



# Feed Outlook

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## Corn and Sorghum Exports Boosted by Higher Production Forecasts

U.S. corn production is raised to 15.3 billion bushels, based on a national average yield of 181.8 bushels per acre, according to the National Agricultural Statistic Service's (NASS) August *Crop Production* report. Domestic use, exports, and ending stocks are also raised for 2020/21. The projected price is lowered \$0.15 per bushel this month to \$3.10. Sorghum and barley production are also raised based on NASS yields, while oat production is reduced.

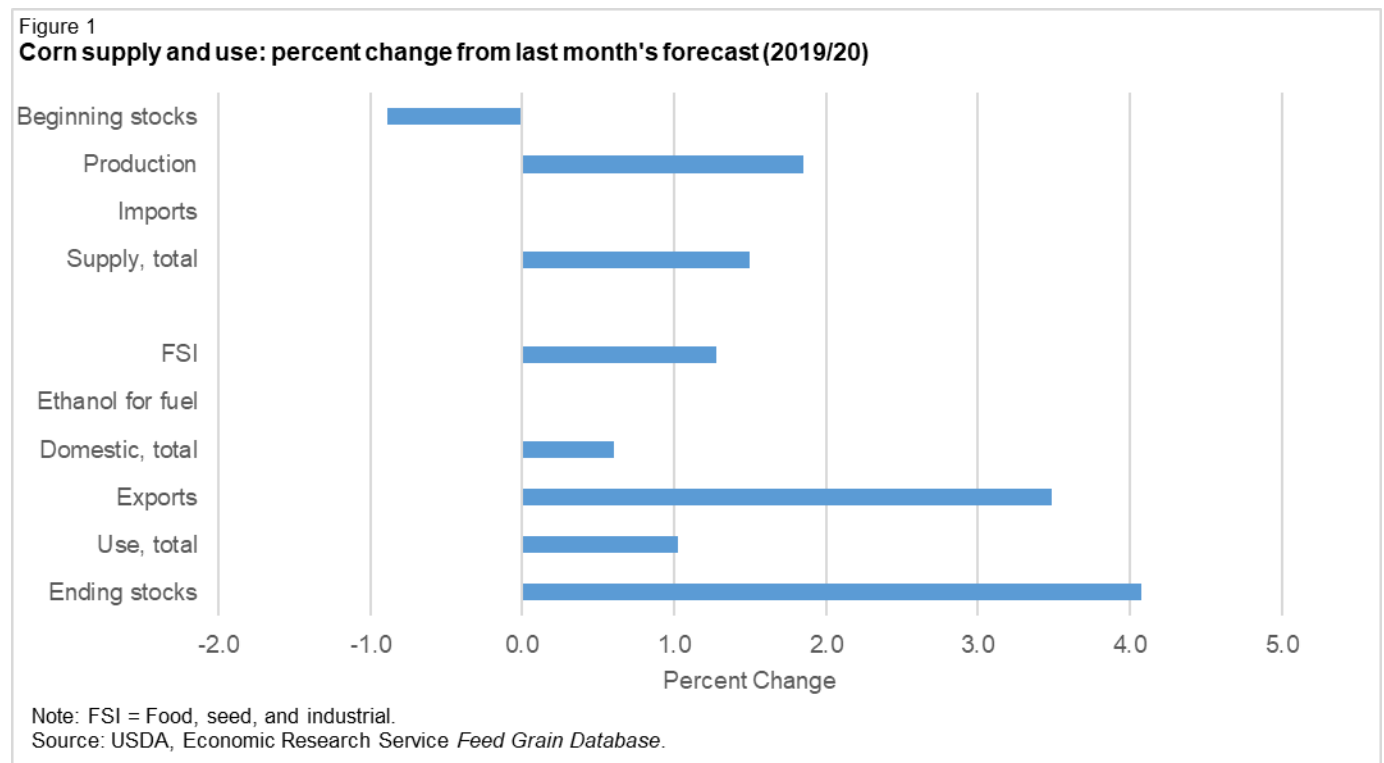
U.S. export projections got a sizeable boost this month with higher corn and sorghum output. U.S corn exports are projected 1.5 million tons higher to reach 56.5 million, while sorghum exports are up 0.7 million tons to 6.7 million, the highest since 2015. Recovering after COVID-19 and African Swine Fever, China's pig industry increased its feed consumption and demand for sorghum for animal feeding. Global corn trade prospects are raised by higher European Union (EU) feed demand, as reduced domestic supplies of wheat and barley support higher corn imports.

