



# Feed Outlook

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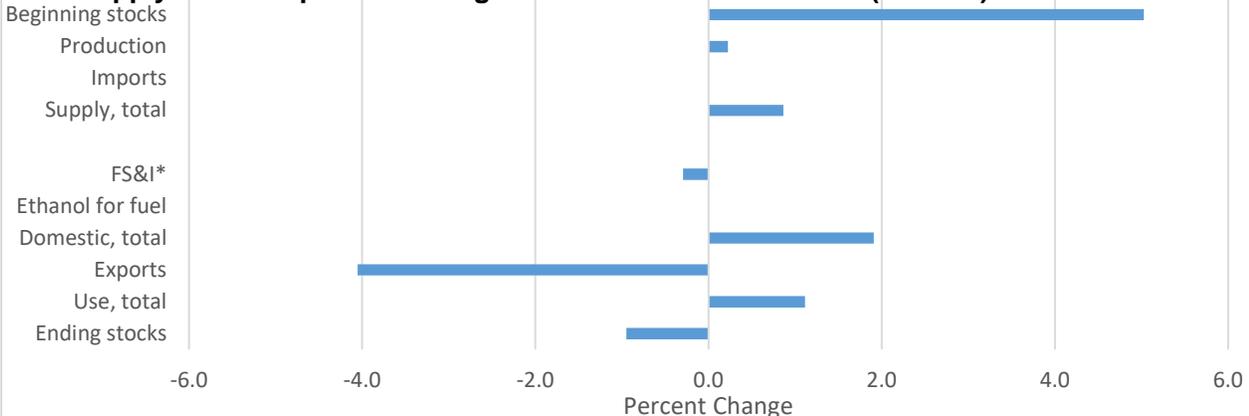
## Several Changes to Current and Past Year's Balance Sheets

There were several significant changes to both the 2018/19 and 2019/20 balance sheets this month, although the end result a modest forecast decline in U.S. corn ending stocks for 2019/20. Revisions to 2018/19 corn stocks result in a 106-million-bushel jump in stocks available for 2019/20 supply, although stronger-than-expected domestic demand during the September-to-November quarter more than offset the larger supplies. Total use for 2019/20 is projected 155 million bushels higher while 2018/19 is down 186 million.

Corn trade for the October-September international trade year (TY) is virtually unchanged, although with significant shifts for major exporters. Two major foreign corn exporters—Brazil and Ukraine—see their corn export projections grow, while U.S. corn exports for 2019/20 are cut 4 percent this month. Increased competition limits U.S. exports, despite expected record global corn trade. Global trade in sorghum and barley are projected higher.

Figure 1

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



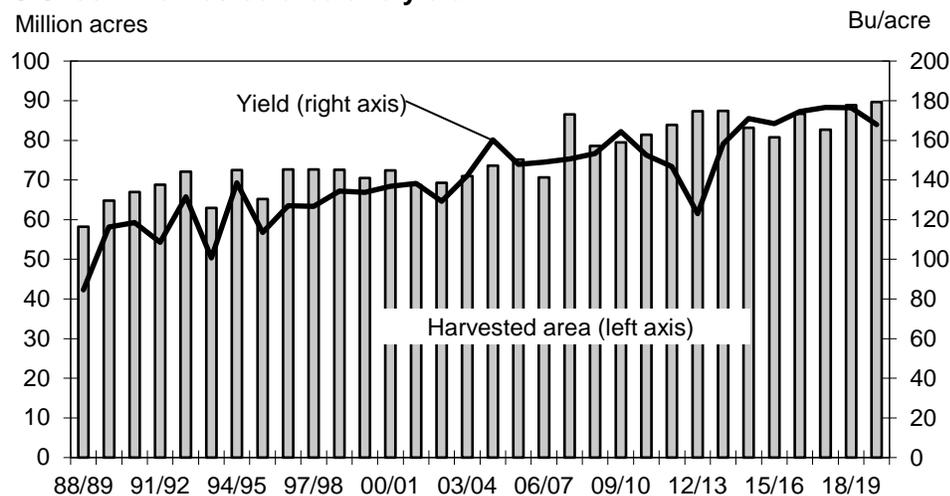
Source: Economic Research Service Feed Grain Database, U.S. Dept. of Agriculture.

# Domestic Outlook

## Production Revised For Both 2018/19 and 2019/20

Projected 2019/20 corn production is raised 31 million bushels this month to 13,692 million as lower harvested acreage is offset by a 1-bushel per acre increase in yield to 168 bushels per acre, on the farmer-reported survey conducted by the National Agricultural Statistics Service (NASS) during December, released in the NASS *Crop Production* report.

Figure 2  
**U.S. corn harvested area and yield**



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

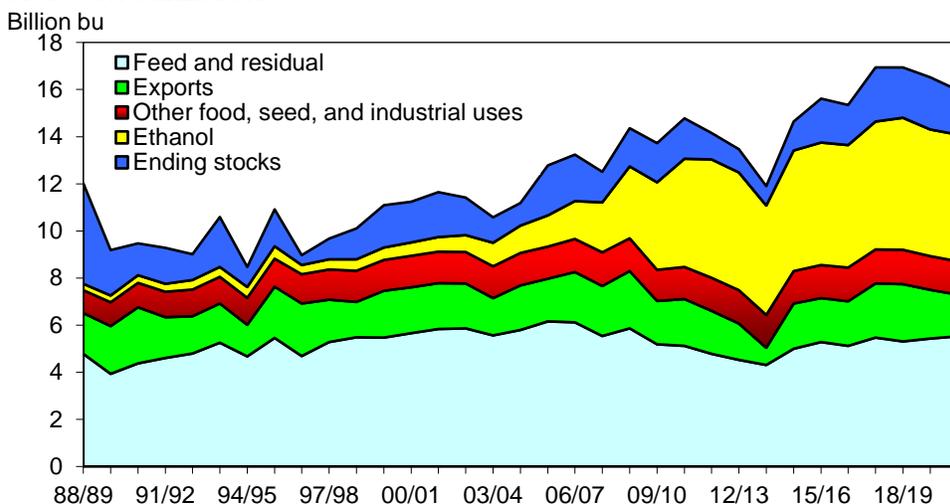
December 1 grain stocks of 11,389 million bushels, as reported in the NASS *Grain Stocks*, were lower than anticipated.

