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Feed Outlook

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Wet Weather Delays Planting and Lowers Projected Production

As of June 9, only 82 percent of the 2019/20 corn crop was planted, and, as a result, both acreage and yield are reduced this month. The result is a 1,350-million-bushel reduction in the projected 2019/20 corn crop this month. Planted acreage is lowered 3.0 million acres to 89.8 million, and yield is reduced 10 bushels per acre to 166.0 bushels. The resulting month-to-month volume change is the largest since 2012. Both feed and residual and exports are lowered, and carryout declines by 810 million bushels to 1,675 million, the lowest since 2013. The projected average corn price received by farmers is raised $0.50 per bushel to $3.80.

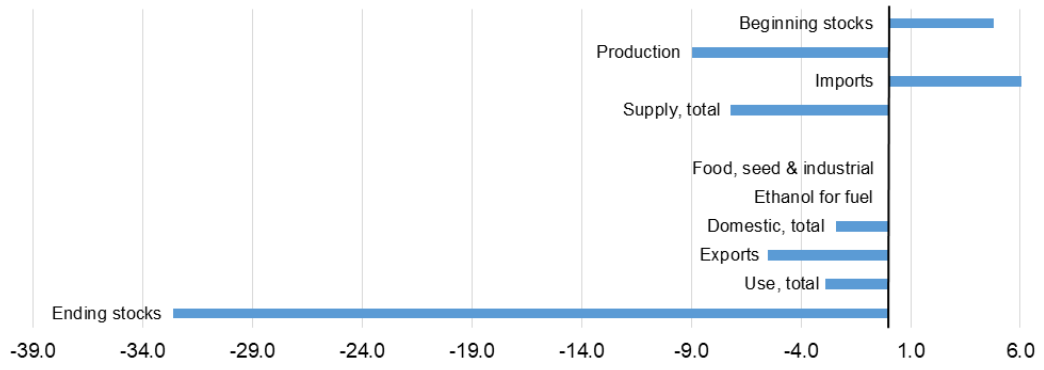
U.S. 2019/20 and 2018/19 corn export prospects are reduced, with a shift among exporting countries following a U.S. production cut. Higher projected corn supplies and exports by Brazil and Argentina this month are expected to limit U.S. exports during the latter part of 2018/19 and in 2019/20.

Domestic Outlook

U.S. Feed Grain Use Lowered

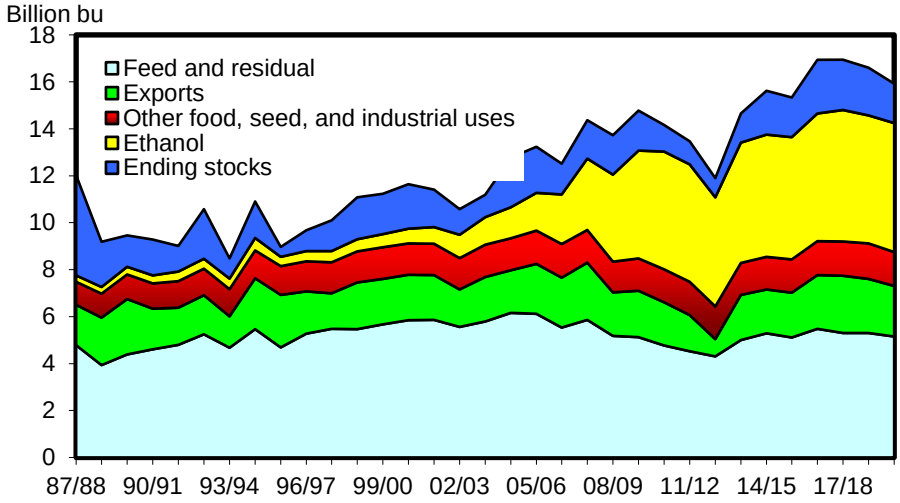
U.S. feed grain disappearance for 2019/20 is projected at 376.4 million tons, 10.8 million below last month's forecast and 4.0 million lower than the revised 2018/19 estimate of 380.4 million. Feed and residual use, projected at 135.6 1 million tons, is 4.3 million lower than the 2018/19 estimate of 139.9 million. Food, seed, and industrial (FSI) use, at 183.5 million tons, is unchanged from last month's forecast. Exports are lowered 3.2 million tons this month to 57.2 million on lower projected corn shipments.

Figure 1
Corn supply and use: percent change from last month's forecast (2019/20)



Source: USDA Economic Research Service Feed Grain Database.

Figure 2
U.S. corn utilization



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

Grain Consuming Animal Units

Grain consuming animal units (GCAU) for 2019/20 are projected at 101.83 million units, 0.6 million below last month's projection and 1.83 million above last year's revision of 100.6 million. Feed and residual use per GCAU is projected at 1.39 tons, slightly below 2018/19.

Feed and Residual Use: Four Feed Grains and Wheat

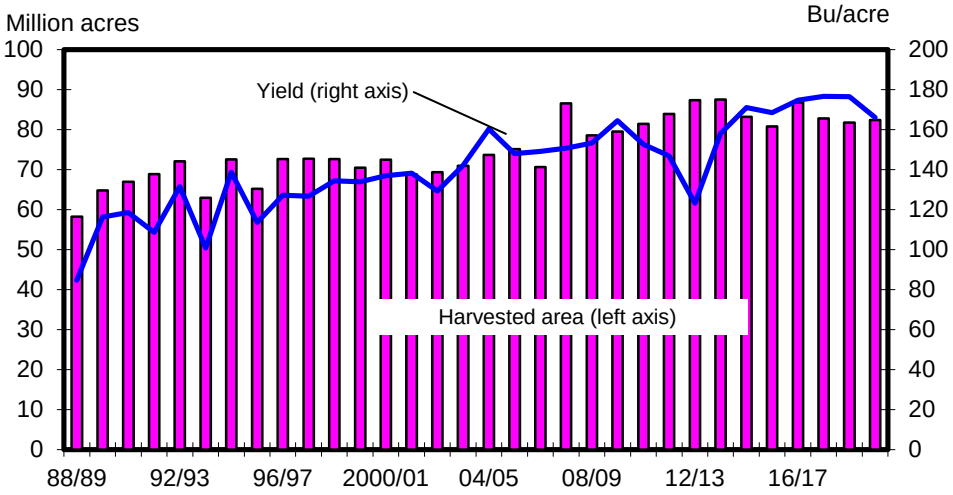
Feed and residual use for the four feed grains (corn, sorghum, barley, and oats) and wheat, on a September-August marketing year basis for 2019/20, is projected at 139.0 million tons, 7.6 million lower than last month's estimate of 146.6 million. The smaller projected corn crop caused a significant reduction in corn feed and residual, accounting for the change in total feed and residual.

Corn Supply Lowered Sharply Due to Weather's Expected Impact on Plantings and Yield

Projected corn production was lowered 1,350 million bushels this month on a 3-million reduction in planted acres and a 10-bushel reduction in projected yield. If realized, the crop will be 13,680 million bushels, the lowest since 2015. This month-to-month change is the largest since 2012 in volume terms and the largest since the mid-1980s in percentage terms. Planted acreage is now pegged at 89.8 million, and harvested acreage is projected at 82.4 million. Resulting supply is

15,925 million bushels. Carryin is projected up 100 million bushels to 2,195 million, and imports are raised 15 million to 50 million bushels.

Figure 3
U.S. corn harvested area and yield



Sources: USDA, Economic Research Service with data from USDA, National Agricultural Statistics Service, QuickStats and USDA, World Agricultural Outlook Board, Crop Projections, 2019.

Feed and Residual and Exports Projected Lower This Month

The drastic reduction in crop size is reflected in a 300-million-bushel decline in projected feed and residual for 2019/20, the result of higher prices for livestock and the impact of a smaller crop on the residual component, which tends to vary with crop size.