# Domestic Outlook

David Olson

## Projected 2020/21 corn yield at record high, resulting in record production

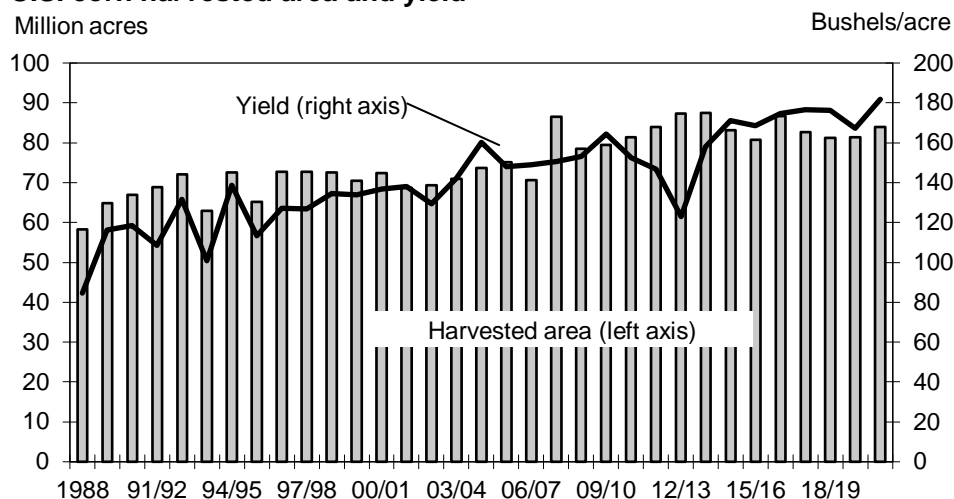
Projections for 2020/21 U.S. corn production are for larger supplies, greater feed and residual use, increased exports, and higher ending stocks—as projections for corn production are up 12% from last year. Corn production is forecast at 15.3 billion bushels, up 278 million from the July projection. The season’s first survey-based corn yield forecast is at a record, 181.8 bushels per acre, which is 3.3 bushels higher than last month’s trend-based projection. Record high yields are forecast for Georgia, Kentucky, Michigan, Minnesota, New York, South Carolina, South Dakota, Tennessee, Washington, and Wisconsin. All the 18 states sampled—except for California, Colorado, Idaho, Maryland, Pennsylvania, and Oklahoma—are expected to see an increase in yield this year over last.



NASS’s Crop Progress Report from August 10th shows the 18 states that represented 91% of the 2019 corn acreage (Colorado, Illinois, Indiana, Iowa, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, North Carolina, North Dakota, Ohio, Pennsylvania, South

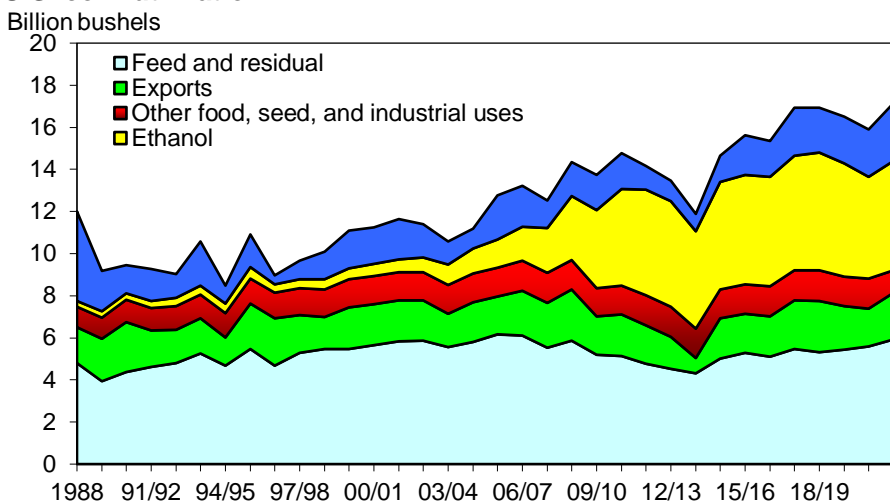
Dakota, Tennessee, Texas, and Wisconsin) sampled for corn silking. The report shows that this year's crop is progressing ahead of the five-year average and ahead of last year. The crop progress reported across the states also showed that more of the crop is in the excellent, good, and fair categories for crop condition than this time last year.

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



Note: Marketing year 2019/20 and 2020/21 are projected.  
 Source: USDA, Economic Research Service with data from National Agricultural Statistics Service, QuickStats, and USDA, World Agricultural Outlook Board.

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



Note: Marketing year 2019/20 and 2020/21 are projected.  
 Source: USDA, World Agricultural Outlook Board, World Agricultural Supply and Demand Estimates.

