



# Feed Outlook

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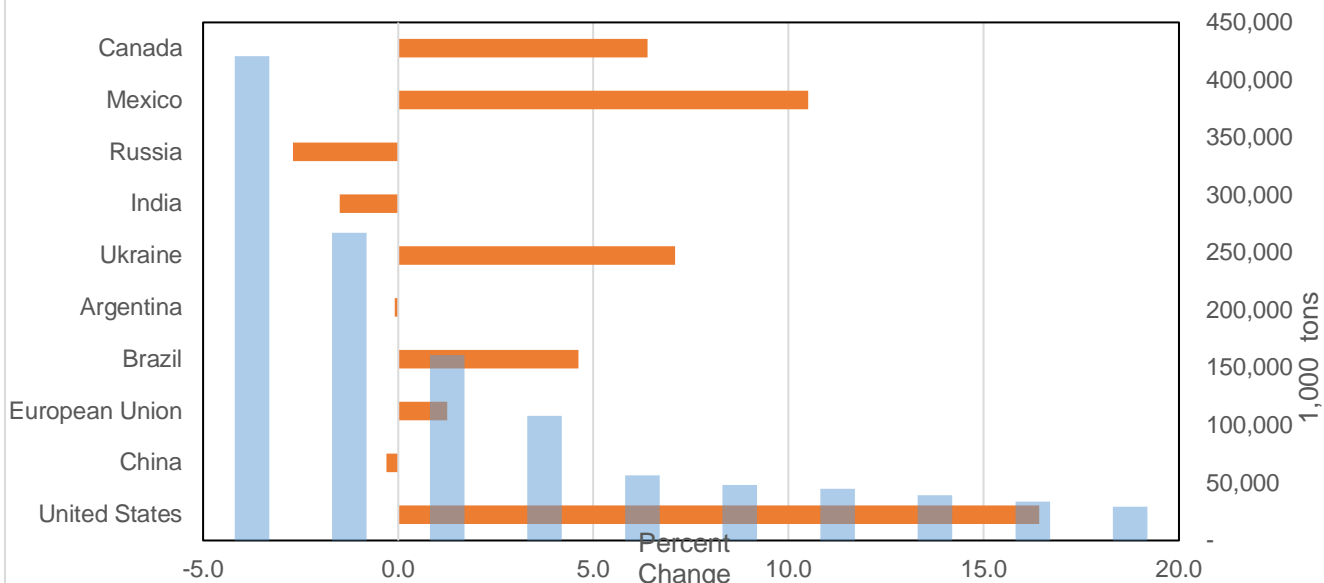
## Record-High Crop Projected For 2020/21

The 2020/21 U.S. corn crop is forecast to be a record high 16.0 billion bushels. In spite of lower carryin, supplies will still reach a record 18.1 billion bushels. Corn use is also projected at a record level as food, seed, and industrial (FSI) use, feed and residual use and exports all increase from the 2019/20 COVID-19 impacted levels. Total use is projected at 14.8 billion bushels. Ending corn stocks of 3.3 billion bushels are up 1.2 billion bushels from last year and, if realized, would be the highest since 1987/88. The stocks-to-use ratio is the highest since 1992/93, contributing to a \$0.40 per bushel reduction in the projected season average price of corn to \$3.20.

Global 2020/21 coarse grain production is projected at a new record of 1.5 billion tons, with a rebound in the United States and large crops in Brazil, Argentina, and Ukraine. Despite record-high corn production prospects, U.S. 2020/21 corn exports face tough competition and are projected at a mere 30 percent of global corn trade, while Brazil, Argentina, and Ukraine are expected collectively to have a 58 percent export share. Sorghum exports are boosted for both 2020/21 and 2019/20, based on growing demand from China. Coarse grain use affected by the pandemic in 2019/20 is projected down, but recovering in 2020/21.

Coarse grain global ending stocks for 2020/21 are projected higher, with corn stocks taking the lead and U.S. stocks the highest in 33 years. Foreign corn ending stocks are expected to fall, with a decline for China. Excluding China, foreign corn stocks end up slightly higher.

**Coarse grains production changes by ten largest producers (2019/20 to 2020/21)**



	United States	China	European Union	Brazil	Argentina	Ukraine	India	Russia	Mexico	Canada
<span style="color: orange;">■</span> % Change	16.4	-0.3	1.3	4.6	-0.1	7.1	-1.5	-2.7	10.5	6.4
<span style="color: blue;">■</span> Production	420,511	267,375	161,233	108,405	56,704	48,475	44,750	39,400	33,600	29,535

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

# Domestic Outlook

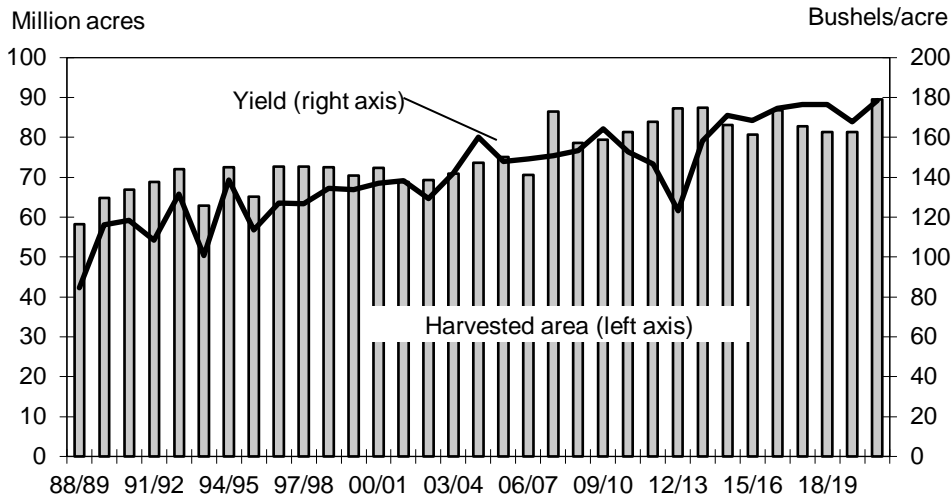
## Corn Planting Advances Quickly as Record Crop is Projected

Corn planting is well underway and running ahead of the pace of recent years. As of May 10, 67 percent of the corn crop was in the ground, compared with a 5-year average of 56 percent. Iowa, the largest corn-producing State, has planted 91 percent of its crop, compared with the 5-year average of 66 percent. Last year at this time, only 28 percent of the crop had been planted, due to extremely wet conditions that kept farmers out of the fields.

Planted area is projected at 97.0 million acres, based on the March 31 National Agricultural Statistics Service (NASS) *Prospective Plantings* report. If realized, this would produce a record-high corn crop of 15,995 million bushels at the projected weather-adjusted trend yield of 178.5 bushels per acre. This assumes normal planting progress and, summer growing season weather, and the historical relationship between planted and harvested area.