NASS will re-survey operators who reported acreage not harvested in Michigan, Minnesota, North Dakota, and Wisconsin in early spring and make updates as necessary.

## 2019/20 Disappearance Raised 155 Million Bushels

Feed and residual use for 2019/20 is projected 250 million bushels higher this month at 5,525 million. Food, seed, and industrial (FSI) use is lowered 20 million bushels with high fructose corn syrup and glucose and dextrose down 5 million bushels each, and starch is lowered 10 million bushels, all based on year-to-date data. There is no change in projected corn for ethanol. Total FSI use is projected at 6,770 million bushels. Projected exports are lowered 75 million

Figure 3  
**U.S. corn utilization**



Note: Marketing year 2018/19 and 2019/20 are projected.  
 Source: USDA, World Agricultural Outlook Board, WASDE.

bushels to 1,775 million due to the slow pace of sales and shipments, the lowest of outstanding sales in early January since 2012/13.

With total use projected at 14,070 million bushels, ending stocks are pegged at 1,892 million and stocks-to-use are projected slightly tighter at 13.4, compared with 13.7 last month.

For 2018/19, NASS revised harvested area made for an 80-million bushel reduction in production to 14,340 million and a reduction in supply of 80 million bushels to 16,509 million. In addition, September 1, 2019 stocks are revised upward by 106 million bushels to 2,221 million; thus, implied feed and residual disappearance is down 186 million bushels relative to last month.

First quarter 2019/20 (September-November) feed and residual is a record high at 2,640 million bushels.

## Grain-Consuming Animal Units

Grain-consuming animal units (GCAU) for 2019/20 are projected at 102.84 million units, up 0.24 million from last month. Estimated January 1 inventories fell this month for dairy and beef cattle, broilers, and layers, and also declined for beef cattle and turkeys. However, estimated January 1 inventories rose for layers, broilers, and hogs. GCAUs for 2018/19 are estimated at 100.73 million.

## Feed and Residual Use: Four Feed Grains and Wheat

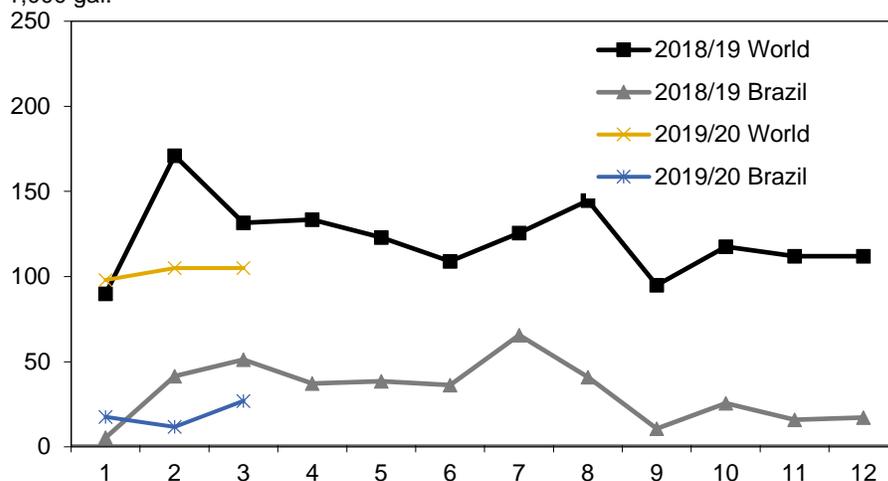
Feed and residual use for the four feed grains (corn, sorghum, barley, and oats) and wheat on a September-August marketing year basis for 2019/20 is projected at 150.5 million tons, up from 144.1 million tons last month. Feed and residual for corn and sorghum increased while barley and wheat declined. Feed and residual per GCAU increased slightly to 1.5 tons per GCAU.

## 2019/20 Food, Seed, and Industrial Use Update

Corn used to produce fuel ethanol, as reported in the NASS *Grain Crushings and Co-Products Production*, gained 8 percent to 456.7 million bushels in November, bringing first-quarter production to 1,295.4 million, 5-percent below the same period in 2018/19. Energy Information Administration weekly estimates of December ethanol production are up more than 3 percent from December 2018. Projected corn used for fuel ethanol is unchanged from last month's forecast. Exports of fuel ethanol during the first quarter of 2019/20 were 19 percent short of the same period last year at 308 million gallons, representing roughly 110 million bushels of corn.

Figure 4  
**U.S. fuel ethanol exports**

1,000 gal.