Sharply reduced export prospects have impacted the 2018/19 and 2019/20 balance sheets this month. Projected exports for 2019/20 are lowered 125 million bushels to 2,150 million based on increased production in Argentina and Brazil and higher prices and reduced production in the United States. For 2018/19, projected exports are lowered 100 million bushels to 2,200 million based on year-to-date pace and reduced U.S. price competitiveness.

The 425-million-bushel decline in disappearance, combined with a 1,235-million-bushel decline in supply, results in an 810-million-bushel decline in ending stocks to 1,675 million, which if realized would be the lowest since 2013/14. Stocks-to-use declined from 16.5 to 11.8 this month.

2019/20 Corn Price Advances on Weather Worries

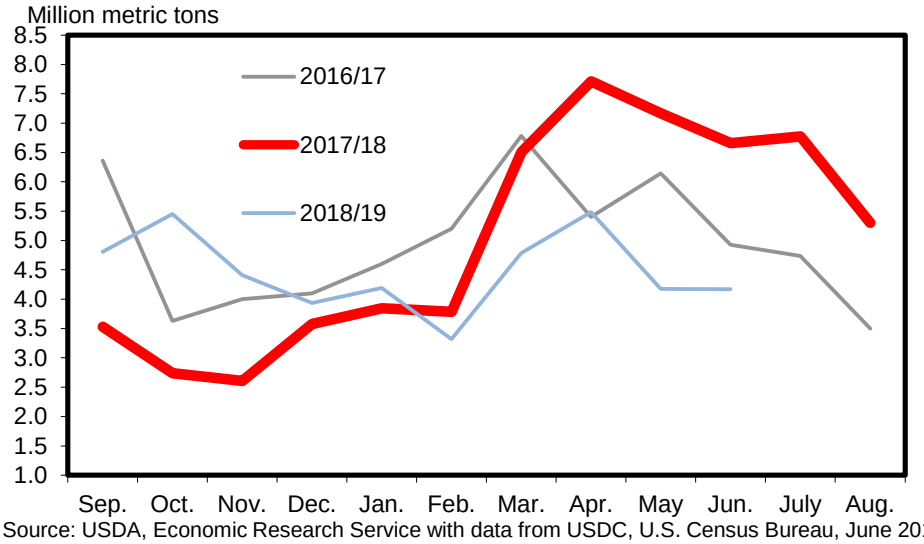
The projected average corn price received by farmers for 2019/20 is projected sharply higher at $3.80 per bushel. The $0.50 increase is driven by sharply lower stocks relative to use and relatively favorable forward pricing opportunities for producers.

Impact of Crop Progress and Uncertain Trade Prospects on Prices

Corn spot and futures prices rose sharply in May and early June as successive USDA crop progress reports showed U.S. national corn plantings at the slowest pace on record. While corn spot and futures prices normally reach seasonal highs in the spring and early summer on uncertainties about the crop size, the price increase in spring 2019 was far larger than in recent years. The National Corn Index, a simple average of spot elevator bids collected by DTN and reported on the Minneapolis Grain Exchange, was more than $0.80 higher in early June than it was in early May. Spot prices have not been this high since June 2016. Near-month (July) futures were more than $0.90 above the May low, while December 2019 futures showed similar volatility. Both spot and futures prices hit multiyear highs in the first week of June before easing off slightly on a negative export sales report.

Sixty-seven percent of the expected corn acres were planted as of the first week of June, while normally nearly all the crop would be planted by now, so the high market prices reflect uncertainties about how whether some of the remaining acres will be planted late, planted to a different crop, or not planted at all. Crop progress improved to 83 percent planted the week ending June 9, still far behind the 5-year average of 99 percent. Key corn States were below the national average: Indiana was 67 percent planted and Illinois was 73 percent planted, while Iowa and Minnesota were at 93 percent and 92 percent, respectively. Corn emergence is also far behind the 5-year average, at 62 percent as of June 9.

Figure 4
Monthly U.S. corn exports



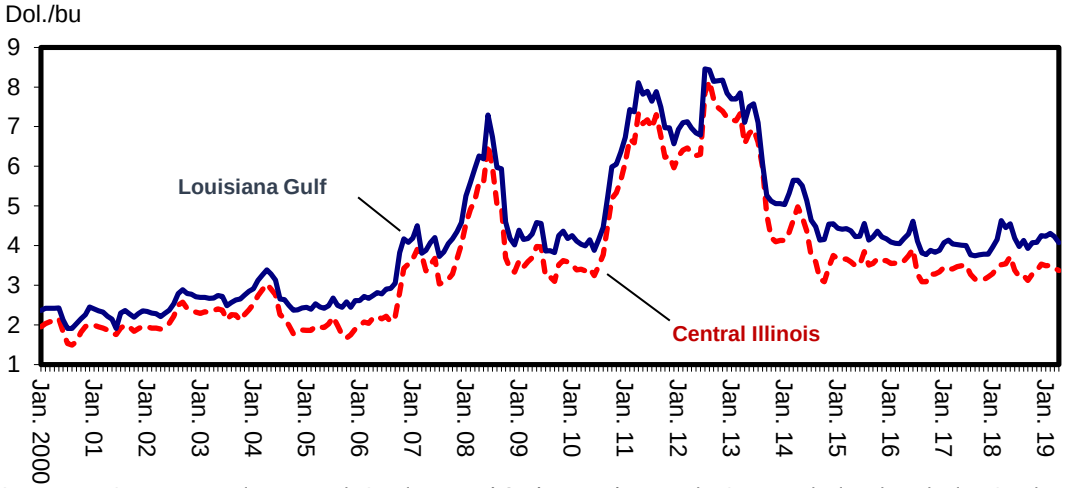
Source: USDA, Economic Research Service with data from USDC, U.S. Census Bureau, June 2019 *Grain Inspections*.

The high and volatile corn price reflects an unusual amount of uncertainty about several factors, including trade policies, the amount of corn that will be planted, and the market price at harvest time. There are also uncertainties about yield and about 2018 ending stocks. Soybean prices in May and June did not rise as much as corn prices, reflecting the divergence in the relative fundamentals of the two crops.

2018/19 Corn Price

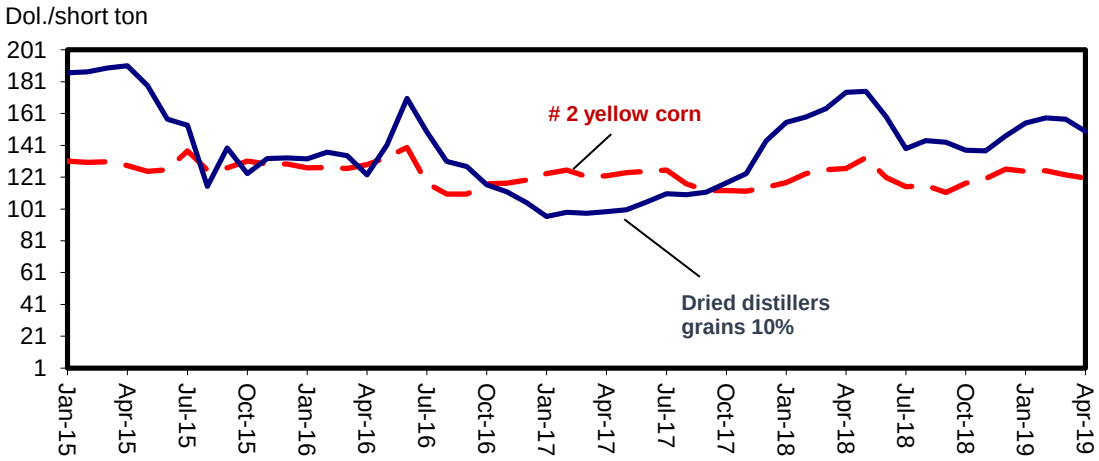
For 2018/19, the season-average price for corn is raised $0.10 per bushel to $3.60, based on sales to date and sharply higher cash prices for summer delivery. The stocks-use-ratio is projected at 15.2, 0.7 higher than last month.