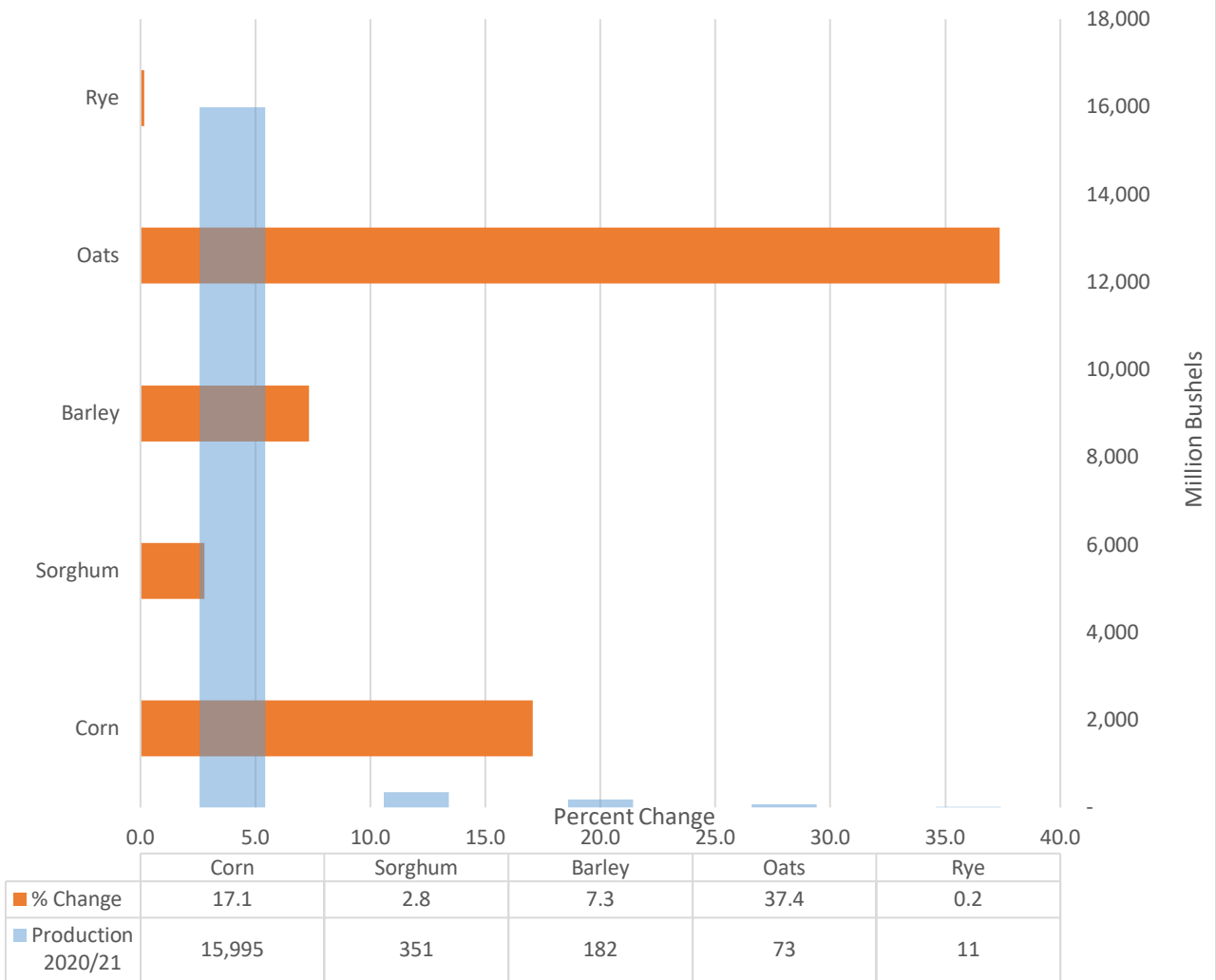
Supplies at this level of production would be 18,118 million bushels, given a projected carryin of 2,098 million bushels and imports of 25 million. The 2019/20 estimated supply is 15,928 million bushels. The previous record was set in 2016/17, at 16,942 million bushels.

Figure 1  
**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, 2020.

Figure 2  
**Coarse grains production changes by grain in U.S. (2019/20 to 2020/21)**



Source: USDA, Economic Research Service with data from the World Agricultural Outlook Board.

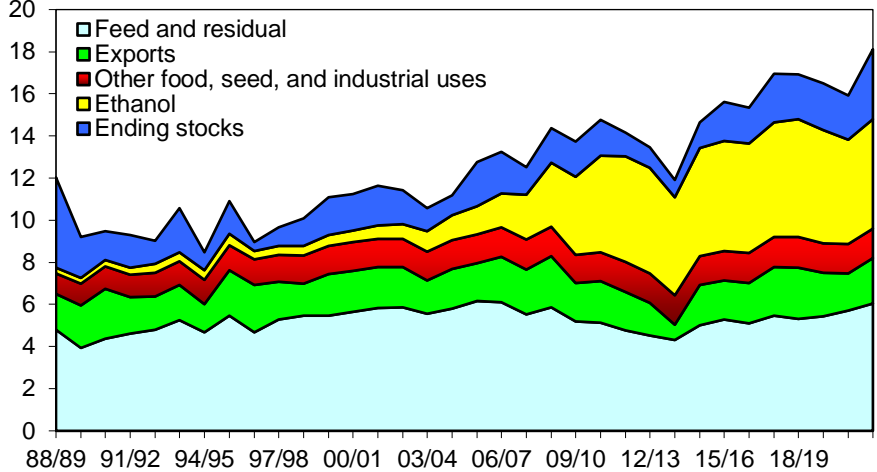
## 2020/21 Corn Use Projected to Recover

Corn disappearance for 2020/21 shows a rebound from the COVID-19 devastated markets. Feed and residual is projected at 6,050 million bushels, 350 million greater than 2019/20 on increased grain consuming animal units, a larger crop, and lower expected prices. Food, seed, and industrial (FSI) gains 245 million to 6,600 million bushels as motor gasoline consumption returns to more normal levels spurring ethanol blending. Domestic disappearance is projected to be 12,650 million bushels, 595 million greater than last year.

Figure 3

**U.S. corn utilization**

Billion bushels



Note: Marketing year 2019/20 and 2020/21 are projected.

Source: USDA, World Agricultural Outlook Board, World Agricultural Supply and Demand Estimates.

Corn exports are slated to increase as global markets revive and, with the large crop, U.S. prices are competitive. Projected exports are 2,150 million bushels, 375 million over last year. Resulting total disappearance is projected at 14,800 million bushels, a gain of 970 million over last year.

Ending corn stocks are pegged at 3,347 million bushels, an increase of 1,220 million from last year, the highest since 1986/87's 4,882 million. The stocks-to-use ratio is 22.6, the highest since 1992/93. The larger stocks relative to disappearance, the season average price received by farmers is projected at \$3.20 per bushel, \$0.40 below 2019/20 and the lowest since 2006/07's \$3.04 per bushel.

## COVID-19 Continues to Impact 2019/20 Marketing Year Demand

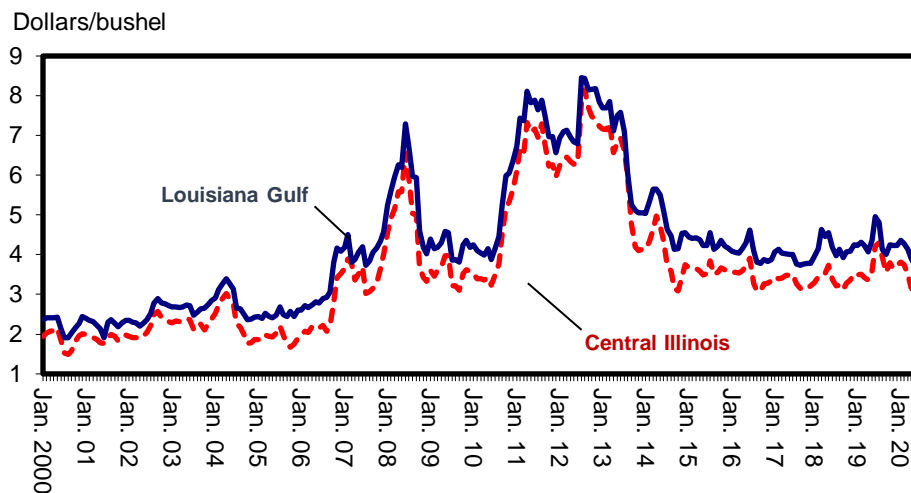
The projected 2019/20 corn disappearance is lowered again this month as the effects of COVID-19 continue to ripple through the economy. FSI use is lowered 110 million bushels to 6,355 million as an ongoing collapse of motor fuel demand continues to erode ethanol production and use. Corn for ethanol is lowered 100 million bushels this month. High fructose corn syrup (HFCS) is lowered 20 million bushels; this is partially offset by a 5-million increase in forecast starch production, as the higher volume of good shipped increases the demand for cardboard and paper made from corn starch. Corn used for cereals is raised 5 million bushels on indications of greater demand for corn-based food products.

Feed and residual use is raised 25 million bushels to 5,700 million, reflecting lower supplies of distillers dried grains, bringing domestic disappearance to 12,055 million bushels.

Improved corn export prospects, driven by improved price competitiveness and current year-to-date pace, are behind a 50-million-bushel increase to 1,775 million bushels. Resulting total disappearance is projected at 13,830 million bushels, nearly 500 million below last year and 35 million below last month's projection.