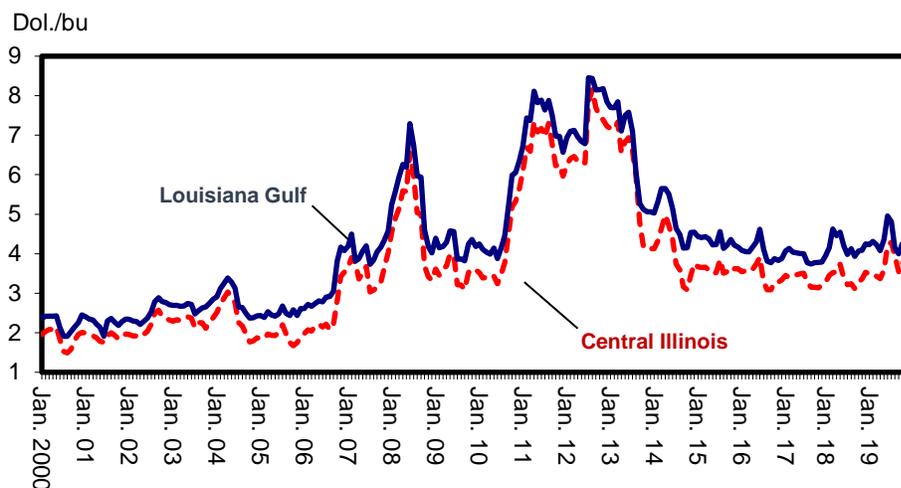


Source: USDA, Economic Research Service with data from U.S. Department of Commerce, U.S. Census Bureau.

Corn used for starch and sweeteners is adjusted this month based on complete first quarter (September-November) data. First quarter corn use for high fructose corn syrup (HFCS) production is projected 5 million bushels lower at 430 million bushels. Corn for glucose and dextrose is lowered 5 million bushels to 350 million and corn for starch is projected 10 million

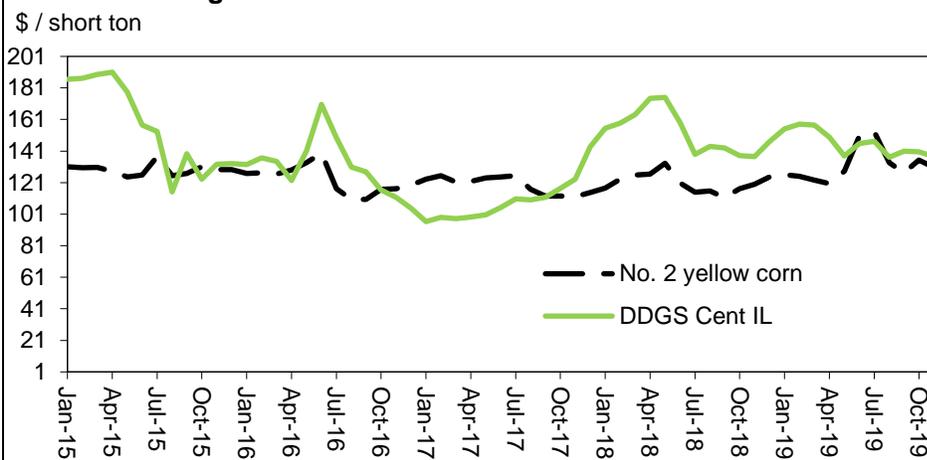
lower at 220 million bushels. For all these categories, September-November is significantly lower than the same period last year. With these revisions, total FSI use is projected at 6,770 million bushels, compared with 6,791 million bushels in 2018/19.

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.

Figure 6  
**Monthly and prices for Central Illinois no. 2 yellow corn and corn distillers dried grain**



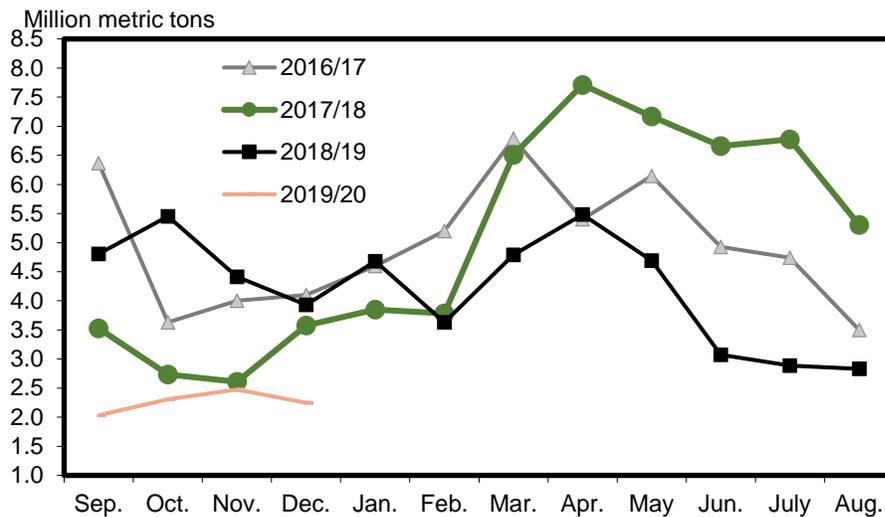
Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service.

## Corn Exports

U.S. corn sales and shipments for the first 4 months (Sep-Dec) in 2019 have been the lowest since the drought year of 2012/13. Actual shipments during September-November recorded by

Census totaled 268.7 million bushels compared with 632.1 million during the same period last year. This is reflected in projected 2019/20 export volume of 1,775 million bushels, 14 percent lower than 2018/19. During the first quarter of 2019/20, Mexico, Japan, and Colombia, Honduras, and Canada were the major destinations for U.S. corn.