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.

Figure 6
Monthly prices for Central Illinois #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.

Alfalfa Hay Price at 5-Year High on Strong Demand

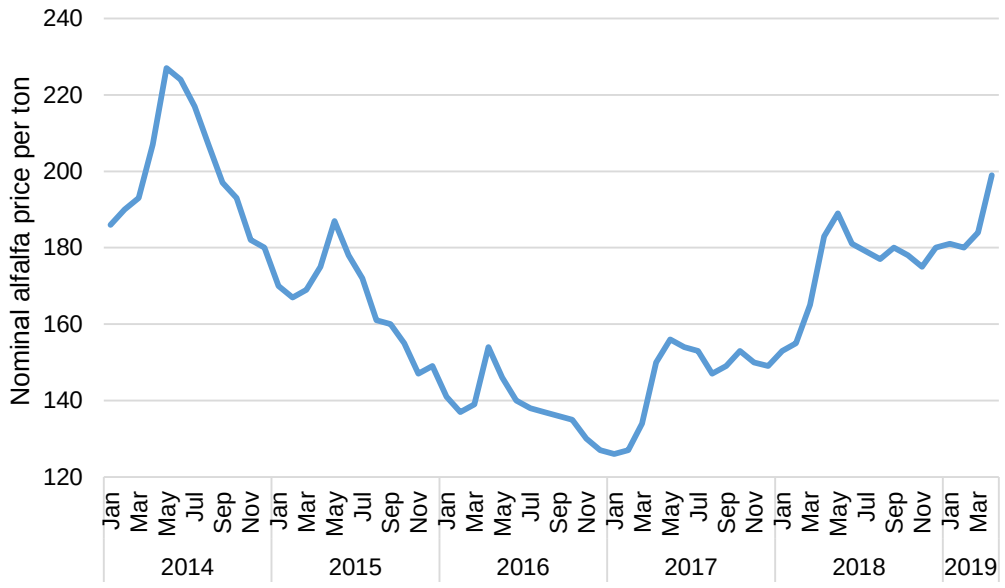
The USDA, National Agricultural Statistics Service (NASS) alfalfa hay price in April reached $199 per short ton, the highest level since August 2014, on strong domestic and export demand and concerns with winter crop injury. The export demand for U.S. alfalfa has driven up the price for domestic U.S. livestock consumers. The wet weather in major alfalfa-producing States will almost certainly reduce yield, providing further support for prices. Alfalfa hay has been rising in price since early 2017, at the same time that other hay (hay excluding alfalfa) prices have been

rising more slowly, reflecting both domestic and foreign demand for alfalfa as a high-quality feed.

U.S. exports of alfalfa hay (HTS code 1214900010) totaled 590,660 metric tons in the first quarter of 2019, down slightly from 596,471 for the first quarter of 2018. The biggest importers of alfalfa hay from the United States were Japan, China, the United Arab Emirates, and Saudi Arabia. Exports of other hay were up slightly during the same period; the largest importers from the United States were Japan, South Korea, Taiwan, and the United Arab Emirates. The growth in export demand for alfalfa and other hay is primarily driven by growth in beef, mutton, and dairy sectors in relatively high-income countries without adequate cropland for forage crops. Saudi Arabia recently lifted restrictions for planting wheat, which is expected to reduce alfalfa production mainly because of limited access to water for irrigation. Increased Saudi alfalfa and other feed and forage crops imports may reasonably be anticipated. China has reduced alfalfa imports from the United States in the first quarter of 2019 by about half compared to the first quarter of 2018 and has increased imports from Spain and Australia. China has raised tariffs on alfalfa meal and pellets to an effective 30 percent as of June 1, 2019, and has also announced potential support programs for domestic alfalfa production. Over the past year (January to March 2018 through January to March 2019), Japan has steadily raised imports of U.S. alfalfa hay and is now the largest importer of U.S. alfalfa hay.

Alfalfa hay is one of the eligible crops for the 2019 Market Facilitation Program to assist producers impacted by trade disruptions from foreign retaliatory tariffs on their products. Alfalfa is one of many agricultural commodities impacted by Chinese tariffs—as noted above, Chinese imports of alfalfa have noticeably declined in the past year. Producers of crops eligible for Market Facilitation Program (MFP) will receive a payment based on a county payment rate multiplied by the farm's total plantings of any of the eligible crops. The single payment rate per acre offers producers maximum planting flexibility and addresses cross-commodity price impacts of tariffs. Further details on payment rates and schedules will be released in the near future. The first set of payments will be made in late summer 2019, after USDA, Farm Service Agency crop reporting is completed by July 15. If unfavorable trade conditions continue, additional payments will be made in November 2019 and January 2020.

Figure 7
Alfalfa price per ton is highest since January 2014

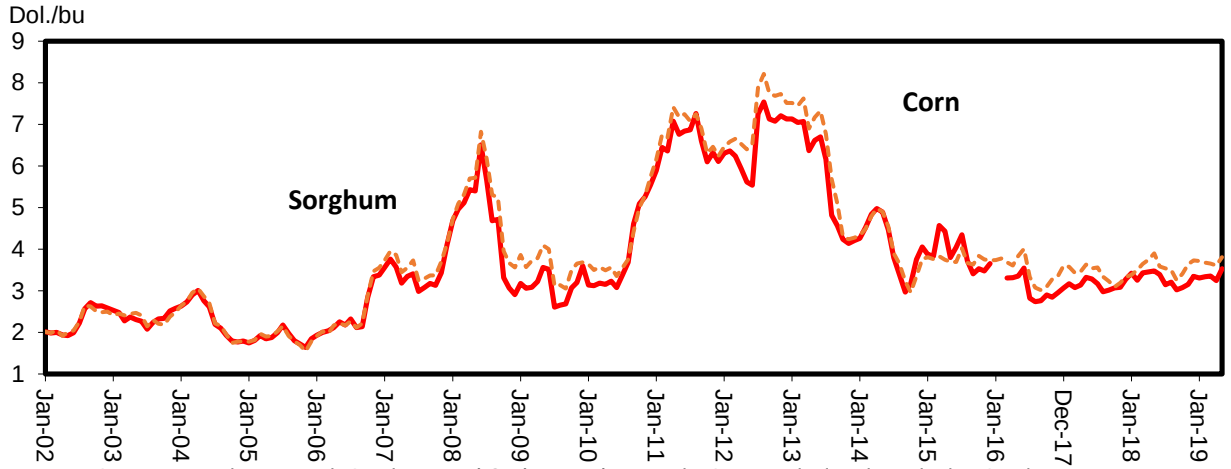


Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, QuickStats.

Little Action in Other Feed Grains

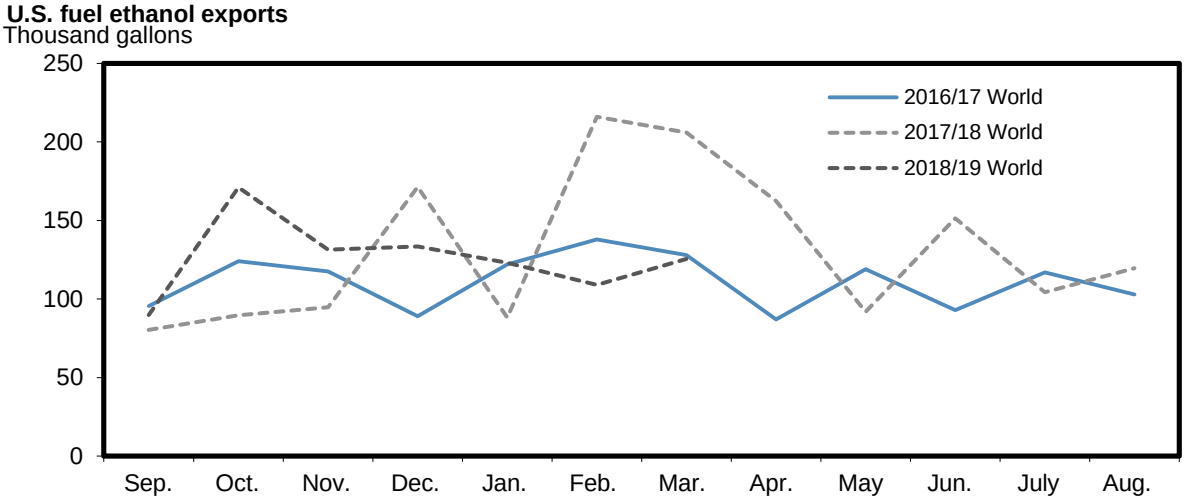
Feed grains other than corn saw no changes in supply, use, or ending stocks. There were minor changes in the price expectations for the 2019/20 season. Projected sorghum prices in 2019/20 are revised up by $0.50 from $3.00 per bushel to $3.50. Likewise, expected barley prices in 2019/20 are projected up by $0.45 per bushel, from $4.20 to $4.65 per bushel. The final projected price change to report is for oats in 2019/20, with a $0.30 increase per bushel, from $2.60 to $2.90 per bushel.