Figure 4

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



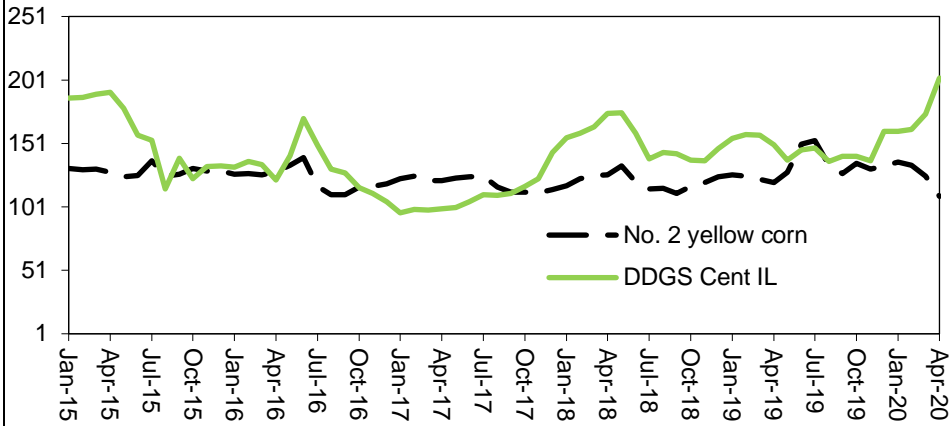
Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service.

Projected ending corn stocks are increased by 6 million bushels to 2,098 million. The 2019/20 season average price received by farmers is unchanged this month at \$3.60 per bushel.

Figure 5

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

Dollars/short ton



Source: USDA, Economic Research Service (ERS) using data from the ERS Feed Grains Database and USDA, Agricultural Marketing Services.

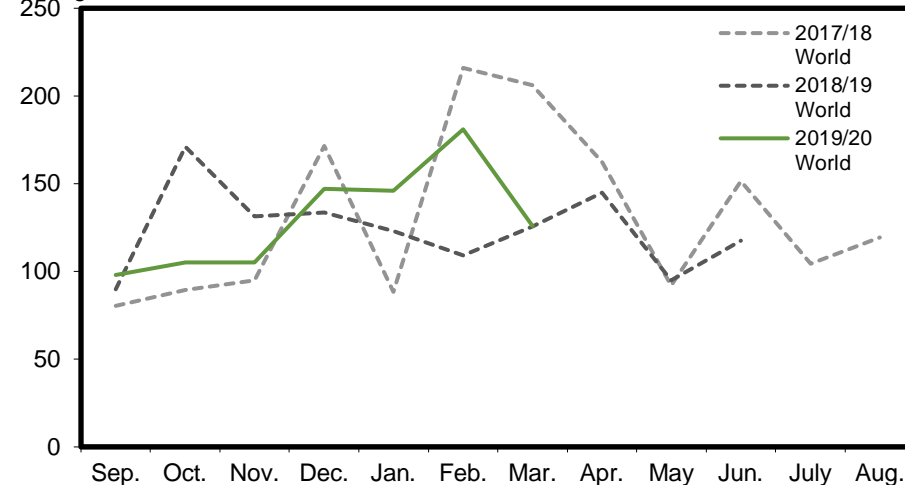
## U.S. Feed Grain Use Lowered

U.S. feed grain disappearance for 2020/21 is projected at 391.6 million metric tons, 24.7 million above last year. Feed and residual use, projected at 158.1 million tons, is 8.8 million higher than the 2019/20 estimate. FSI use, at 173.2 million tons, is 5.8 million over last year. Exports are projected to increase 10.0 million tons to 60.3 million. Total feed grain disappearance in 2019/20 is estimated at 366.9 million tons.

Figure 6

**U.S. fuel ethanol exports**

1,000 gal.

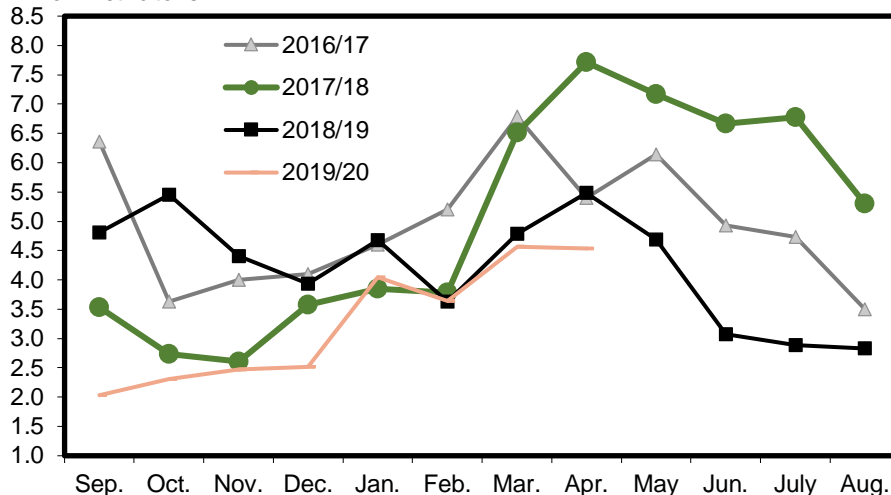


Source: USDA, Economic Research Service with data from U.S. Department of Commerce, Bureau of the Census.

Figure 7

### Monthly U.S. corn exports

Million metric tons



Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census, January 2020 Grain Inspections.

## Grain Consuming Animal Units

Grain consuming animal units (GCAU) for 2020/21 are projected at 103.46 million units, 1.45 million higher than the revised estimate for 2019/20 of 102.01 million units. In 2020/21, expansion in GCAUs is driven by greater cattle on feed and poultry more than offsetting a modest decline for hogs. For 2019/20, poultry and hog inventories were down, while beef cattle were slightly higher.

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

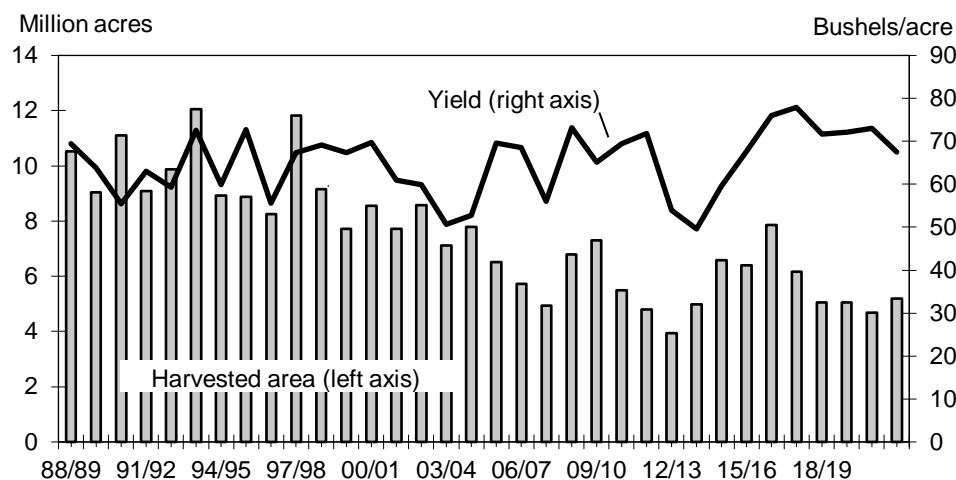
On a September-August basis, feed and residual use for the four feed grains and wheat are projected at 160.8 million metric tons, 7.4 million higher than last year's estimate of 134.4 million. Feed and residual use for corn is higher, at 153.7 million tons, while all others declined.

## Modestly Higher Sorghum Production Projected for 2020/21, Use Down Year Over Year

Projected production of sorghum in 2020/21 is 351 million bushels, up from the 2019/20 production projections of 341.5 million bushels. This increase in production is due to higher planted and harvested area projections of 5.82 million acres and 5.2 million acres, respectively. This more than offsets a projected year-over-year decline in yield at 67.5 bushels per acre.



Figure 8  
**U.S. sorghum harvested area and yield**



Sources: USDA, Economic Research Service with data from USDA, National Agricultural Statistics Service, *Quick Stats* and USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates*.

Total sorghum supply is projected down year over year in 2020/21 to 386.2 million bushels, due to lower beginning stocks to start the year at 35.2 million bushels. Total domestic use is projected to be 135.0 million bushels, down from the 170.0 projected for 2019/20. This is due to less sorghum being used as feed at 185.0 million bushels, less used as food, seed, and for industrial uses at 50.0 million bushels, —and less going to ethanol production at 48.0 million bushels, all year-over-year declines.

Year-over-year increases in sorghum exports are projected. These exports are expected to expand by 10.0 percent, to 220.0 million bushels in 2020/21, over the 200.0 projected for 2019/20. This results in expected ending stocks of 31.2 million bushels, down from the ending stocks projected in 2019/20 of 35.2 million bushels. The season average price received by farmers is expected to decline to \$3.20 per bushel in 2020/21, down from \$3.25 in 2019/20's current projection.