Figure 7  
**Monthly U.S. corn exports**



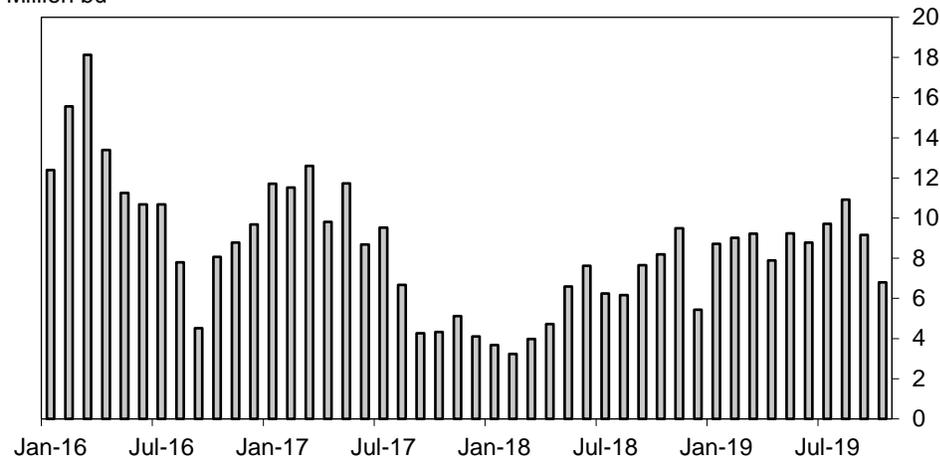
Source: USDA, Economic Research Service with data from U.S. Department of Commerce, U.S. Census Bureau, December 2019 Grain Inspections..

## Sorghum Production Lowered

The NASS survey of sorghum producers in the *Crop Production Annual* resulted in lower harvested area and yield for 2019/20. As a result the crop is reduced 16 million bushels to 341 million bushels. Adding 50,000 of imports brings total supply to 405 million bushels.

Feed and residual use is lowered 20 million bushels to 140 million, based on indicated disappearance during the September to November quarter. FSI is unchanged at 100 million bushels.

Figure 9  
**U.S. sorghum for ethanol use by month**  
 Million bu



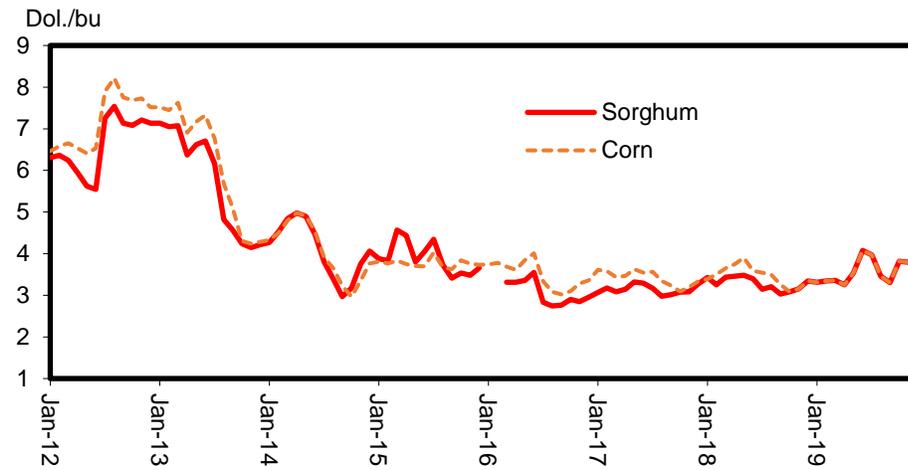
Source: USDA Economic Research Service with data from USDA, National Agricultural Statistics Service, *Grains Crushings and Co-Products Production*.

Exports are raised because of strong shipments to Mexico, as well as the fact that shipments to unknown destinations (see definition on page 11) through the end of December have increased. Total disappearance is projected 10 million bushels lower at 360 million.

Sorghum exports are raised 10 million bushels to 120 million on stronger pace during September-November, as reported by the Census Bureau and export inspection data during the month of December. Exports during the first quarter of 2019/20 reached 24.5 million bushels compared with 15.9 million bushels during the same period last year. Much of the increase is due to shipments to Mexico, which increased from 4.7 million bushels to 8.0 million.

Figure 10

### Monthly #2 grain sorghum and yellow corn prices for Kansas City



Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service.

## Barley FSI Lowered

Malt barley is a major ingredient in beer production, especially for craft beers, which tend to be brewed by smaller operations. Revisions to FSI use for barley this month reflect updated estimates of craft sector production relative to total beer production.

## Price Changes for 2019/20 Barley and Oats

The projected 2019/20 season average price (SAP) received by farmers for barley is lowered 5 cents per bushel to \$4.60 per bushel. The projected oats SAP is raised \$0.05 per bushel to \$2.95 based on sales to date.