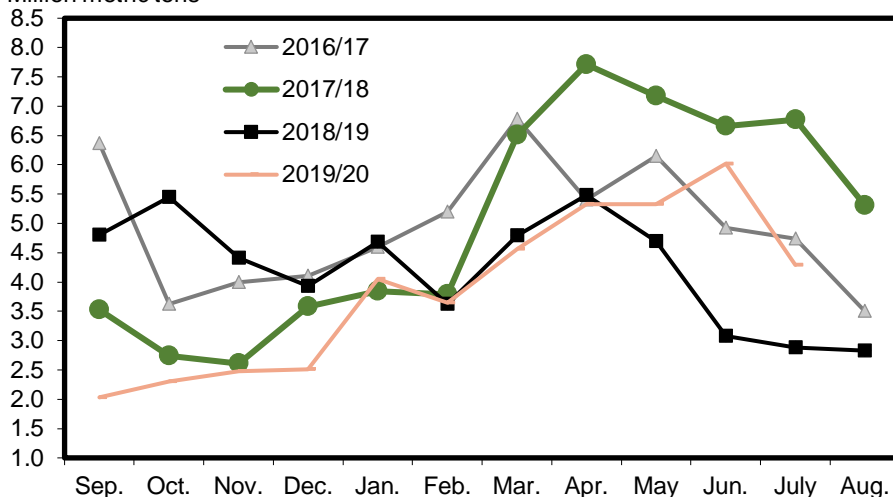
Projected corn area harvested in 2020/2021 remains unchanged at 84.0 million acres, while yield received a 3.3 bushel per acre boost to 181.8 bushels per acre. This increase in yield—while projected harvest area remains unchanged—results in a 278.2 million bushels increase in production, now forecast at 15,278.2 million bushels. If realized, both production and yield at

these levels would be historic highs for the US. With beginning stocks being trimmed by 20.0 million bushels to 2,228.0 million bushels to start off the year, total supply is now projected to be 17,531.2 million bushels, with no change in the projected level of imports.

Figure 4

**Monthly U.S. corn exports**

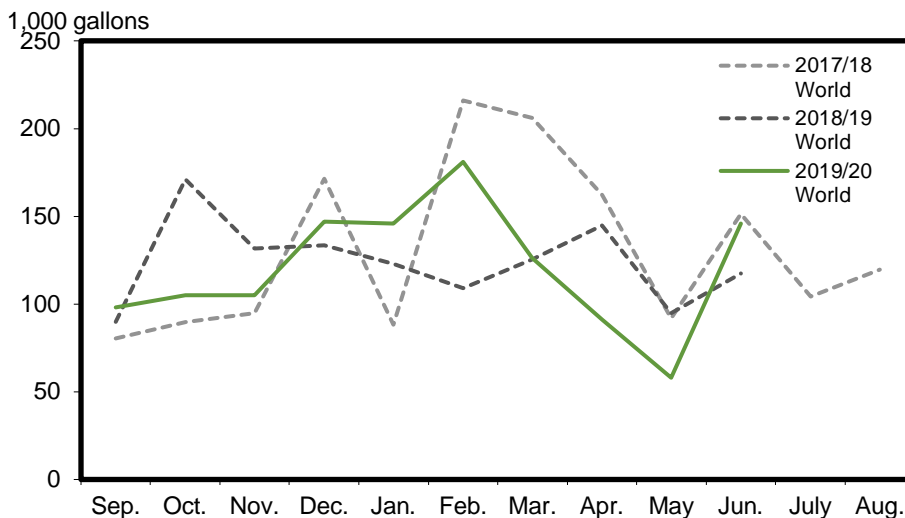
Million metric tons



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

Corn used for feeding is projected up 75.0 million bushels in 2020/21, with feed now accounting for 5,925.0 million bushels in use. No changes are projected for the other domestic use categories, resulting in a total domestic use of 12,550.0 million bushels, up 75.0 million bushels over last month's projections. With the additional corn production projected for the year, exports are also projected higher by 75.0 million bushels to 2,225.0 million bushels. This results in a total use of 14,775.0 million bushels, up 150.0 million bushels over last month's projection. For a detailed discussion of US grain exports, please see the international section of this report.

