.00		28.25
Jan	15.75		17.42		13.81		39.25		28.25
Feb	16.09		17.76		14.08		39.25		
Mar	16.13		17.80		14.53		39.25		
Apr	16.23		17.90		14.65		39.25		
May	16.41		18.08		14.44		39.25		
Jun	15.64		17.31		14.77		39.25		
Jul	15.28		16.95		14.20		39.25		
Aug	15.35		17.02		13.78		39.25		
Mkt year 2/	15.86		17.53		14.18		39.17		

1/ September-August. Latest month is preliminary.
2/ Simple average of monthly prices for the marketing year.
3/ Bulk-industrial, unmodified.
Source: Milling and Baking News, except for corn starch which is from private industry.

Date run: 12/12/2018

Table 7--U.S. feed grain imports by selected sources (1,000 metric tons) 1/, 12/13/2018

Import and country/region		---------- 2016/17 ---------- Mkt year	Jun-Oct	---------- 2017/18 ---------- Mkt year	Jun-Oct	2018/19 Jun-Oct
Oats	Canada	1,507	666	1,483	651	644
	Sweden	27		41	41	27
	Finland	21	10	16	10	18
	All other countries	0	0	0	0	0
	Total 2/	1,556	677	1,540	703	688
Malting barley	Canada	102	26	87	36	17
	All other countries	17	17	1	0	0
	Total 2/	119	43	88	36	17
Other barley 3/	Canada	89	31	109	44	27
	All other countries	2	1	1	0	0
	Total 2/	90	32	110	44	27

1/ Grain only. Market year (June-May) and market year to date.
2/ Totals may not add due to rounding.
3/ Grain for purposes other than malting, such as feed and seed use.
Source: U.S. Department of Commerce, Bureau of the Census, Foreign Trade Statistics.

Date run: 12/12/2018

Table 8--U.S. feed grain exports by selected destinations (1,000 metric tons) 1/, 12/13/2018

Export and country/region		---------- 2016/17 ---------- Mkt year	Sep-Oct	---------- 2017/18 ---------- Mkt year	Sep-Oct	2018/19 Sep-Oct
Corn	Mexico	13,932	2,203	15,724	2,679	3,239
	Japan	13,557	1,980	13,183	1,023	2,228
	South Korea	5,601	1,374	5,736	147	935
	Colombia	4,733	807	5,083	818	895
	Peru	2,989	474	3,238	586	565
	China (Taiwan)	2,962	368	2,464	78	559
	Saudi Arabia	2,163	274	1,495	0.231	83
	Guatemala	993	165	867	74	238
	Morocco	871	227	748		102
	European Union-27	843	124	1,904	22	0.484
	Costa Rica	819	108	853	136	173
	Dominican Republic	807	120	639	10	154
	China (Mainland)	807	2	306	7	6
	Canada	704	187	1,663	235	404
	Sub-Saharan Africa	605	83	137	0.245	14
	El Salvador	593	71	457	39	74
	Chile	543	247	15	0.257	7
	Honduras	506	87	621	49	92
	Panama	504	104	502	104	89
	Venezuela	419	100	435	75	150
	Indonesia	351	50	147	0.867	4
	Cuba	337	79	117		
	Nicaragua	329	50	280	30	52
	Malaysia	327	20	68	3	10
	Egypt	323	121	1,332		530
	All other countries	1,652	437	3,921	106	362
	Total 2/	58,270	9,861	61,935	6,225	10,965
Sorghum	China (Mainland)	4,740	439	4,210	462	
	Mexico	585	92	93	22	45
	Sub-Saharan Africa	467	58	363	4	60
	Japan	224	22	357	28	17
	All other countries	25	3	188	2	62
	Total 2/	6,041	615	5,211	518	183
		---------- 2016/17 ---------- Mkt year	Jun-Oct	---------- 2017/18 ---------- Mkt year	Jun-Oct	2018/19 Jun-Oct
Barley	Canada	63	15	69	37	21
	Japan	23	5	31	14	18
	China (Taiwan)	4	2	5	2	3
	Mexico	2	0.783	0.542		0.244
	All other countries	3	1	6	3	3
	Total 2/	95	24	111	56	45

1/ Grain only. Market year (September-August for corn and sorghum, June-May for barley) and market year to date.
2/ Totals may not add due to rounding.
Source: U.S. Department of Commerce, Bureau of the Census, Foreign Trade Statistics.

Date run: 12/12/2018