## Sorghum Use in 2019/20 Projected Down Month over Month Offset by Increased Exports

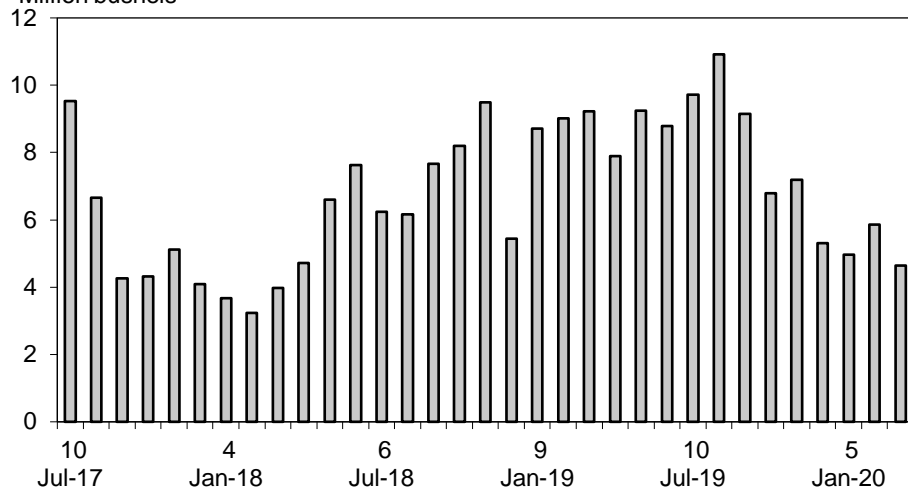
Total sorghum use in 2019/20 is unchanged at 370.0 million bushels. Fewer bushels used for all sub-use categories are also projected, with needs for feed and residual use down by 5.0 million bushels to 100.0 million, and food, seed, and industrial uses down by 10.0 million due to a 10.0-million-bushel reduction in the use for ethanol production. A 15.0-million bushel projected

increase in sorghum exports fully offsets these bushels lost to use, resulting in exports at 200.0 million bushels and ending stocks unchanged at 35.2 million bushels.

Figure 9

**U.S. sorghum for ethanol use by month**

Million bushels



Note: Months for which data were withheld to avoid disclosure are shown as null.

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

## Larger Production, Use, and Ending Stocks Projected for 2020/21

Production of barley in 2020/21 is projected to be up year over year, to 182.0 million bushels.

This increase is due to larger area planted and harvested more than offsetting a small decrease in projected yield year over year. Harvested area is projected at 2.4 million acres -, —more than 2019/20’s 2.9 million acres—while yield is projected to be 75.8 bushels per acre, down slightly from 2019/20’s 77.7 bushels per acre. Additionally, a 1.0-million bushel reduction in barley imports is projected in 2020/21 at 7.0, down from 2019/20’s 8.0-million-bushel import level.

Domestic total barley use is projected up in 2020/21 over 2019/20, at 183.0 million bushels.

Feed and residual use are is projected to be 40.0 million bushels - while food, seed, and industrial use is projected to be 143.0 million bushels. Both barley use categories are up year over year.

Barley exports are projected down by 1.0 million bushels to 5.0 million bushels in 2020/21. All of these changes result in a higher level of ending stocks, at 93.1 million bushels, over 2019/20’s 92.1-million-bushel projection. The average farm price is projected down year over year to \$4.30 per bushel.

## Barley Use Down, While Price is Projected Up in 2019/20

Barley feed and residual use is projected up by 5.0 million bushels, to 30.0 million. Food seed, and industrial uses is projected down by 10.0 million bushels to 136.0 million bushels. This reduction in use more than offsets the increased feed use, resulting in total domestic use to be projected down by 5.0 million bushels in 2019/20 to 166.0 million bushels. These 5.0 million bushels not used result in a 5.0-million bushel projected increase to ending stocks, now projected at 92.1 million bushels. The season average price received by farmers in 2019/20 is projected \$0.10 per bushel higher at \$4.70 per bushel.

## Larger Oat Supply Projected for 2020/21, While Prices Decline and Use is Modestly Up

Oat production in 2020/21 is projected at 73.0 million bushels, up year over year, due to more area planted and harvested and increased yield projections. Imports are projected up year over year to 96.0 million bushels, resulting in total supply of 198.0 million bushels, up over 2019/20's 182.0 million bushels.

Oat feed use in 2020/21 is projected to be 75.0 million bushels, up over the prior year. Food, seed, and industrial use is projected down year over year to 79.0 million bushels. All of these changes result in a total domestic use of 154.0 million bushels, modestly up over the prior year. Additionally, ending stocks are projected up year over year in 2020/21 at 42.0 million bushels. Price per bushel is projected to be \$2.50, down \$0.35 per bushel over 2019/20.

## Total Oat Supply Down, While Use Up in 2019/20

Oat supply in 2019/20 is projected down by 1.0 million bushels due to a 1.0-million-bushel reduction in imports. Total supply is now projected to be 182.0 million bushels. At the same time, total use is projected to be up by 3.0 million bushels, due to an additional 3.0 million bushels being used for food, seed, and industrial uses. These changes shake out of the balance sheet as a 4.0-million-bushel reduction in ending stocks for 2019/20, now projected to be 29.0 million bushels. Price per bushel is projected to be \$2.85, the same as last month.

# International Outlook

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## Sharp Increase Projected for 2020/21 Coarse Grain Production

Global coarse grain production in 2020/21 is projected to reach a new record of 1,481.4 million tons, up more than 5 percent (or 75.4 million tons) from the previous year, with the increase led mostly by the United States where output is currently projected 60.0 million tons higher than last year. The expected record-high U.S. corn crop underpins 80 percent of the growth in 2020/21 world coarse grain production. However, foreign (defined as global minus the United States) coarse grain production is also projected to grow by 15.3 million tons (or 1.4 percent) to a record-high of 1,060.9 million tons. Output of all types of foreign-produced coarse grains, except barley are projected higher.

World **corn area** is projected 5.5 million hectares higher to reach 197.7 million hectares, with the lion's share of the increase—60 percent—coming from the United States (see above domestic section of the report). The rest of the increase in corn area of 2.2 million hectares is projected to take place in China, Ukraine, Brazil, and Mexico, more than offsetting area reductions in South Africa, India, and several other countries. Although low global prevailing corn prices provide a disincentive to expand area, depreciating currencies lift domestic prices and therefore expected net returns, while policies and favorable weather also support area expansion in a number of countries.

Global **barley area** is projected about 2 percent lower than last year. Several major producers, such as Russia and Ukraine, are shifting away from barley to corn and wheat. In North Africa, barley area is reduced mainly because of the drought in western Morocco and western Algeria. Partly offsetting this reduction is a small increase in Australia, following an expected recovery from drought in the prior year.

Under the assumption that China will carry on with the reversal of its sorghum tariffs policy that largely stopped sorghum imports from the United States, the 2020/21 foreign consumption for sorghum is projected about 4 percent higher than last year. While corn markets are saturated, the prices for sorghum are running high posting sharp gains and getting closer to wheat prices—thereby supporting an expansion of **sorghum area** in the United States, as well as in India and Australia.

The May initial assessment of world coarse grain supply and demand in 2020/21 is highly tentative. For many countries, coarse grain yields are projected at trend levels—with spring planting ongoing in the Northern Hemisphere and months away in the Southern Hemisphere, where the 2019/20 crop is still being harvested. Trend yields imply normal weather: a mix of favorable and unfavorable weather. However, for fall planted coarse grains such as winter barley in the Northern Hemisphere, yield prospects can be better assessed with good conditions across parts of the Middle East and an extremely dry start (after very wet autumn weather) of the spring season in the EU. The large increase in corn area in the United States, where average yields are much higher than those of other large producers, as well as a strong trend for corn yields in other major producing countries, support higher global yield prospects.