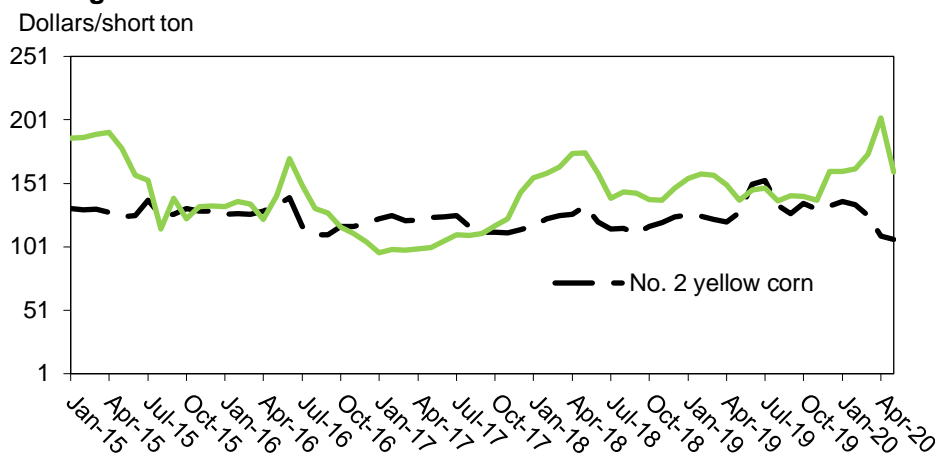
Figure 5  
**U.S. fuel ethanol exports**



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

The changes in production and use result in ending stocks of 2,756.2 million bushels up 108.2 million bushels over prior projections. With the increased supply, use, and ending stocks, prices are projected down by \$0.25 per bushel to \$3.10 per bushel for the average farm price. This, if realized, would be the lowest season average farm price since 2006/07.

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

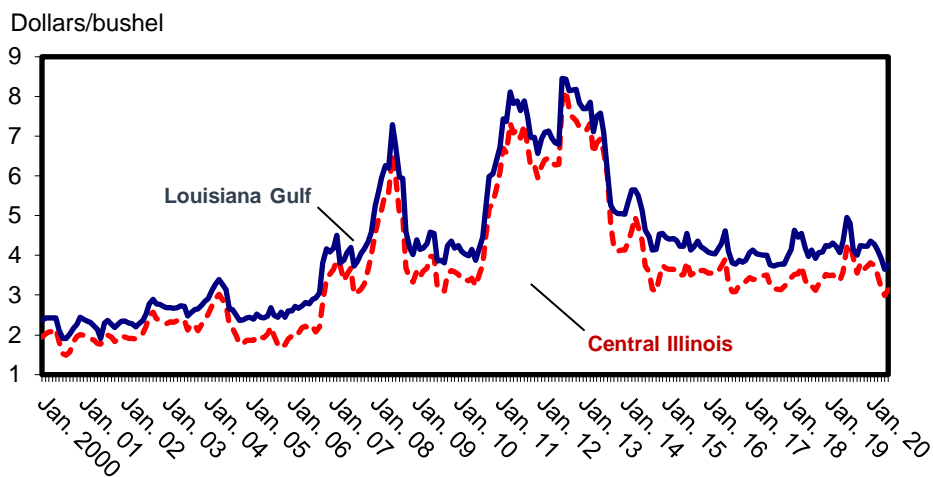


Source: USDA, Economic Research Service (ERS) using data from the ERS *Feed Grains Database* and USDA, Agricultural Marketing Services.

Changes for the 2019/20 season are minimal and include a 20.0 million bushel increase in exports, now estimated at 1,795.0 million bushels. This change decreased the ending stocks by the same 20.0 million bushels with ending stocks now estimated at 2,228.0 million bushels.

Figure 7

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

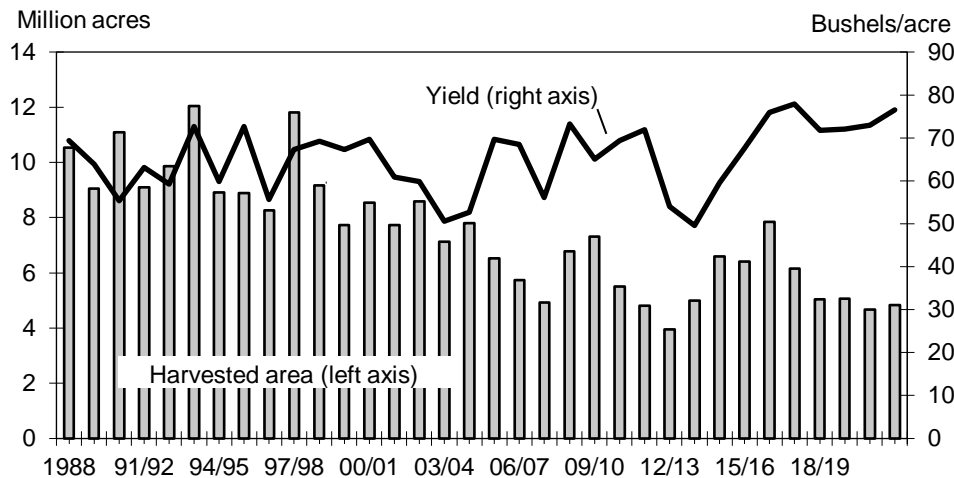


Source: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service.