Figure 8
Monthly yellow #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.

Figure 9
U.S. fuel ethanol exports

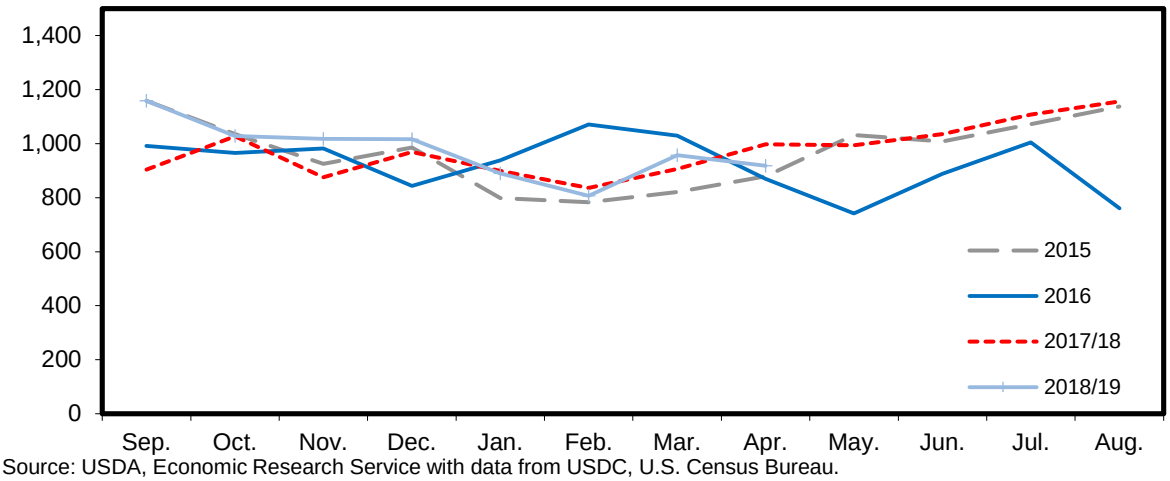


Source: USDA Economic Research Service with data from USDC, U.S. Census Bureau.

Figure 10

U.S. dried distillers grains with solubles exports

Thousand metric tons



Source: USDA, Economic Research Service with data from USDC, U.S. Census Bureau.

International Outlook

Coarse Grain Supplies for 2019/20 Are Getting Tighter

World coarse grain production is projected to reach 1,389.5 million tons in 2019/20, a significant reduction of 36.2 million from last month's forecast, with most of the drop being in U.S. corn prospects. Foreign production is down 1.9 million tons. The largest reductions in foreign coarse grain production are for Canadian corn and European Union (EU) barley. Partly offsetting are projected higher corn output in Argentina and Russia. For more information and a visual display of this month's changes in coarse grain production, see tables A1 and A2.

Table A1 - World and U.S. coarse grain production at a glance (2019/20), June 2019

	Region or country	Production	Change from previous month[1]	YoY change[2]	Comments
		Million tons			
Coarse grain production (total)					
↓	**World**	**1,389.5**	**-36.2**	**-5.2**	
↓	**Foreign**	**1,029.5**	**-1.9**	**+14.8**	Reductions are projected for 2019/20 coarse grain production, while estimates for 2018/19 are up. See table A2.
↓	**United States**	**359.9**	**-34.3**	**-20.0**	See section on U.S. domestic output.
World production of coarse grains by type of grain					
			CORN		
↓	**World**	**1,099.2**	**-34.6**	**-21.3**	A large cut in U.S. corn output drives this month's changes.
↓	**Foreign**	**751.7**	**-0.3**	**-2.5**	Reduced corn production for Canada and Zambia is partly offset by increases for Argentina and Russia. For 2018/19, corn output is projected up for Brazil and South Africa. See table A2.
↓	**United States**	**347.5**	**-34.3**	**-18.8**	See section on U.S. domestic output.
			BARLEY		
↓	**World**	**152.1**	**-1.3**	**+11.8**	
↓	**Foreign**	**148.6**	**-1.3**	**+11.7**	Lower projected barley production in the EU. See table A2.
	United States	**3.4**	**No change**	**+0.1**	See section on U.S. domestic output.
			SORGHUM		
↓	**World**	**58.4**	**-0.3**	**-0.9**	
↓	**Foreign**	**50.5**	**-0.3**	**+0.4**	Lower projected production in Argentina. See table A2.
	United States	**7.9**	**No change**	**-1.4**	See section on U.S. domestic output.
			MILLET		
↓	**World**	**28.3**	**-0.1**	**-0.6**	A slight reduction in Ukraine.

[1]Change from previous month. No production changes are made for sorghum, rye, millet, and mixed grains this month.

[2] YoY: year over year changes. **For changes and notes by country, see table A2.**

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

Table A2 - Coarse grain production by country at a glance, June 2019						
	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 (2019/20)						
CANADA						
↓	**Corn**	*Aug-July*	**14.0**	**-1.4**	**+0.1**	Delays in corn planting in Quebec and Ontario caused by wet conditions in May. Both corn area and expected yields are reduced, as late corn planting is typically accompanied by lower yields.
EUROPEAN UNION (EU)						
↓	**Barley**	*July-June*	**60.7**	**-1.3**	**+4.7**	Persistent dryness and subsoil moisture deficit resulted in deterioration of barley yield prospects in ***Spain***. Barley area in Spain is also reduced based on data from the national official sources.
ZAMBIA						
↓	**Corn**	*July-June*	**2.0**	**-0.4**	**-0.4**	Drought conditions in Zambia reduced corn area and are expected to lower yields.
ARGENTINA						
↑	**Corn**	*Mar-Feb*	**50.0**	**+1.0**	**+1.0**	Higher expected corn prices are expected to boost planted area, as Argentina is the first foreign country to incorporate higher corn prices into September planting decisions.
↓	**Sorghum**	*Mar-Feb*	**2.5**	**-0.3**	**No change**	With corn area expansion, a trend of declining sorghum area is continuing.
RUSSIA						
↑	**Corn**	*Oct-Sep*	**13.5**	**+0.5**	**+2.1**	Higher corn area is projected based on planting reports.
Coarse grain production by country and by type of grain (2018/19)						
BRAZIL						
↑	**Corn**	*Apr-Mar*	**101.0**	**+1.0**	**+19.0**	The increase moves production further to a record high, 19.0 million tons larger than the low amount in 2017/18. Early corn planting coupled with abundant rains through mid-May during corn reproductive stages were exceptionally beneficial for the crop, boosting second-crop (summer) corn yields further. Excellent early harvest results corraborate the increase.
SOUTH AFRICA						
↑	**Corn**	*May-Apr*	**11.5**	**+0.5**	**-1.6**	Harvest of the 2018/19 corn crop is on the way, and the South African Crop Estimates Committee of the Department of Agriculture, Forestry & Fisheries (CEC) issued a new forecast with higher estimated corn area.