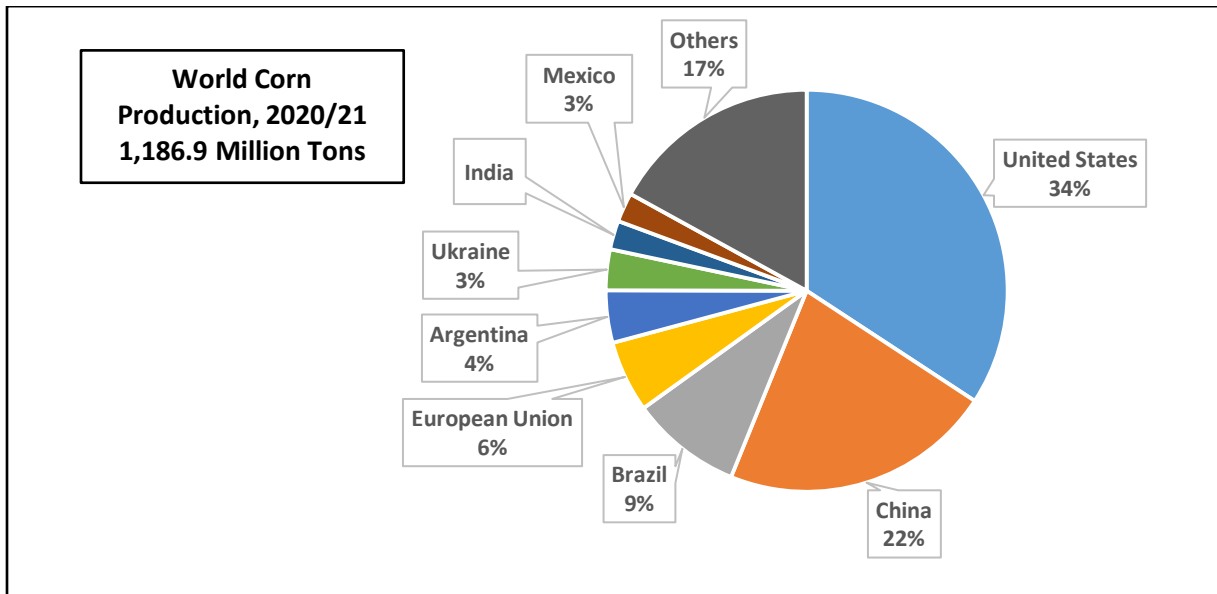
The average world coarse grain **yield** in 2020/21 is projected to reach a record 4.39 tons per hectare, up more than 3 percent from last year. An assumed return to trend yields from some of the extremes of 2019/20 denotes an increase for 2020/21 in corn yields for the United States, Brazil, European Union (EU), and Ukraine, among others. Barley yields are projected lower, following adverse conditions in the EU and Russia. Despite lower projected sorghum yields for the United States, world sorghum yields are projected to be slightly higher, mainly due to a recovery in Australia, Mexico, and Sun-Saharan Africa, which return to average yields from a year ago.

USDA monitors the production of various commodities in more than 200 countries and regions, the data being recorded and continuously updated by the Foreign Agricultural Service (FAS) and reflected in the Production, Supply, and Distribution database. The most important production-related developments in the new forecast for major commodities are published in the FAS “**World Agriculture Production**” report.

Global corn production is dominated by eight countries (regions) that produce more than 80 percent of the world’s corn. The United States is the top producer, though its world output share that used to be slightly above 40 percent, has stayed under 35 percent since 2010. During the same period, the combined corn production share of Brazil and Argentina has increased from 10 to 13 percent, (fig. 10).

Figure 10

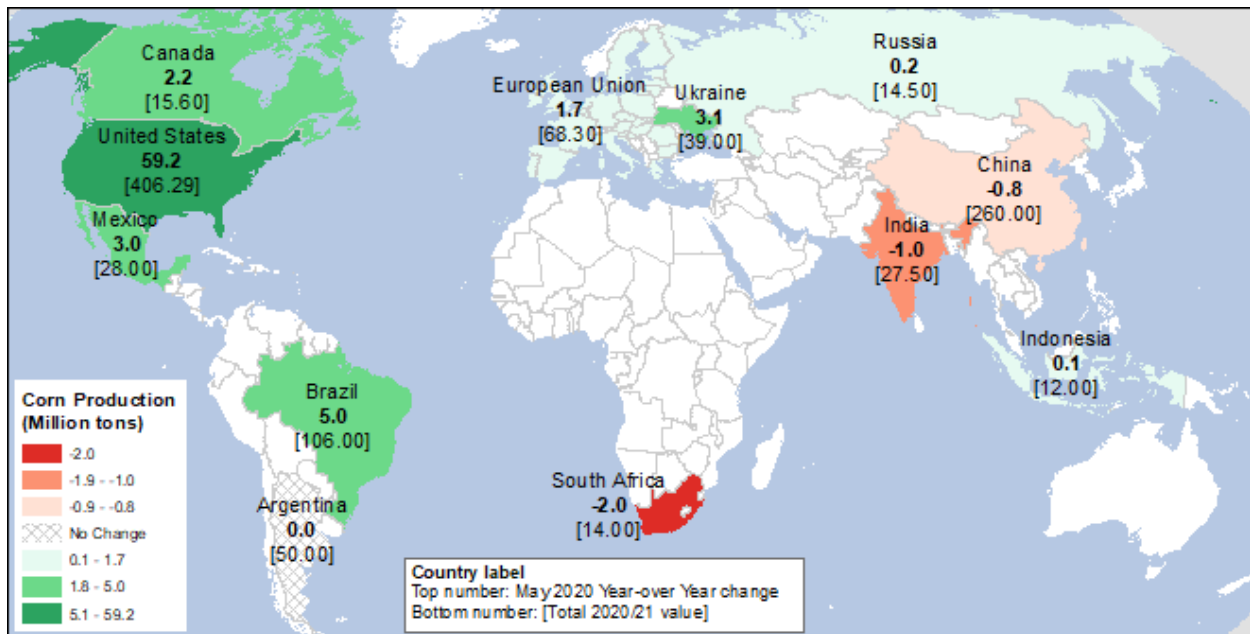
**World corn production by country (shares)**



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

Map A below presents the forecast for major corn producers and year-over-year changes in projected corn output.

**Map A: Major changes in corn production for 2020/21**



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

Over time, corn area and yield change unevenly among major corn producers, and the fastest to expand corn area in the last 10 years have been **Argentina and Ukraine**. In **Brazil**, a quick expansion of second-crop corn area is partly offset by declining first crop, which consequently slows growth in total corn area. However despite much lower growth, corn area in the **United States** is about double that in **Brazil**, around 6 times that in **Argentina**, and about 7 times that in **Ukraine**.

Progress in corn yields is also uneven among major corn exporters, with the fastest growth in **Ukraine** and **Brazil**. Conversely, even with a strong yield trend, corn yields in these two countries are lower than in **Argentina** and significantly below **U.S.** levels.

## Regional/country 2020/21 Coarse Grain Production Prospects

**China** is the world's largest coarse grain and corn producer after the United States. China's 2020/21 coarse grain production is projected to reach 267.4 million tons, less than 1 million tons down on the year. Corn dominates coarse grain output with an expected production of 260.0 million tons in China, down 0.8 million, with yields returning to trend. Corn harvested area is forecast up 0.7 million hectares, supported by slightly higher prices than a year ago, as revealed by recently published planting intentions. The Chinese government is reversing its objective to reduce corn area and is raising subsidies for corn in Northern China. The Government also continues to support feed producers and industrial processors to stimulate higher usage of domestic corn and reduce corn stocks, thereby buoying domestic prices for corn that are considerably higher than world prices.

The **South American region**, one of the most dynamic and fast-growing corn producers in the world, is forecast to produce 180.5 million tons of coarse grains in 2020/21, up 5.1 million tons from 2019/20. Corn is the region's dominant grain. Both **Brazil** and the smaller corn producer of **Paraguay** (which is exporting corn to the feed-deficit south of Brazil) are expected to increase corn area further to record highs. For **Argentina**, corn area is projected unchanged as policy uncertainty and production costs are expected to shift acres to other crops such as soybeans.

Record-high 2020/21 corn area is projected for **Brazil**. The country has been steadily increasing its low-cost second-crop (safrinha) corn area in the Central-West of the country since 2010, while simultaneously reducing its first-crop corn area. Brazilian growers (especially large farms) are investing in improving the productivity of crop growing and limiting weather-related risks, while Brazilian government and businesses are investing in infrastructure and ports. The first-crop corn area, which is less than one-fourth of total planted area, keeps declining. However—

given the large pool of land available for double cropping with soybeans in the Center-West—this decrease only partially offsets the expansion of the second-crop (safrinha) corn area, as there are few limitations on area expansion. The trend in corn yields for Brazil is strong, but the country is also prone to extreme, sometimes adverse, weather conditions that affect yields. Assuming average weather and a trend yield for the crop of 2020/21 (whose planting will start months from now), Brazil is expected to produce a record of 106.0 million tons of corn.