# International Outlook

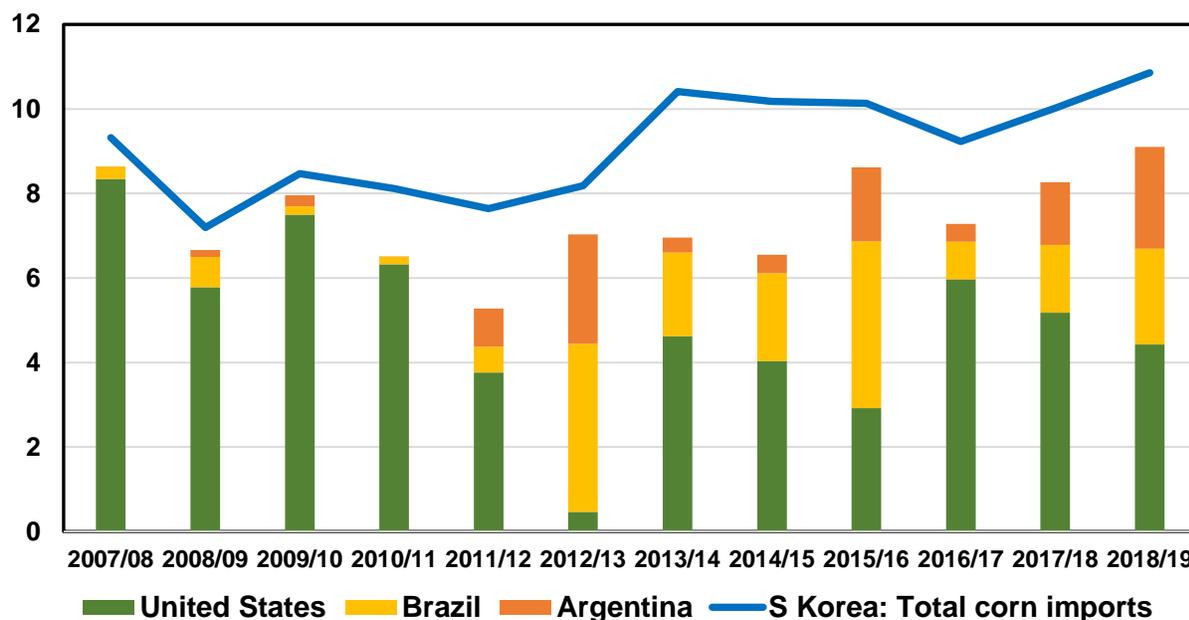
## U.S. Corn Exports Projected to Decline

Global corn trade is virtually unchanged this month, although with expectation of significant shifts among major exporters.

Projected U.S. 2019/20 corn exports are cut this month due to strong competition from South America and Ukraine that is curbing U.S. exports, despite high global corn trade. U.S. market share in the major corn importing countries has become highly dependent on the crop size in Brazil, Argentina, and Ukraine, as large crops in those countries boost their price competitiveness and tend to limit U.S. exports. Even in traditional stable U.S. import markets, such as Japan, Korea, and Taiwan, where the United States used to reign as the top foreign supplier, it is losing market shares (fig.11).

**Figure 11: U.S. is losing dominance in S. Korean corn import market**

Million tons, October-September international trade year.



Source: Trade Data Monitor (TDM).

**U.S.** October-September 2019/20 corn exports are projected down 2.0 million tons this month to 48.0 million (down 75 million bushels to 1,775 million for the September-August local marketing year), the lowest in 6 years. Similar to the previous year, all three other major corn exporters—

Brazil, Argentina, and Ukraine—are projected to have bumper harvests, combined with modest reduction in corn output in the United States.

The pace of U.S. corn shipments in the beginning of the year has been sluggish and by the end of December accumulated exports lag 55 percent behind last year. At 4.8 million tons, the census results for October-November 2019 are 30 percent lower than the 5-year average for these months. For December 2019, corn export inspections at 2.2 million tons stand at slightly more than half of what they were a year ago. Moreover, U.S. outstanding sales at the end of December not only lag behind the previous year, which was frontloaded, but are also the lowest since the drought year of 2012/13 for this time period.

On the other hand, **Brazil** has been exporting corn at a record pace. The country is within 2 months of the end of its 2018/19 local marketing year (March-February), and normally at this point its corn supplies are on the low end of the scale. Typically Brazilian corn exports decelerate in November, but in 2019 the country maintained a torrid pace of exports through December, exporting since March a total of 37.7 million tons of corn in 10 months, an average of almost 4.0 million tons a month. The fast pace of corn exports can be at least partly attributed to the slowdown of soybean exports that are competing for the country's struggling transportation system. However, in coming months Brazil's corn exports are expected to drop sharply, as highly profitable soybeans are currently being harvested and will soon be exported, thereby shifting port capacity use from corn to soybeans. Yet, when Brazil starts to harvest its second corn crop in July, roughly 75 percent of the total harvest corn exports are expected to surge again.

The higher recent pace is boosting corn exports by Brazil for the 2018/19 local (March-February) and the 2019/20 international trade (October-September) years, as both years include the bountiful months of October through December of 2019. Corn exports for the local 2018/19 marketing year are up 1.0 million tons to 42.0 million. Brazilian corn exports for the 2019/20 trade year (TY) are also projected 1.0 million tons higher to 39.5 million.