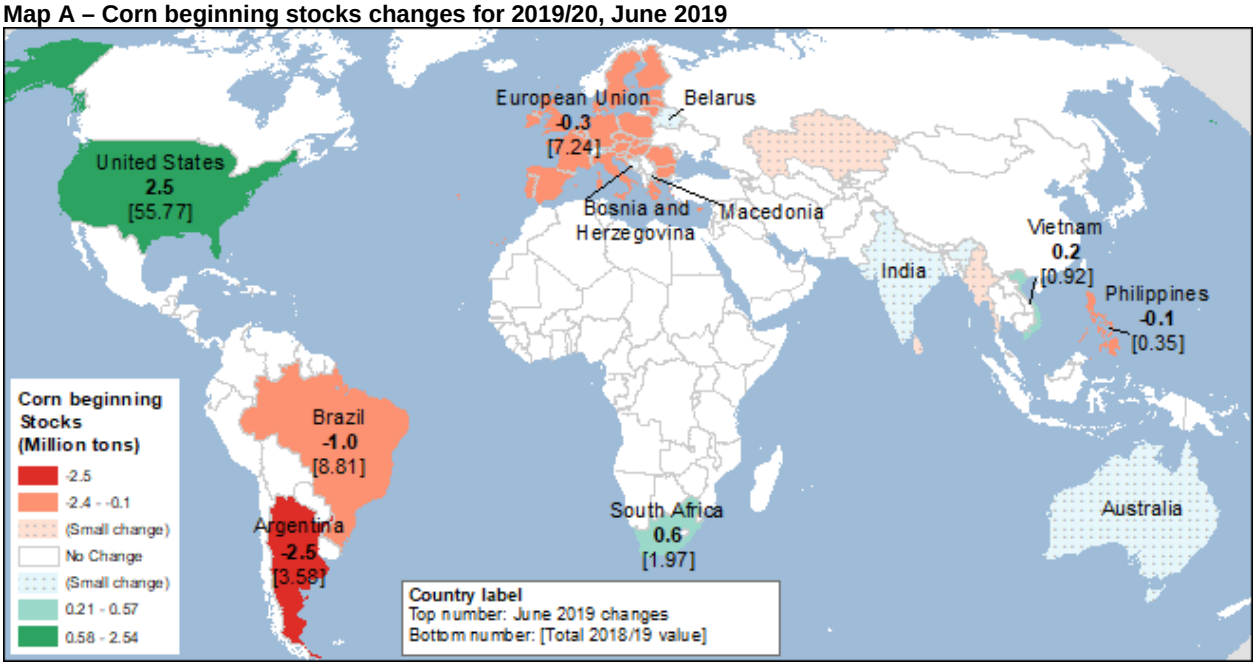
[1]Change from previous month. Smaller changes for coarse grain output are made for several countries, see map A for changes in ***corn***.

[2] YoY: year over year changes.

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

The revisions to 2018/19 supply and demand reduce 2019/20 foreign beginning stocks by 2.6 million tons, which is fully offset by higher beginning stocks in the United States, reflecting lower 2018/19 exports. For a visual display of this month's changes in corn beginning stocks, see map A.

Map A – Corn beginning stocks changes for 2019/20, June 2019



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

2018/19 Corn Production Boosted for Brazil and South Africa

While 2018/19 harvests in the Northern Hemisphere were generally completed months ago, in the Southern Hemisphere, crops crucial for the market are still growing. Second-crop corn in Brazil was planted early this season, and the harvest that will last through the fall of 2019 has already started. It is not surprising that the early harvest results are above expectations, as the major second corn-producing States of Mato Grosso, Parana, Mato Grosso de Sul, and Goias received frequent and abundant rains through April and into mid-May, a crucial period for crop development. As the crop ratings continue to increase, the forecast for the average corn yield is increased further this month by 1.1 percent to 5.77 tons per hectare. Corn production is boosted 1.0 million tons to a record 101.0 million, 19.0 million tons higher than the previous year's low harvest. The Brazilian corn crop for 2019/20, where the first-crop corn planting will begin in September-October 2019, remains projected at the same record level of 101.0 million tons.

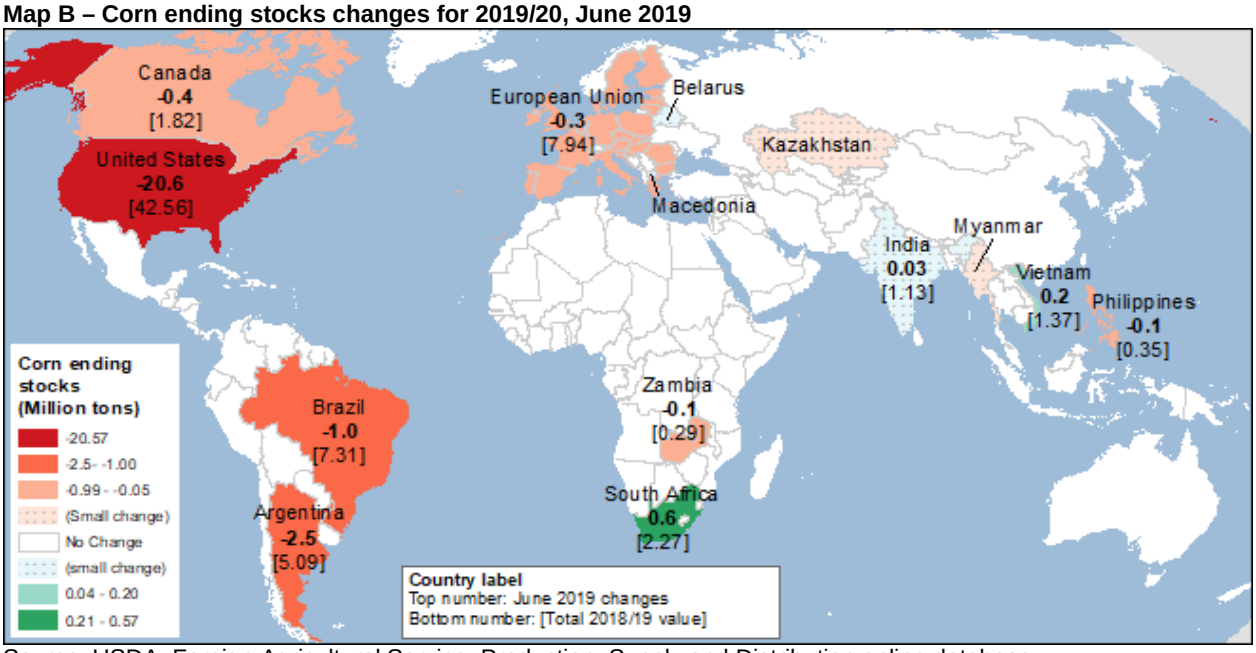
South African 2018/19 corn production is projected 0.5 million tons higher at 11.5 million, based on data published by the Crop Estimates Committee of the Department of Agriculture, Forestry & Fisheries (CEC). Despite exceptional dryness throughout this season's corn planting window, the farmers were able to plant 0.2 million hectares more than was expected, although yields are projected lower this month, reflecting both late planting and unfavorable weather.

Coarse Grain Use Lower, Stocks Down for 2019/20

The foreign coarse grain use forecast for 2019/20 is reduced this month by 4.8 million tons, with several changes across crops and countries, while foreign feed and residual use is projected down 2.5 million tons. The largest changes are for lower feed use of corn in Canada and barley for the EU, both down 1.0 million tons, due to reduced production prospects. Sorghum feed and residual use is down in Argentina because of lower projected output. A number of fractional changes in coarse grain use are made this month for a number of countries.