**Argentina** is one of the world's lowest cost producers of grain (as well as of oilseeds and beef) and is expected to continue to expand its market share of world grain production and exports. The elimination of large export taxes for corn exports and a shift away from regulation toward a market economy in December 2015 enhanced producer incentives to expand corn (and wheat) planting. Since 2015, Argentina has increased corn area by more than 70 percent to 6.2 million hectares last year. The recent reinstatement of export taxes could limit further growth of crop area, although corn is expected to be less affected than other crops. Besides, a massive depreciation of the Argentine peso has a countervailing effect (to the tariffs) on exports, increasing the country's price-competitiveness. Argentine corn area and output are currently projected on par with last year at 50.0 million tons. In **Paraguay**, corn output is projected at a record-high of 4.6 million tons.

Coarse grain production in the **European Union (EU)**<sup>1</sup> is projected up 2.0 million tons to 163.1 million in 2020/21, with virtually unchanged area. The region went from a very good autumn to a dry start of the spring season for the northern part of the region, while in the south Spain got excellent precipitation. Spain is expected to have higher-than-average yields—offsetting yield reductions in France, Germany, and Poland. Total EU output is projected at the last year's level. Corn production is projected to be 1.7 million tons higher than a year before with a return to trend yields and higher corn area in France, Germany, and Poland, countries which suffered from adverse weather in 2019/20. Output for oats and rye is also projected to increase, while production for both barley and mixed grain production is slightly trimmed.

Coarse grain production in **Sub-Saharan Africa** is projected down 1.0 million tons to 119.2 million. The largest corn producer, **South Africa**, is expected to retreat from last year's bumper year with lower corn area and a return to trend yields, and to harvest a corn crop of 14.0 million tons, down 2.0 million from 2019/20. A drought is expected to cut yields in Mozambique, Kenya,

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<sup>1</sup> The United Kingdom (UK) left the EU-28 on January 31, 2020 and is in a one-year transition period to negotiate its future relationship with the EU-27 that will end on December 31, 2020. Until then, the EU is still considered as a 28-country region.



Mali, and Burkina. Meanwhile, higher yields are projected in Zambia, Sudan, and several other countries in the region.

In **India**, where coarse grains are mostly used for food, a year-over-year slight reduction in production of 0.7 million tons (or under 2 percent) is expected in 2020/21, with higher barley, sorghum, and millet, but lower corn area and a return to trend yields. While 2019 monsoon rains secured good conditions for last year's summer crops, the 2020 monsoon (expected to begin in September) will be critical for the current corn production forecasts.

**Ukraine's** 2020/21 coarse grain production is expected to increase further, up 3.3 million tons to 49.8 million. Currency depreciation vis-à-vis the U.S. dollar encourages planting crops for export, despite low U.S. dollar-denominated corn prices. Ukraine's corn area is forecast 7.1 percent higher than a year ago (mainly at the expense of wheat), while a return to strong trend yields implies an increase from 2019/20 yields. Corn production is projected 3.1 million tons higher than last year at 39.0 million. Expected barley and sorghum production are up slightly.

**Russia** is projected to produce 39.4 million tons of coarse grain in 2020/21, down 1.1 million. Corn area is forecast up 4 percent, as expected returns are better than those for most other crops, with the exception of oilseeds, which are expanding in the southern and central regions. However, corn area is still lower than in the years of 2015 through 2017, as area has shifted to sunflowerseeds. Projected yields are lower than the record-high yields of 2019/20 and support a crop of 14.5 million. Russia's barley harvested area is projected down, with a shift to wheat, but a return to trend yields cuts production 2.4 million tons to 17.5 million. Russia's oats and rye production are expected to increase.

**Canada** is projected to produce 30.3 million tons of coarse grain in 2020/21, up 1.8 million. Planting intentions reported by Statistics Canada indicate increased area for barley, corn, oats, and rye—at the expense of rapeseed (spring wheat is also projected higher). A return to trend yields implies a higher production for all types of coarse grains, up from the previous year's low yields.

**North Africa's** 2020/21 coarse grain crop is projected at 10.9 million tons, 0.8 million below last year. A winter drought devastated western Morocco and hurt western Algeria, but rain was favorable in Tunisia and eastern Algeria. Morocco's barley crop is forecast down 0.4 million tons to just 0.8 million, approaching the disastrous harvest of 2016. Coarse grain production in Egypt is mostly irrigated corn, with stable production prospects at 7.2 million tons.

The **Middle East's** coarse grain production is forecast up 1.4 million tons in 2020/21 to 25.6 million. Abundant rains since December 2019 across most of the region support the expectation of higher yields. Excellent conditions in **Turkey** (especially in its Anatolian Plato), excellent moisture levels in **Iraq, Iran, Syria** (and in its most productive region Al Haska), **Jordan**, and **Israel** are expected to drive projected barley yields up. Record-high barley yield and close-to record corn yield are forecast for Turkey, boosting corn production by 0.9 million tons to 6.9 million and barley production by 0.5 million tons to 8.4 million.

**Australian** 2020/21 coarse grain production is projected up 2.1 million tons to 12.7 million. Area is forecast higher for barley, oats, and sorghum—boosting output prospects after a drought year. Higher area is supported by domestic prices and good planting conditions, as yields are projected to rebound to trend.

## 2019/20 Coarse Grain Production Projected Higher

Global coarse grain production in 2019/20 is revised higher, up 3.0 million tons this month to 1,406.8 million. Harvests for the 2019/20 crop year in the Northern Hemisphere were generally completed months ago. Based on statistical government reporting, corn output is revised higher for Pakistan, Serbia, and the EU -- but lowered for Laos. Southern Hemisphere crops for 2019/20 are still growing or being harvested, the most important being the corn crop in Brazil and Argentina. No changes are made this month for those countries.

**Sub-Saharan Africa's** grain production projections and prior year estimates are reviewed by the USDA interagency committee twice a year, and this month includes such a review. Coarse grain production for 2019/20 is estimated up 1.5 million tons to 120.3 million compared to the month before. The largest production estimate changes are for Mali, Angola, and Kenya—realizing higher yields for corn, sorghum, and millet. Other month-to-month 2018/19 production changes are smaller.

## Coarse Grains Use for 2020/21 Increase, but from Low Base

The year of **2019/20** turned out to be a peculiar year because of the outbreak of the COVID-19 in the first half of 2020. The pandemic affected both demand and supply chains for a variety of commodities, and consequently impacted prices. The stay-at-home orders declared throughout much of the world, though handled differently by countries, decidedly put a lid not only on travel – limiting gasoline consumption and corn ethanol production – but also slowed down meat production and feed use. Meat prices rose from the reduced output, decreasing consumption,

which was compounded by falling disposable incomes from soaring unemployment. Excessive supplies and slowing demand for corn quickly depressed prices. The United States took a major hit with a massive cut in corn used for ethanol production (see discussion in the domestic section above), while domestic corn prices dwindled. The effect on foreign countries is less pronounced than on the United States, with the year-over-year growth in the current year (**2019/20** over last **2018/19**) in feed and food, seed, and industrial use (FSI) still positive—although lower than the multi-year average.

Attractively low corn prices are expected to continue into **2020/21**, encouraging higher world-wide use. For foreign countries, a strong recovery to the pre-pandemic growth level and above is projected for feed and residual use, with the rate of increase approaching 4 percent. Buoyed by lower prices, feed use in many countries is expected to shift away from relatively expensive wheat, as wheat is pricing itself out of the feed market. One example of this shift is the EU, where the wheat crop is projected more than 10 million tons lower year over year, and relative prices will support a switch to corn feeding. In 2020/21, the EU is projected to use 2.8 million more corn for feeding.

FSI use for foreign countries is forecast to recover only partly, with the rate of growth lower than the average for the last 20 years. An increase in foreign FSI coarse grain consumption is expected in China, EU, and Sub-Saharan countries. Foreign consumption of all individual coarse grains is projected higher—with the exception of barley—with lower feed and residual use in Russia and Canada, where barley output is reduced.

Main trends in the world balance and trade for grains are presented in the Foreign Agricultural Service report “***Grain: World Markets and Trade.***”

## China Leads Decline in Foreign Coarse Grain Stocks

With world coarse grain production forecast to be higher than consumption, projected world ending stocks for 2020/21 are up 27.6 million tons from a year earlier to 373.4 million. A production increase in the United States more than offsets a 3.5 million ton decline in foreign ending stocks. Foreign corn stocks are projected to drop year over the year by 6.1 million tons, the lowest level since 2014/15.