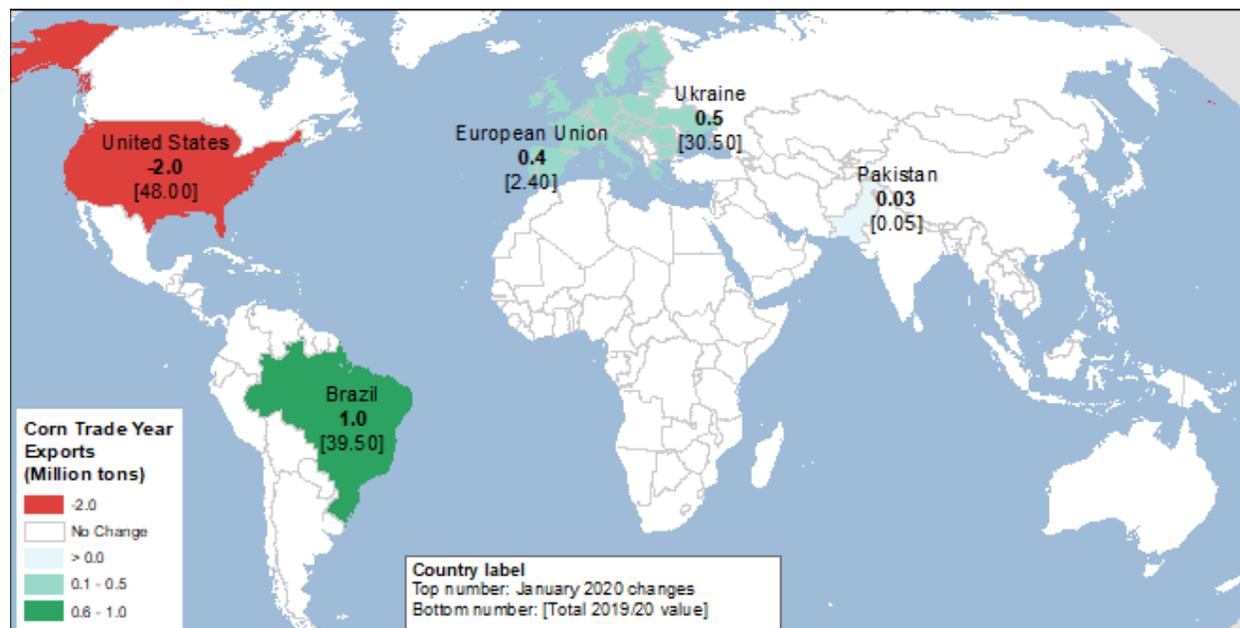
**Ukraine** has been rapidly exporting corn, pushing the projection up 0.5 million tons to a record of 30.5 million. An ongoing trend of declining feed and residual use as well as food, seed, and industrial use (FSI) of corn in Ukraine frees additional supplies in this export-oriented country, which has recently boosted its port export capacity.

With higher projected corn output and a healthy pace of sales, the **European Union (EU)** is expected to export an additional 0.4 million tons of the crop to reach 2.4 million.

Corn imports are adjusted slightly for **Bangladesh**, down 0.2 million tons to 1.4 million, due to a larger projected crop size.

For a visual display of the changes in corn TY-based exports, see *map A1* below.

**Map A1 – Corn trade year exports changes, January 2020**



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

Sorghum global trade is projected almost 6 percent higher this month, up 0.2 million tons to 3.7 million, as the **United States** is exporting additional amounts of the crop to **Mexico**, as well as to unknown destinations—a category in the export sales reporting system for countries not specified at time of filing. U.S. sorghum exports are projected up 0.2 million tons to reach 3.0 million (up 10 million bushels to 120 million). Mexican sorghum imports are up 0.2 million tons this month, though sorghum imports by the **EU** are reduced based on pace of imports.

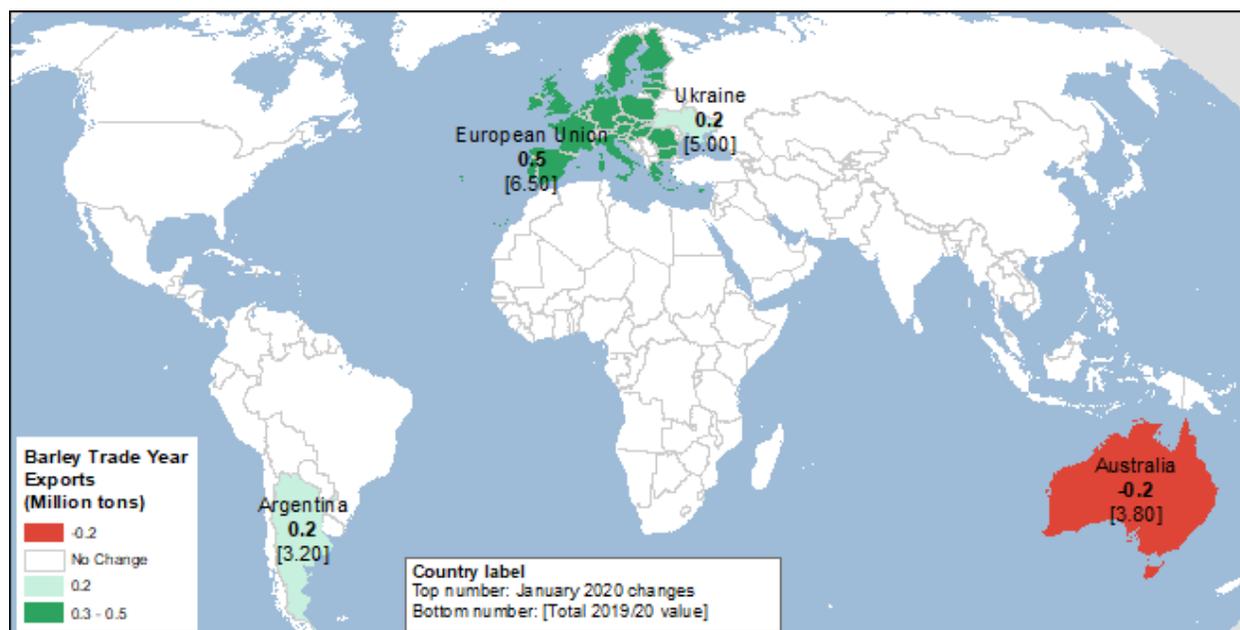
Barley global trade is up 0.7 million tons this month to 28.8 million, reflecting higher imports by **Turkey** and **China**. Turkey has been importing close-to-record amounts of barley (as well as wheat), despite good harvest results. Turkish barley imports (which come mainly from Ukraine) are projected 0.6 million tons higher at 0.7 million, and are expected to be used mostly in the country's poultry industry. A downward revision of barley area in China and corresponding sharp reduction in the country's barley output explain and justify an observed high pace of barley imports, projected 0.2 million tons higher this month to reach 6.5 million.