**Sorghum production projected up to the highest level since 2016/17**

Figure 8

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

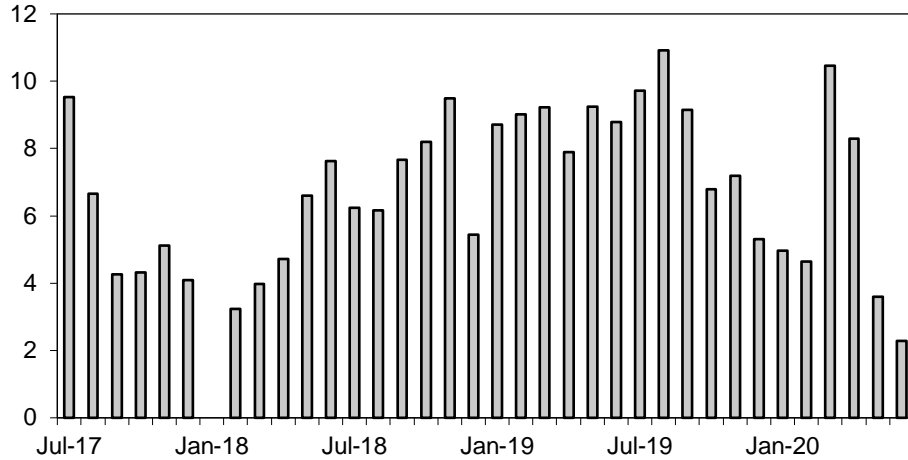


Source: USDA, Economic Research Service with data from USDA, National Agricultural Statistics Service, *Quick Stats* and USDA, World Agricultural Outlook Board, *World Agricultural Supply and Demand Estimates*.

With acreage unchanged and yield up 9.1 bushels per acre to 76.6 bushels per acre in 2020/21, production is forecast up 44.1 million bushels to 371.1 million bushels. If realized, these production and yield figures would represent the highest levels seen since 2016/17. Projections

for Kansas and South Dakota are for record high state yields. Leaving imports unchanged, the total supply is also boosted by the same 44.1 million bushels to 401.3 million bushels this year.

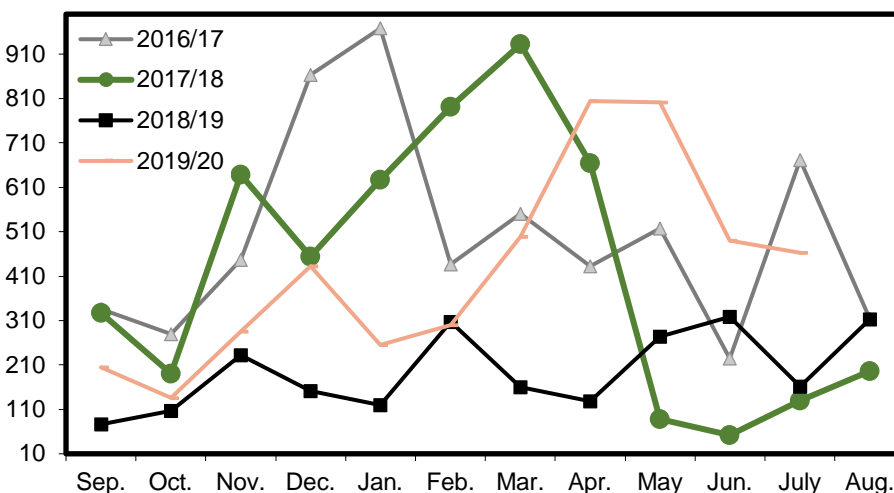
Figure 9  
**U.S. sorghum for ethanol use by month**  
 Million bushels



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*.

No changes in the domestic use are expected for sorghum in 2020/21. Total use does get a 40.0 million bushel increase to 375.0 million bushels, due to a 40.0 million bushel boost to exports, which are now projected to be 260.0 million bushels. If realized, this would be the largest export figure since the 2015/16 season. For a more detailed analysis of the sorghum trade this year, please see the international section of this report.