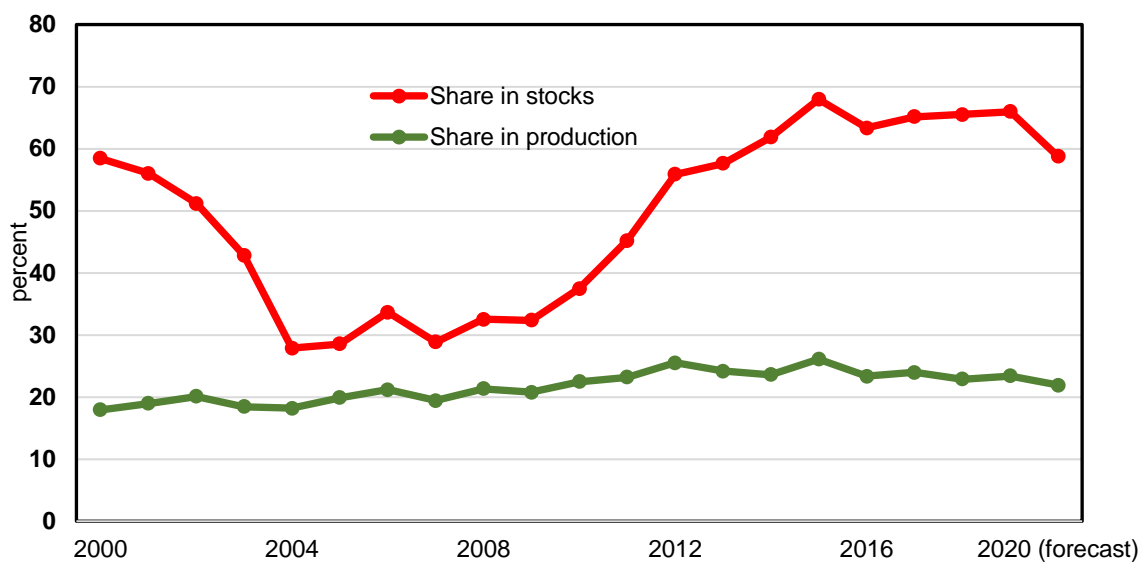
A decline in foreign corn stocks is driven mainly by China, where a fall of 3.8 percent, or 8.0 million tons, is projected. China’s share in world corn stocks is projected to decline this year to 59 percent, down from 68 percent in 2015/16, before the Chinese government policy reforms aimed at reducing large Government-owned corn stocks began to unravel. Nonetheless, during

the mid-2000s, China's share of total world corn stocks fell to as low as 28 percent (in 2004/05), a decrease that occurred after China joined the World Trade Organization in 2001 (fig. 11). Moreover, China's share in world stocks is still much higher (almost triple) than its share in global corn output.

Leaving out the reduction in China's stocks, all other foreign coarse grain stocks for 2020/21 are actually projected to be slightly higher over the year, up 4.5 million tons. Higher corn stocks are projected in Argentina, Brazil, Canada, and Mexico – however these are partly offset by lower stocks in South Africa and Turkey.

Figure 11

**China: share in global corn stocks is still almost triple the share in corn output**



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

## U.S. 2020/21 Corn Export Prospects Up, But Face Tough Competition

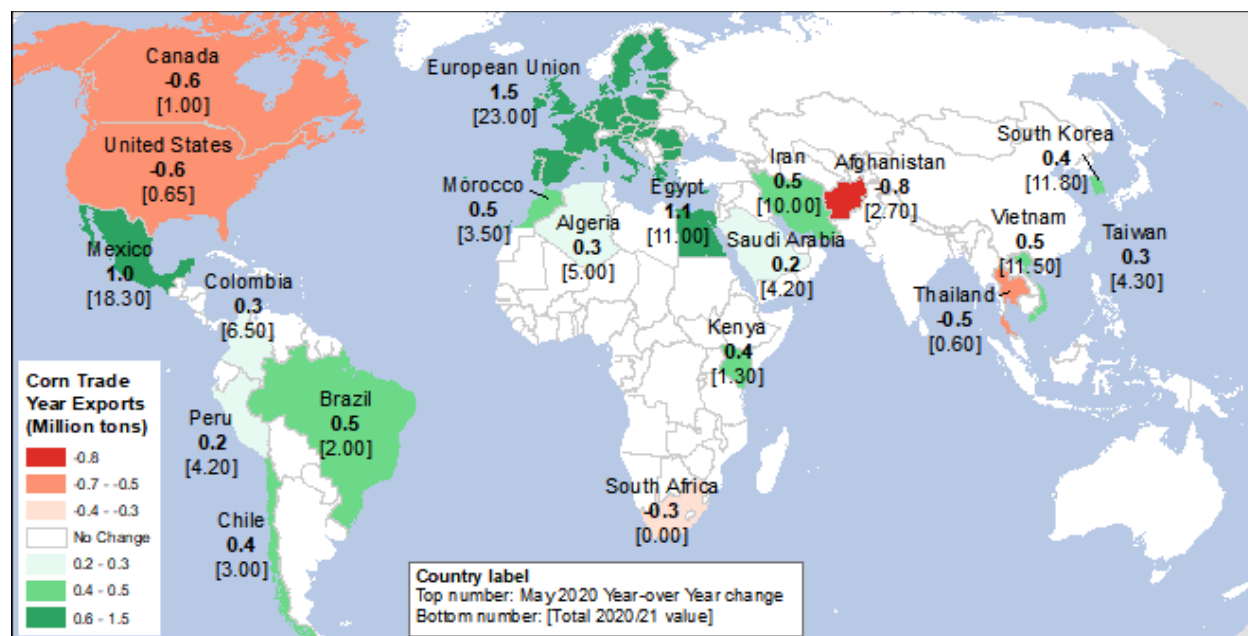
Global corn trade for the October-September 2020/21 international trade year is projected to reach a new record of 182.6 million tons, up 7.9 million from the corn trade forecast for 2019/20. World demand for corn has been growing at a steady robust pace, mainly in line with per capita GDP growth, which is correlated with higher incomes and meat consumption. Expanding meat production is the main driver for higher corn imports in most corn-importing countries. For many importers attractive corn prices in 2020/21 and the return of meat production back to the pre-pandemic level combine to give additional support to projections of an increase in corn imports across the board. The largest of these import projections include the European Union, up 1.5

million tons to 23.0 million, coming mainly from Ukraine; Egypt up 1.1 million tons to 11.0 million, sourced from Ukraine and Brazil; Mexico up 1.0 million tons to 18.3 million, while shifting away from higher-priced sorghum to corn; as well as smaller increases for a number of cost-sensitive countries like South Korea and Vietnam.

In China, the price structure for feed grains, particularly in the feed-deficit South, creates strong incentive for feed mills to use imported feeds—those feeds that arrive via ocean freight either from northeast China or foreign countries. China is expected to import 7.0 million tons of corn this year (as well as 1.7 million tons of additional sorghum mainly from the United States, but 0.5 million tons less of higher-priced barley), for the second year in a row—reaching the limit of China’s tariff-rate quota for corn at 7.0 million tons. With a bumper corn crop in 2019/20, South African imports are reduced to zero.

The map below provides a quick look at the size and year-over-year changes in world corn imports.

**Map B: Major changes in corn imports for 2020/21**



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

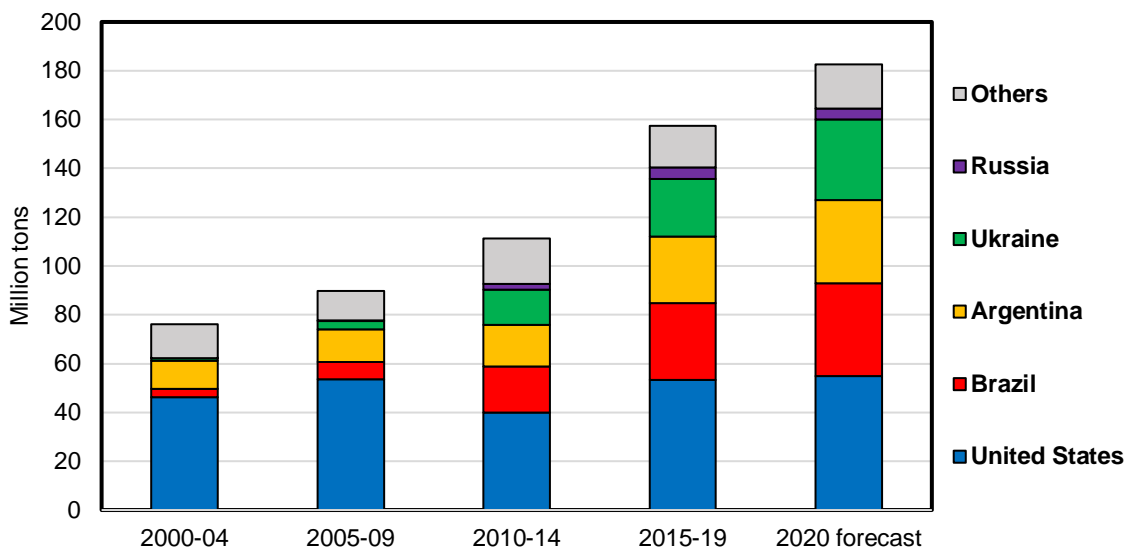
Ample corn supplies in the major exporting countries in 2020/21 are expected to support strong competition and continue to limit prices. South American producers Brazil and Argentina (together with Ukraine) have increasingly captured the steady growth in global corn trade. The shift in global corn production and exports in favor of these countries has altered global trade, with the U.S. share trending lower (fig. 12). In 2020/21, the combined corn production of Brazil,

Argentina, Ukraine, and Russia is expected to approach 210 million tons. These export-oriented countries are expected to export collectively almost 110 million tons, double the projected U.S. exports of 55.0 million tons.