World coarse grain ending stocks for 2019/20 are projected down 23.9 million tons this month to 319.7 million (the lowest since 2014/15), with corn causing the drop, and with barley stocks slightly offsetting. The vast bulk of the reduction comes from the projection for U.S. corn (see domestic section), where a sharp decline in projected stocks follows a production cut that affects the entire balance sheet for the country's corn. Stocks are also projected lower for Argentina and Brazil (as increased export prospects more than offset higher production for both countries), the EU (reduced barley output), and Canada (lower corn production prospects). Partly offsetting these reductions are higher projected stocks for South Africa (due to boosted corn production) and Ukraine (lower 2018/19 exports leaving more corn supplies unused). For a visual display of the changes in corn ending stocks, see map B.

Map B – Corn ending stocks changes for 2019/20, June 2019



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

U.S. 2019/20 and 2018/19 Corn Export Prospects Down, Export Shares Shift

The June forecast for world corn exports in trade year 2019/20 (October-September) is virtually unchanged from the May forecast. However, with a cut in U.S. projected corn production, large shifts in the export shares of the major exporters are expected.

Projected changes for corn exports in 2019/20 and 2018/19 are fairly similar. Argentina and Brazil are expected to capitalize on the opportunity offered by a decline in U.S. production and exports, as they are becoming increasingly price competitive vis-à-vis the United States. As of now, these two South American countries are by a large margin the cheapest countries of origin for corn in the world. Ukrainian corn is slightly more expensive, while U.S. corn is being essentially priced out.

Brazilian second-crop corn is getting bigger, and with an earlier-than-usual harvest, the country's exports are racing ahead. Even in May, which is normally a very slow corn export month in Brazil, the country exported unusually large amounts of corn (to Iran and Malaysia), almost four times more than in its previous May record of 2017 (2016/17 crop year). Brazil's corn exports for the 2018/19 local marketing year (March-February) are raised 2.0 million tons to 34.0 million, supported by an increase in 2018/19 second-crop corn production. This crop will be marketed during both the last part of 2018/19 and the first part of the 2019/20 October-September trade year. Hence, the 2.0-million-ton increase in Brazilian exports is evenly spread between these 2 years, reaching 33.0 million tons for 2018/19 and 35.0 million tons for the upcoming 2019/20 international trade year.

The rapid current pace of Argentine corn exports, with record-high amounts exported in April and May (close to 8 million tons in these 2 months based on port data), calls for an increase for 2018/19 trade year, while the larger projected corn output in 2019/20 is expected to encourage more exports. October-September trade year exports are projected up 1.0 million tons to 30.0 million for 2018/19 and up 1.5 million tons to 33.5 million for 2019/20.

With higher projected area and corn production, Russian exports are also up this month by 0.5 million tons to 5.0 million. Ukrainian export prospects are unchanged this month.

The corn export series since 2015/16 is revised up for Burma by about 10 percent per year, reflecting higher border trade with southern China, with high Chinese domestic prices attracting

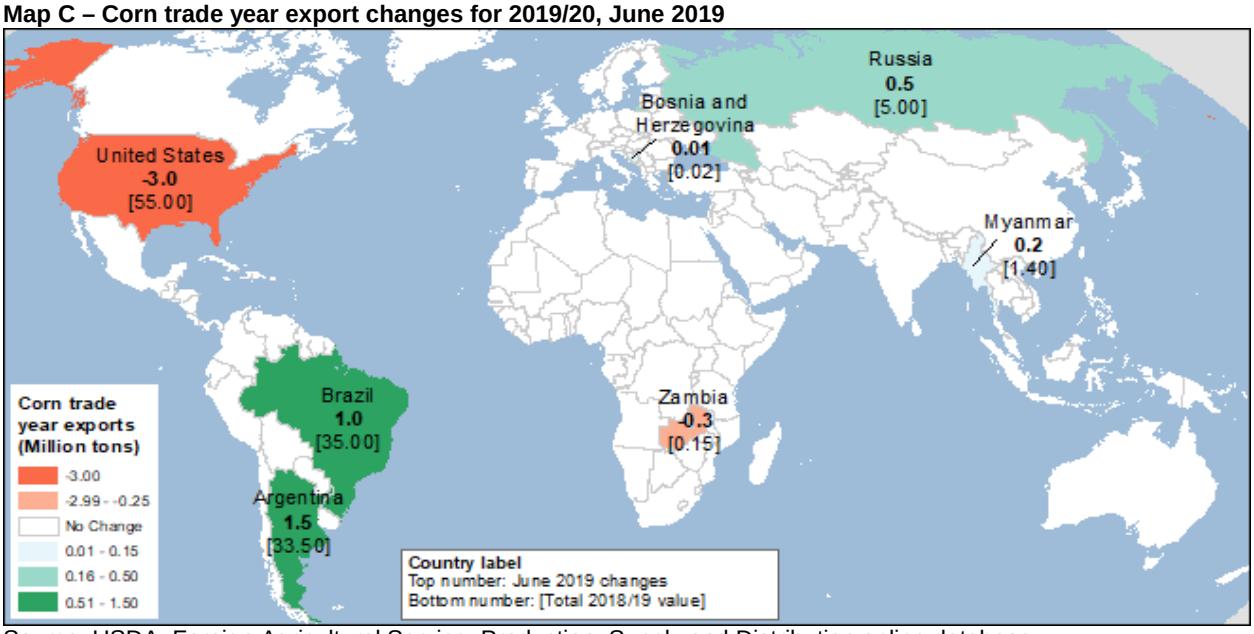
the inflows.

The only noticeable change in global corn imports for the 2019/20 trade year this month is an increase for the United States, up 0.5 million tons to 1.3 million, reflecting confirmed sales from Brazil, for after-September delivery.

U.S. corn exports for both the 2018/19 and 2019/20 October-September trade year are projected down 3.0 million tons to 55.0 million (down 125 million bushels to 2,150 million for the 2019/20 September-August local marketing year, and to 2,200 million bushels for 2018/19). The revised exports are 8.6 million lower than the previous record in the 2017/18 trade year. The pace of U.S. corn shipments during the last months has been slow, with May inspections at just 4.2 million tons. At the beginning of June 2019, outstanding sales were 7.9 million tons, the smallest since 2012 and less than 50 percent from a year ago.

An increase in projected corn supplies and exports by Brazil and Argentina this month, a faster-than-expected pace of shipments from these countries, and a growing gap in prices between South American (as well as Ukrainian) and U.S. corn are all projected to further limit U.S. exports during the latter part of the 2019 calendar year. Moreover, in early 2019/20, competition from Brazil and Ukraine is expected to intensify further, as these countries' crops become readily available. For a visual display of the changes in corn exports, see map C.

Map C – Corn trade year export changes for 2019/20, June 2019



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

Changes for all remaining coarse grains trade (sorghum, barley, oats, millet, mixed grains, and rye) are fractional this month.