Figure 10  
**Monthly U.S. sorghum exports**  
 Thousand metric tons

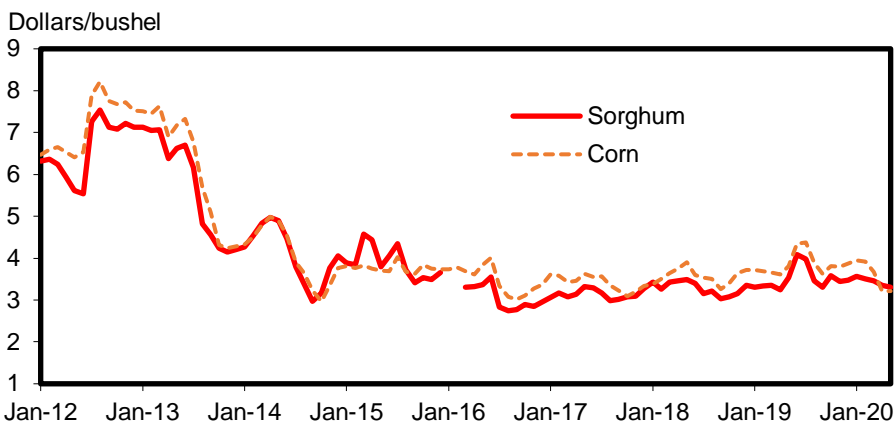


Source: USDA, Economic Research Service using data from U.S. Department of Commerce, Bureau of the Census, January 2020 Grain Inspections.

Ending stocks receive a 4.1 million bushel boost to 26.3 space million bushels this year. With the increase in production of both sorghum and corn, the season-average farm price is projected down \$.25 per bushel to \$3.10 per bushel, which would be the lowest price since the 2016/17 season.

Figure 11

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



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

The sorghum crop progress reported in the August 10 Crop Progress Report summarizes the conditions for Colorado, Kansas, Nebraska, Oklahoma, South Dakota, and Texas. These six states planted 100% of the 2019 sorghum acres. The report shows that the crop progress this year for sorghum is ahead of last year's progress at the same time in the growing season, however conditions are only in line with the five-year average.

## Barley yield in 2020/21 is projected at a record high.

Barley yield is projected up to 2.7 bushels per acre to 78.8 bushels per acre in 2020/21. If realized, this would be a new record for the United States, passing the previous record of 77.9 bushels per acre. Montana and Washington are projected to have state record high yields in 2020/21. Area forecast remain unchanged with a harvested area of 2.2 million acres, resulting in a production of 175.9 million bushels. This results in 6.1 million bushels more than previously forecast. Total supply is forecast at 263.2 million bushels, which happens to be precisely the same as last year's total supply.

With the increase in supply, feed use is projected up by 5.0 million bushels, to 30.0 million bushels this year. No other changes are forecast. Domestic total use is now projected to be



173.0 million bushels. Exports are projected to remain at 5.0 million bushels, resulting in the total use of barley in 2020/21 being 178.0 million bushels, up 5.0 million bushels from last month's projection of 173.0 million bushels.

Without all the projected increase in production being consumed or exported, ending stocks are projected up 1.1 million bushels to 85.2 million bushels. The season average farm price is expected to remain unchanged at \$4.45 per bushel.

The five states surveyed for the NASS Crop Progress Report released on August 10 are Idaho, Minnesota, Montana, North Dakota, and Washington. These states represent 85% of the 2019 barley acreage. The report suggests that the crop is developing ahead of last year, but slightly behind the five-year average. Crop conditions are skewed toward good and excellent throughout most of the growing region.

## Oat yield trimmed, lowering production fractionally

Oat yield this month is trimmed by 0.2 bushels per acre to 65 bushels per acre, but forecast 0.7 bushels per acre above the 2019 yield. No use or export changes are projected this month, resulting in the ending stocks being trimmed by 0.1 million bushels, representing the cut to production. Ending stocks are projected to be 41.7 million bushels in 2020/21. The season average farm price is projected to be \$2.70 per bushel, unchanged from last month.

The oat harvest in 2020/21 is already 65% complete as of August 9. The nine states sampled include Iowa, Minnesota, Nebraska, North Dakota, Ohio, Pennsylvania, South Dakota, Texas, and Wisconsin. These nine states represent 74% of the 2019 oat acreage. This is ahead of both last year's progress and also the five-year average.

# International Outlook

Olga Liefert

## Production Boost Drives U.S. Corn Export Prospects Up

**United States (U.S.)** corn exports in **2020/21** for the October-September international trade year are projected to reach 56.5 million tons. This is up 1.5 million from last month, boosted by increased U.S. supplies and the strong recent pace of new crop sales. For the September-August local marketing year, exports rise by 75 million bushels to 2,225 million. Outstanding new-crop sales for 2020/21 reached 11.5 million tons on August 6, 2020, up from 4.4 million tons a year ago. However, sales later in the trade year are expected to slow down just as the 2019/20 corn harvests and exports from the Southern Hemisphere (Argentina and Brazil), coupled with the 2020/21 record Ukrainian harvest, begin to pose strong competition for U.S. corn exports.

U.S. corn exports are also projected higher for the current year of **2019/20**. Based on the census data through June, and grain inspection data for July and beginning of August, corn exports are projected 0.5 million tons higher for the 2019/20 October-September trade year to reach 47.5 million (up 20 million bushels to 1,795 million for the September-August marketing year).