Figure 12

**Growing global corn demand captured by U.S. competitors**

5-year averages and a forecast for 2020



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

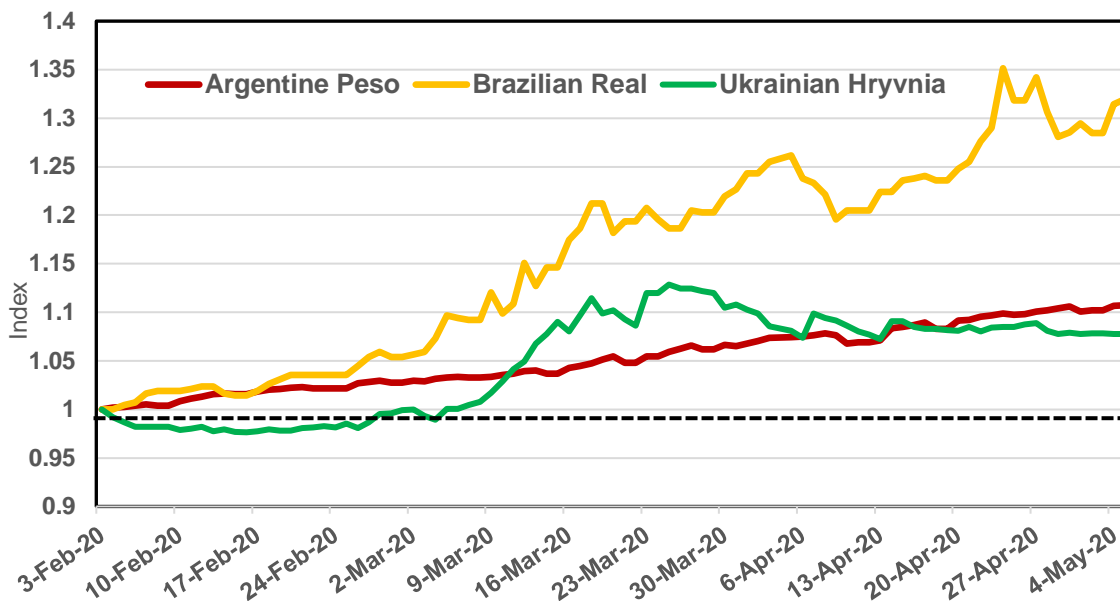
**U.S.** corn exports in 2020/21 (October-September) are projected to reach 55.0 million tons, 8.0 million above the current year (for the September-August local marketing year, U.S. exports are projected at 2,150 million bushels, up 375 million bushels from the 2019/20 estimate of 1,775 million). Under normal circumstances and short of crop failure in South America or Ukraine, the United States usually captures hardly any share from the steady expansion in global corn trade. However, the side effect of this year’s COVID-19 pandemic was a historical rapid reduction in gasoline use and corn ethanol production, leaving the United States awash in low priced corn. A decline in domestic prices projected for 2020/21 is boosting U.S. price-competitiveness vis-à-vis other major exporters, which is expected to give a small window of opportunity for U.S. corn exports, despite the constant stiff competition from Brazil, Argentina, and Ukraine.

On the other hand, the pandemic has led to depreciation of many countries’ currencies vis-à-vis the dollar, as capital and wealth flow out to the United States because of the relative security of its large economy and institutions. Since mid-February, the currencies of all three major corn export competitors of the United States—Brazil, Argentina, and Ukraine—have been depreciating against the dollar, (fig. 13). Currency depreciation improves the price-

competitiveness of these countries' exporters relative to U.S. producers. Given all these developments, U.S. corn exports are still projected at a mere 30 percent of global corn trade.

Figure 13

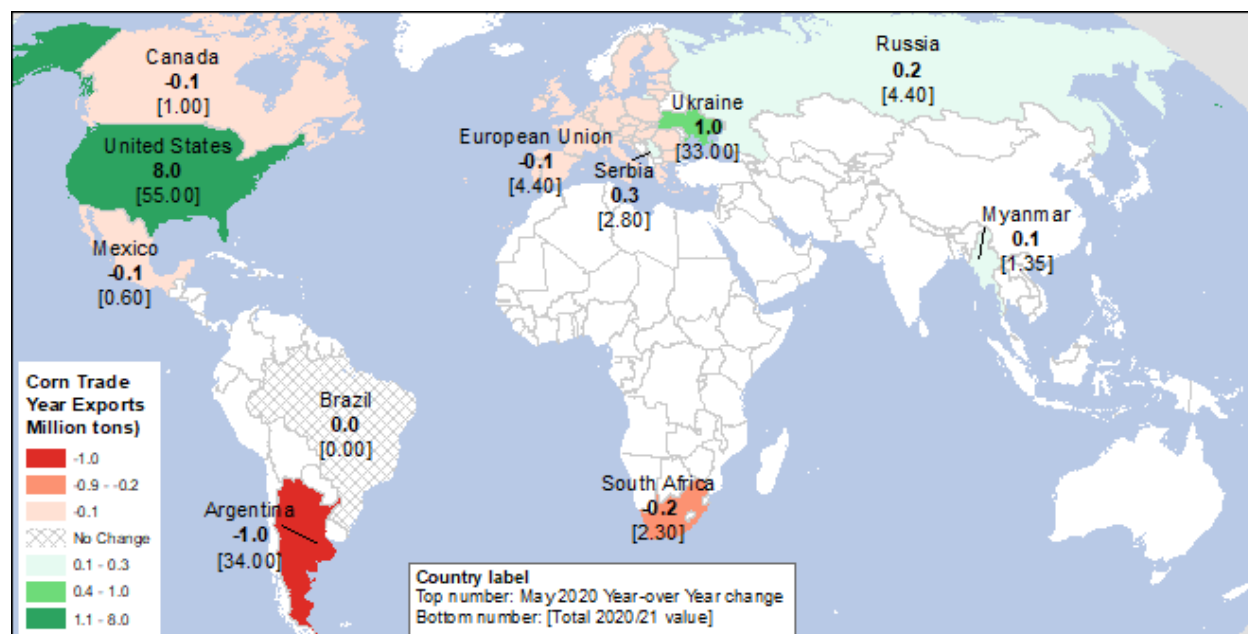
**Currency depreciation of three major corn exporters vis-à-vis U.S. dollar**



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

In 2020/21, Brazilian corn exports are expected to reach 38.0 million tons--the same level as last year. Argentina, with a large crop in three consecutive years, is projected to export 34.0 million tons. This number is down 1.0 million from 2019/20, as the new Argentinian government is causing uncertainty in markets by re-establishing export taxes. Outside of South America, Ukraine is expected to boost its already record-high exports to 33 million tons, with another record crop. The map below provides a quick look at the size and year-over-year changes in corn exports for the important exporters.

**Map C: Major changes in corn exports for 2020/21**



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

## Sorghum Export Prospects Boosted for 2020/21 and 2019/20

Global sorghum trade for 2020/21 is projected 1.2 million tons higher than in 2019/20 to 7.1 million, as increased projected demand from China and higher U.S. production combine to boost trade prospects. U.S. exports are projected up 0.8 million tons to 6.0 million (up 20 million bushels to 220 million bushels for the local marketing year). Chinese sorghum imports for 2020/21 are also projected to grow by 2.3 million tons to 5.0 million up, under the assumption that a small part of the import increase comes from non-U.S. sources. For the current year of 2019/20, sorghum U.S. exports are also boosted by 1.2 million tons, as strong sales and inspections of sorghum to China continue.



## Suggested Citation

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