The barley export projection for the **EU** is boosted 0.5 million tons to 6.0 million this month, as the region (mainly France) ships large additional volumes of barley to China. Barley exports are

also projected higher for **Ukraine** and **Argentina**, up 0.2 million tons, each based on the pace of their exports to the Middle Eastern countries. With lower projected crop, barley exports are reduced for **Australia**, down 0.2 million tons.

For a visual display of the changes in corn TY-based exports, see *map A2* below.

**Map A2 – Barley trade year exports changes, January 2020**



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

## World Coarse Grain Production Marginally Higher

Global coarse grain production in 2019/20 is projected fractionally higher this month at 1,401.8 million tons, up just 0.1 million. Higher estimated U.S. corn production more than offsets the reduced foreign production forecast, which is projected down 0.3 million tons to 1,040.6 million. Foreign corn production is up by 1.45 million tons this month, with around 0.5-million-ton changes for Russia, EU, and Bangladesh. Foreign barley prospects are reduced 0.75 million tons, mixed grain is down 0.9 million tons, and while small changes in foreign oats and rye output are offsetting, millet is changed fractionally.

Corn output in **Bangladesh** is projected up 0.5 million tons to 4.0 million, following the reports of increased use of high-yielding improved seeds, as the farmers are striving to meet the growing demand of the country's feed sector.

**Russian** corn production is also projected 0.5 million tons higher this month to reach 14.5 million. The increase is based on the preliminary State Statistics report that suggests a larger

harvested area: an extra 100 thousand hectares that are expected to produce an additional half a million tons of crop. The report also suggests small nearly offsetting changes for Russian oats, rye, and millet.

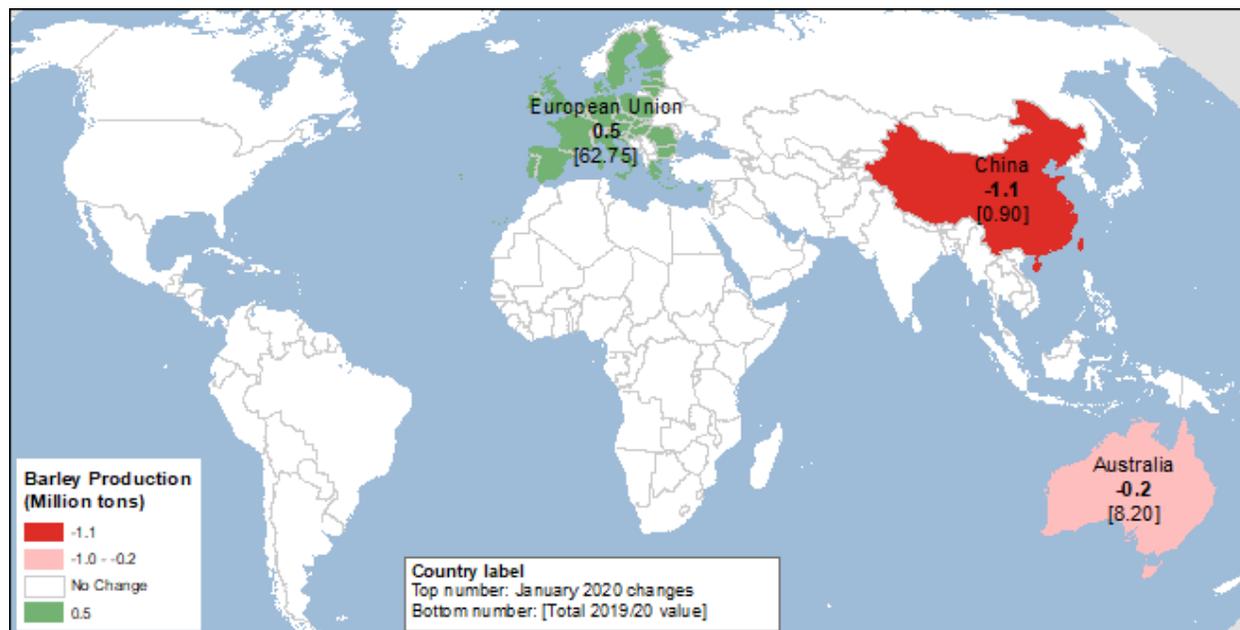
The **EU** and its member states account for much of this month's coarse grain revisions in barley, corn, and mixed grain. Revisions for the EU are based on official country data becoming available. Corn production is expected to be 0.4 million tons higher. The increases come from **Hungary** and **Italy**, the countries where corn accounts for the largest share of feed grain crop area, and are based on higher area harvested. **Croatia**, a small country in southeastern Europe, is a trivial producer of grain that nevertheless adds marginally to this month's EU corn production estimate. Barley production in the EU is projected 0.5 million tons higher this month, with increased yields across **Spain**, **Hungary**, and the **UK** more than offsetting a reduction in **Poland**. **Austria**, a small barley producer, is also expected to harvest slightly more barley. For Hungary, barley yield increased substantially, up 11 percent from last month. A sizeable reduction of 0.9 million tons in **EU** mixed grain occurs this month, owing mainly to a decline in **Poland**, but also in **Germany** and **Hungary**.

Barley production is reduced in **China**, down 1.1 million tons to just 0.9 million for 2019/20. For 2018/19, the decline is projected to also be 0.9 million tons, based on recent official data releases from the Chinese National Bureau of Statistics (NBS). **Australian** production of barley is cut by 0.2 million tons, based on the updated model results for the total season NDVI (Normalized Difference Vegetation Index) that suggests a 2.3 percent reduction in expected yield, the lowest since 2012/13.