## Global Corn Trade Prospects Boosted by Higher EU Imports

Global **corn** trade for the October-September international trade year 2020/21 is up 1.8 million tons to 184.6 million.

Global corn trade prospects for 2020/21 are boosted by higher **European Union (EU)** imports, up 2.0 million tons this month to a close-to-record 25.0 million. With low supplies of domestically available feed wheat and barley, the demand for imported corn in the EU for 2020/21 is projected to grow by more than 20 percent above the previous year's level.

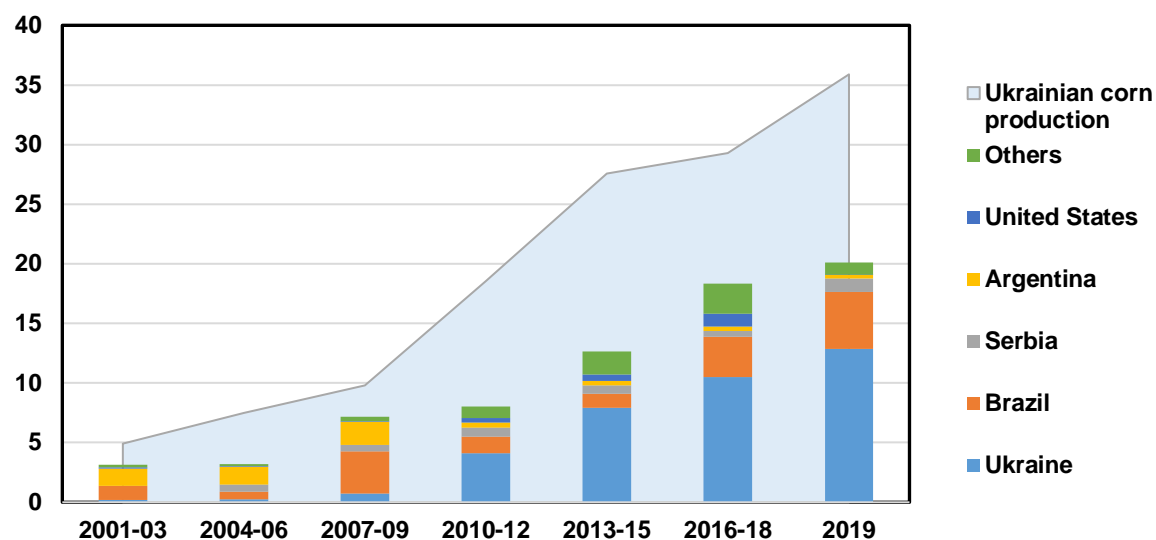
Growing low-cost, and surplus-generating corn production, positioned **Ukraine** well to export to its close neighbor. The expansion of EU imports is strongly correlated with Ukrainian corn production growth that averaged 5.0 million tons in 2001-03, then quadrupled to 20.0 million by 2011, and is projected to reach double that amount at 39.5 million tons for 2020/21. EU imports started to rise around 15 years ago, from several million tons, to more than 20 million in the last three years, which has made the EU the largest corn import market in the world. At the start of the 2000s,

European corn imports came predominantly from the South American producers of Argentina and Brazil. However, by the beginning of the 2010s, Ukraine supplied more than 50 percent of European imports. Since 2012, the Ukrainian share in European corn imports has exceeded 60 percent, and fluctuates between 60 and 70 percent (see figure 12).

Figure 12

**EU corn imports grow along with expanding Ukrainian production**

Million tons



Sources: Trade Data Monitor (TDM); USDA, Foreign Agricultural Service, Production, Supply, and Distribution online database.

The major change in **corn exports** this month is coming from **United States** ([see above](#)). Foreign (non-U.S.) corn trade is projected 0.3 million higher—with increases in **Ukraine**, **Burma**, and **Serbia** and a reduction in the **EU**.

**Ukrainian** 2020/21 exports are projected 0.5 million tons higher, in line with the country’s production increase, reaching a record of 33.5 million. At the same time, the declining recent pace of shipments supports a 1.0-million-ton reduction of the country’s corn exports to 31.0 million in the current year of 2019/20 (ending September 2020). Corn exports are boosted for **Serbia** and **Burma** for 2020/21 (a projection year) and for 2019/20 (back-year ending in September), based on the swift current pace of exports and a small increase in corn production for Serbia. Partly offsetting is a reduction in **EU** exports. With lower corn supplies and high domestic prices, EU corn exports are shaved by 0.5 million tons to 3.7 million.

World **barley** exports are down 0.4 million tons this month, with a change for **Kazakhstan** reflecting lower projected barley output this month. Because Kazakhstan is the major barley

supplier for **Iran**, that country's imports are also reduced by the same amount. It appears that Iran is importing additional amounts of wheat from Russia to sustain its grain feeding.