Suggested Citation

Capehart, Tom, Liefert, Olga, Olson, David W., *Feed Outlook*, FDS-19f, U.S. Department of Agriculture, Economic Research Service, June 13, 2019

Table 1--Feed grains: U.S. quarterly supply and disappearance (million bushels), 6/13/2019

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	2016/17	Sep-Nov	1,737	15,148	14	16,899	1,689	2,279	548	4,516	12,383	3.26
		Dec-Feb	12,383		12	12,395	1,711	1,523	539	3,773	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	14,609	11	16,914	1,743	2,255	349	4,347	12,567	3.21
		Dec-Feb	12,567		9	12,575	1,739	1,503	441	3,683	8,892	3.30
		Mar-May	8,892		8	8,900	1,782	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	14,609	36	16,939	7,056	5,304	2,438	14,799	2,140	3.36
	2018/19	Sep-Nov	2,140	14,420	6	16,567	1,712	2,285	633	4,630	11,937	3.41
		Dec-Feb	11,937		9	11,945	1,640	1,202	499	3,341	8,605	3.56
		Mkt yr	2,140	14,420	35	16,595	6,900	5,300	2,200	14,400	2,195	3.60
	2019/20	Mkt yr	2,195	13,680	50	15,925	6,950	5,150	2,150	14,250	1,675	3.80
Sorghum	2016/17	Sep-Nov	36.63	480.26	0.00	516.90	21.65	144.36	41.81	207.82	309.08	2.62
		Dec-Feb	309.08		0.00	309.08	33.06	5.97	89.32	128.34	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	132.74	237.82	485.18	33.46	2.79
	2017/18	Sep-Nov	33.46	361.87	1.91	397.24	13.92	110.13	45.71	169.75	227.49	3.05
		Dec-Feb	227.49		0.05	227.55	10.24	5.72	71.33	87.29	140.26	3.18
		Mar-May	140.26		0.01	140.27	15.81	-14.45	73.58	74.93	65.33	3.40
		Jun-Aug	65.33		0.04	65.38	20.44	-4.45	14.53	30.52	34.85	3.78
		Mkt yr	33.46	361.87	2.02	397.35	60.40	96.94	205.15	362.49	34.85	3.22
	2018/19	Sep-Nov	34.85	364.99	0.00	399.84	25.56	99.13	16.37	141.06	258.78	3.18
		Dec-Feb	258.78		0.00	258.78	23.36	19.83	22.87	66.06	192.73	3.20
		Mkt yr	34.85	364.99	0.04	399.88	100.00	155.00	85.00	340.00	59.88	3.20
	2019/20	Mkt yr	59.88	310.00		369.88	100.00	125.00	100.00	325.00	44.88	3.50

Table 1--Feed grains: U.S. quarterly supply and disappearance, cont. (million bushels), 6/13/2019

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	2/ (dollars per bushel)
Corn	2016/17	Sep-Nov	1,737	15,148	14	16,899	1,689	2,279	548	4,516	12,383	3.26
		Dec-Feb	12,383		12	12,395	1,711	1,523	539	3,773	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	14,609	11	16,914	1,743	2,255	349	4,347	12,567	3.21
		Dec-Feb	12,567		9	12,575	1,739	1,503	441	3,683	8,892	3.30
		Mar-May	8,892		8	8,900	1,782	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	14,609	36	16,939	7,056	5,304	2,438	14,799	2,140	3.36
	2018/19	Sep-Nov	2,140	14,420	6	16,567	1,712	2,285	633	4,630	11,937	3.41
		Dec-Feb	11,937		9	11,945	1,640	1,202	499	3,341	8,605	3.56
		Mkt yr	2,140	14,420	35	16,595	6,900	5,300	2,200	14,400	2,195	3.60
	2019/20	Mkt yr	2,195	13,680	50	15,925	6,950	5,150	2,150	14,250	1,675	3.80
Sorghum	2016/17	Sep-Nov	36.63	480.26	0.00	516.90	21.65	144.36	41.81	207.82	309.08	2.62
		Dec-Feb	309.08		0.00	309.08	33.06	5.97	89.32	128.34	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	132.74	237.82	485.18	33.46	2.79
	2017/18	Sep-Nov	33.46	361.87	1.91	397.24	13.92	110.13	45.71	169.75	227.49	3.05
		Dec-Feb	227.49		0.05	227.55	10.24	5.72	71.33	87.29	140.26	3.18
		Mar-May	140.26		0.01	140.27	15.81	-14.45	73.58	74.93	65.33	3.40
		Jun-Aug	65.33		0.04	65.38	20.44	-4.45	14.53	30.52	34.85	3.78
		Mkt yr	33.46	361.87	2.02	397.35	60.40	96.94	205.15	362.49	34.85	3.22
	2018/19	Sep-Nov	34.85	364.99	0.00	399.84	25.56	99.13	16.37	141.06	258.78	3.18
		Dec-Feb	258.78		0.00	258.78	23.36	19.83	22.87	66.06	192.73	3.20
		Mkt yr	34.85	364.99	0.04	399.88	100.00	155.00	85.00	340.00	59.88	3.20
	2019/20	Mkt yr	59.88	310.00		369.88	100.00	125.00	100.00	325.00	44.88	3.50
Barley	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	143	2	252	41	30	2	72	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	143	9	259	157	2	5	164	94	4.47
	2018/19	Jun-Aug	94	153	1	249	40	33	1	74	175	
		Sep-Nov	175		1	176	38	-16	1	23	153	
		Dec-Feb	153		2	154	36	-5	1	33	121	
		Mkt yr	94	153	6	254	155	5	5	165	89	4.60
	2019/20	Mkt yr	89	157	10	256	153	10	3	166	90	4.65
Oats	2016/17	Jun-Aug	57	65	21	142	19	44	1	63	79	1.87
		Sep-Nov	79		28	106	18	12	1	31	75	2.03
		Dec-Feb	75		24	100	17	18	1	37	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	50	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	22	11	1	34	41	2.94
		Mkt yr	50	50	89	189	77	68	2	148	41	2.59
	2018/19	Jun-Aug	41	56	19	116	19	22	0	41	75	2.55
		Sep-Nov	75		28	103	18	17	0	36	67	2.65
		Dec-Feb	67		18	85	18	17	0	35	50	2.77
		Mkt yr	41	56	85	182	77	70	2	149	33	2.65
	2019/20	Mkt yr	33	60	100	193	78	80	2	160	33	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.

Table 2--Feed and residual use of wheat and coarse grains, 6/13/2019

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)
2017/18	Q1 Sep-Nov	57.3	2.8	-0.4	0.3	60.0	-1.5	58.5		
	Q2 Dec-Feb	38.2	0.1	-0.1	0.2	38.4	-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	5.2	21.5		
	MY Sep-Aug	134.7	2.5	0.1	1.2	138.5	2.1	140.5	99.0	1.4
2018/19	Q1 Sep-Nov	58.0	2.5	-0.4	0.3	60.5	-2.1	58.4		
	Q2 Dec-Feb	30.5	0.5	-0.1	0.3	31.2	-0.6	30.6		
	MY Sep-Aug	134.6	3.9	0.3	1.5	140.3	1.9	142.2	100.4	1.4
2019/20	MY Sep-Aug	130.8	3.2	0.1	1.4	135.5	5.6	141.1	101.8	1.4

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, 6/13/2019

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	3.53	3.88	3.79	4.25	
Jan	3.45	3.29	3.53	4.07	3.96	4.24	
Feb	3.51	3.45	3.50	4.14	4.15	4.31	
Mar	3.40	3.52	3.43	4.04	4.36	4.23	
Apr	3.41	3.54	3.37	3.98	4.46	4.11	
May	3.47	3.73	3.59	4.03	4.55	4.36	
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	3.44	3.34		4.00	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	2.60		4.85	2.92	2.73	3.31
Jan	2.00	2.65	2.60		4.85	2.97	2.90	3.28
Feb	2.00	2.81	2.60		4.85	3.07	2.96	3.23
Mar	2.02	2.85	2.60	4.70	4.50	2.90	2.79	3.18
Apr	2.05	2.85	2.97			2.86	2.72	3.25
May	2.05	2.85	3.25			2.88	2.89	3.25
Mkt year	2.02	2.45	2.74	4.70	4.72	2.93	2.90	3.12