The total projected 2019/20 corn output for **Brazil** is left unchanged this month. The first-season corn crop has already been planted and is going through pollination and filling stages of crop development in the southern states of Rio Grande do Sul (RGDS) and Parana. Heat and dryness that developed in the state of RGDS in December could reduce to some degree the harvested area and yields in this state that produces around 6 million tons of corn, a bit less than 6 percent of the total. On the other hand, planting of the second-season corn, that dominates Brazilian corn production, is starting in January under very favorable conditions. Planting is occurring at a time when good soil moisture in the major second corn crop areas is accompanied by high domestic prices, a combination that is expected to boost second crop area. Therefore, any possible reductions in the first-season crop in RGDS are expected to be offset by the higher second corn crop area in the Center-West of the country, by far the largest producing region of the Brazilian second corn crop.

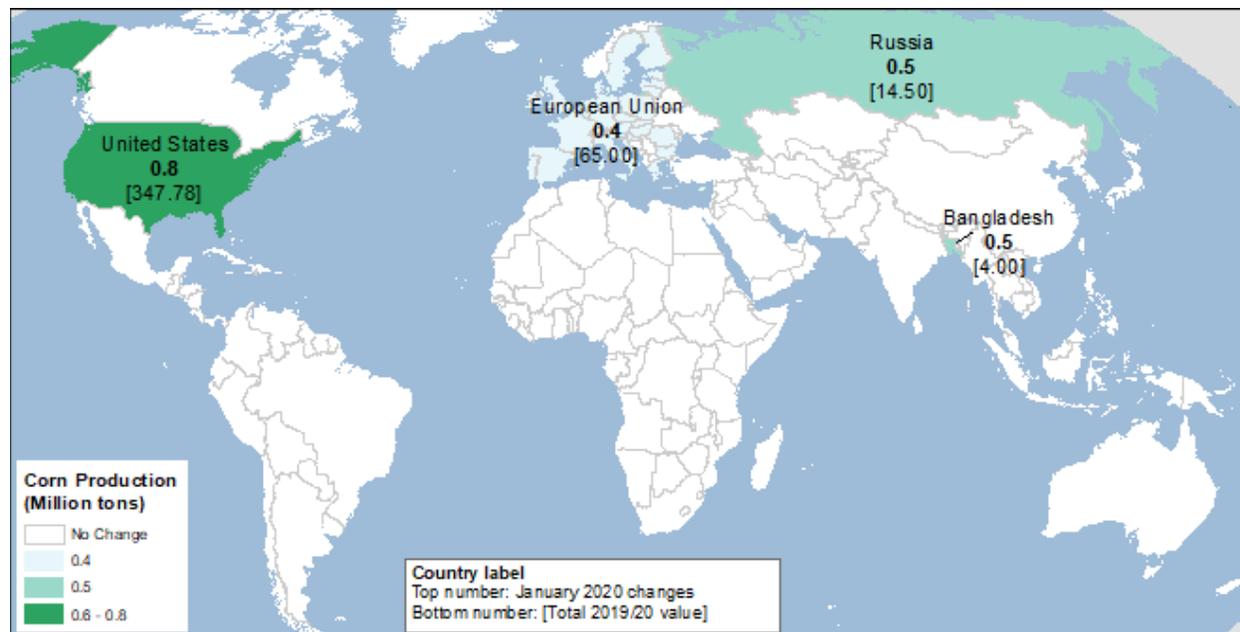
For a visual display of the changes in corn and barley production this month, see *maps B1 and B2* below.

**Map B1 – Corn production changes, January 2020**



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

**Map B2 – Barley production changes, January 2020**



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

## Coarse Grain Feed Use Projected Higher

Global coarse grain feed and residual use for 2019/20 is projected 6.3 million tons higher this month to reach 865.4 million, an increase almost fully driven by the **United States** (see domestic section above).

The largest—and almost mutually offsetting—changes in foreign coarse grain use are projected for **China**, where a cut in barley production is expected to shift feed use from barley to corn. Even with higher projected barley imports, Chinese barley feed use is projected to decline. A 0.9-million-ton reduction in barley feed and residual use is expected to be more than offset by corn feeding, which is projected up 1.0 million tons to 190.0 million, leaving Chinese coarse grain use slightly higher.

Coarse grain feed and residual use is reduced in the **EU** this month, in line with production changes, as lower mixed grain and sorghum feeding are expected to be partly offset by higher barley feed and residual and FSI use. **Ukrainian** use of corn and barley for both feed and FSI are projected lower this month. Declining population and lackluster livestock development in Ukraine over the past few years has generated a trend of reduced domestic use of crops, which allows the country to boost exports. Higher projected corn output is expected to boost corn feeding for **Russia**. Increased imports are expected to enhance barley feed use in **Turkey** for its poultry sector. With increased corn output and a growing demand from the feed industry, corn feeding is projected higher in **Bangladesh**.

## Projected Global Ending Stocks Reduced

Growth in global coarse grain use is steeper than an increase in supplies, which reduced expected global ending stocks. World 19/20 coarse grain ending stocks are forecast 3.8 million tons lower than the December projection, to reach 327.7 million. Foreign coarse grain stocks are projected to decline by 3.1 million tons, while U.S. stocks are reduced slightly (see domestic section). The largest changes in foreign stocks include a projected reduction in corn stocks for **China**, down 2.0 million tons (higher feed use for two consecutive years); a reduction in corn stocks in **Brazil**, down 0.5 million tons due to increased corn exports in the 2018/19 local marketing year; and lower barley stocks for **Argentina**, down 0.4 million tons (higher exports of barley). All other country changes in stocks this month are smaller.