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: 6/12/2019

Table 4--Selected feed and feed byproduct prices (dollars per ton), 6/13/2019

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	311.70	217.50	232.50	243.50	92.83	96.25	501.67	482.88
Jan	332.34	322.60	314.93	223.50	259.00	247.50	97.50	98.80	502.50	477.60
Feb	334.32	362.85	290.12	221.88	303.13	235.00	88.13	106.25	516.50	483.13
Mar	320.34	379.85	306.38	210.63	323.13	226.25	87.13	105.50	505.63	524.75
Apr	305.67	385.85	304.26	195.00	263.13	216.50	75.00		501.13	
May	293.68	393.55	297.52	179.50	262.50	215.00	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	308.88	346.02		202.55	260.88		78.51	96.75	488.83	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	2017/18	2018/19
Oct	237.50	228.00	267.50	116.25	117.30	137.50	79.43	70.36	80.00	153.00	178.00
Nov	229.00	219.38	257.50	111.70	123.13	137.50	85.53	86.85	105.00	150.00	175.00
Dec	211.67	221.67	257.50	104.84	143.75	147.00	101.62	107.88	148.00	149.00	180.00
Jan	255.60	220.00	259.50	96.30	155.50	154.80	98.25	123.68	108.10	153.00	181.00
Feb	285.00	225.84	260.00	98.88	158.88	158.13	84.66	114.61	98.88	155.00	180.00
Mar	284.38	275.00	263.33	98.25	164.13	157.38	80.76	99.69	101.50	165.00	184.00
Apr	266.25	316.25		99.25	174.38	149.70	58.03	100.22	76.90	183.00	199.00
May	245.50	293.00	265.00	100.50	174.90	137.90	48.41	98.90	66.63	189.00	
Jun	248.13	288.75		105.25	158.50		60.39	89.50		181.00	
Jul	276.25	283.75		110.63	139.30		67.10	64.50		179.00	
Aug	318.50	265.63		110.00	144.00		63.15	83.50		177.00	
Sep	301.88	266.25		111.63	142.50		67.48	84.00		180.00	
Mkt yr	275.72	258.63		103.41	149.69		69.80	93.64		154.00	181.00

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), 6/13/2019

Mkt year and qtr 1/		High-fructose corn syrup (HFCS)	Glucose and dextrose	Starch	Alcohol for fuel	beverages and manufacturing	Cereals and other products	Seed	Total food, seed, and industrial use
2017/18	Q1 Sep-Nov	111.69	93.51	59.42	1,391.29	36.46	50.38	0.00	1,742.74
	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	28.15	1,781.52
	Q4 Jun-Aug	124.13	95.51	60.88	1,427.43	35.83	48.23	1.48	1,793.48
	MY Sep-Aug	459.22	371.35	235.74	5,604.83	149.00	206.70	29.64	7,056.48
2018/19	Q1 Sep-Nov	108.19	89.39	59.36	1,365.70	37.00	52.00	0.00	1,711.64
	Q2 Dec-Feb	100.09	85.61	55.75	1,308.55	38.00	52.00	0.00	1,640.00
	MY Sep-Aug	450.00	370.00	240.00	5,450.00	150.00	208.80	30.20	6,899.00
2019/20	MY Sep-Aug	445.00	370.00	240.00	5,500.00	151.00	214.00	30.00	6,950.00

1/ September-August. Latest data may be preliminary or projected.
Source: Calculated by USDA, Economic Research Service.

Table 6--Wholesale corn milling product and byproduct prices, 6/13/2019

Mkt year and month 1/	Corn meal, yellow, Chicago, IL (dollars per cwt)		Corn meal, yellow, New York, NY (dollars per cwt)		Corn starch, Midwest 3/ (dollars per cwt)		Dextrose, Midwest (cents per pound)		High-fructose corn syrup (42%), Midwest (cents per pound)
	2017/18	2018/19	2017/18	2018/19	2017/18	2018/19	2017/18	2018/19	2017/18
Sep	16.01	14.97	17.68	16.64	12.40	12.34	39.00	39.25	28.25
Oct	15.94	15.24	17.61	16.91	11.86	11.68	39.00	39.25	28.25
Nov	15.78	15.09	17.45	16.76	11.89	12.13	39.00	39.25	28.25
Dec	15.69	15.17	17.35	16.90	11.74	12.37	39.00	39.25	28.25
Jan	15.75	15.14	17.42	16.81	11.80	12.58	39.25	40.00	28.25
Feb	16.09	17.49	17.76	16.66	12.07	12.73	39.25	40.00	
Mar	16.13	14.51	17.80	16.18	12.52	12.94	39.25	40.00	
Apr	16.23	14.57	17.90	16.24	12.64	12.79	39.25	40.00	
May	16.41	14.85	18.08	16.52	12.43	12.79	39.25	40.00	
Jun	15.64		17.31		12.76		39.25		
Jul	15.28		16.95		12.19		39.25		
Aug	15.35		17.02		11.77		39.25		
Mkt year 2/	15.86		17.53		12.17		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: 6/13/2019

Table 7--U.S. feed grain imports by selected sources (1,000 metric tons) 1/, 6/13/2019

Import and country/region		---------- 2016/17 ----------		---------- 2017/18 ----------		2018/19
		Mkt year	Jun-Apr	Mkt year	Jun-Apr	Jun-Apr
Oats	Canada	1,507	1,445	1,483	1,393	1,338
	Sweden	27	5	41	41	27
	Finland	21	21	16	16	18
	All other countries	0	0	0	0	0
	Total 2/	1,556	1,471	1,540	1,450	1,382
Malting barley	Canada	102	95	87	78	63
	All other countries	17	17	1	1	0
	Total 2/	119	112	88	79	63
Other barley 3/	Canada	89	79	109	103	55
	All other countries	2	2	1	1	0
	Total 2/	90	81	110	104	55

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: 6/12/2019

Table 8--U.S. feed grain exports by selected destinations (1,000 metric tons) 1/, 6/13/2019

Export and country/region		---------- 2016/17 ---------- Mkt year	Sep-Apr	---------- 2017/18 ---------- Mkt year	Sep-Apr	2018/19 Sep-Apr
Corn	Mexico	13,932	8,637	15,724	9,294	11,127
	Japan	13,557	8,848	13,183	6,952	9,612
	South Korea	5,601	4,121	5,736	2,913	3,358
	Colombia	4,733	3,812	5,083	3,704	3,721
	Peru	2,989	2,117	3,238	2,154	1,987
	China (Taiwan)	2,962	2,328	2,464	1,091	1,620
	Saudi Arabia	2,163	1,759	1,495	720	605
	Guatemala	993	632	867	469	877
	Morocco	871	753	748	349	164
	European Union-27	843	223	1,904	997	33
	Costa Rica	819	511	853	537	572
	Dominican Republic	807	629	639	240	538
	China (Mainland)	807	32	306	239	6
	Canada	704	494	1,663	959	1,617
	Sub-Saharan Africa	605	482	137	19	20
	El Salvador	593	360	457	223	470
	Chile	543	543	15	0.573	15
	Honduras	506	328	621	348	366
	Panama	504	357	502	349	344
	Venezuela	419	200	435	375	150
	Indonesia	351	339	147	73	9
	Cuba	337	250	117	88	58
	Nicaragua	329	205	280	144	246
	Malaysia	327	318	68	43	40
	Egypt	323	277	1,332	397	530
	All other countries	1,652	1,239	3,921	1,629	944
	Total 2/	58,270	39,794	61,935	34,305	39,030
Sorghum	China (Mainland)	4,740	3,333	4,210	4,152	0.238
	Mexico	585	413	93	61	279
	Sub-Saharan Africa	467	386	363	183	207
	Japan	224	158	357	228	179
	All other countries	25	22	188	126	620
	Total 2/	6,041	4,313	5,211	4,750	1,286
		---------- 2016/17 ---------- Mkt year	Jun-Apr	---------- 2017/18 ---------- Mkt year	Jun-Apr	2018/19 Jun-Apr
Barley	Canada	63	54	69	66	42
	Japan	23	15	31	30	42
	China (Taiwan)	4	4	5	4	8
	Mexico	2	2	0.542	0.542	0.415
	All other countries	3	3	6	5	6
	Total 2/	95	77	111	106	99

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: 6/12/2019

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Related Data

Feed Grains Database is a queryable database that contains monthly, quarterly, and annual data on prices, supply, and use of corn and other feed grains. This includes data published in the monthly Feed Outlook.

Related Websites

- Mann Library Feed Outlook page Mann Library WASDE page
- Grain Circular https://www.fas.usda.gov/commodities/grain-and-feed
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