## Higher U.S. Sorghum Output Boosts Exports to China

World **sorghum** trade in **2020/21** for the October-September international trade year is projected up 1.0 million tons to 8.1 million.

Increased **U.S. 2020/21** sorghum output is expected to boost supplies available to export, with **China** continuing to bid sorghum export prices above corn. U.S. exports are projected up 0.7 million tons to 6.7 million (up 40 million bushels to 260 million bushels for the September-August local marketing year). Outstanding new-crop sales for 2020/21 reached 1.7 million tons on August 6, 2020, up from zero a year and two years ago, and up from 0.3 million tons in 2017. Large sales to China and a rapid pace of recent shipments support increased export prospects.

**China's** recovering pig industry (after COVID-19 and African Swine Fever) requires growing amounts of feed – corn, sorghum, barley, and DDGS. Corn is the primary feed grain in China. However, a tariff-rate quota (TRQ) currently set at 7.2 million tons regulates corn trade in China, under which above-quota imports are subject to prohibitively high tariff rates. The price of corn in the net grain importing region of southern China is pushing domestic feed costs up excessively. In an attempt to get lower-priced feed into the country, the Chinese feed industry is eager to import competitively priced feed substitutes for corn, turning to sorghum and barley. Importing DDGS is another option, but a competitive edge for the DDGS was taken away by anti-dumping duties introduced in 2017.

Sorghum does not have genetically modified varieties and its imports are not subject to limitations (unlike corn and DDGS) that exist in **China** for GM crops. As China is steadily approaching the limit of its tariff-rate quota for corn imports, sorghum has become a viable and desirable option. The country attracts most of the available sorghum in the world, importing more than 75 percent of the globally traded crop. This month, Chinese sorghum imports for 2020/21 are up 1.1 million tons to 6.1 million, with most of the increase coming from the United States and an expectation of increased imports of cheap sorghum from **Argentina**. Argentine sorghum exports are up 0.3 million tons to 0.5 million, while Mexican imports are down 0.1 million tons.

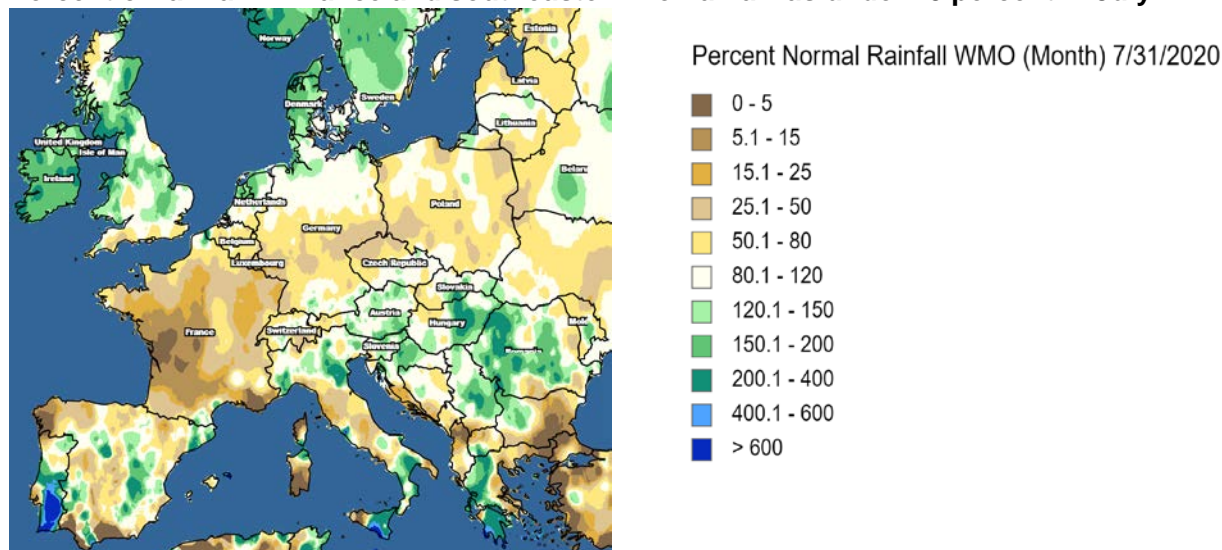
## United States Drives Global Production Up; Foreign Coarse Grain Output Mixed

Growing conditions were largely mixed across most of the Northern Hemisphere. Global coarse grain production in 2020/21 is projected to reach 1,464.7 million tons, up 6.3 million this month. Foreign coarse grain production (global minus U.S. output) for 2020/21 is projected 2.0 million tons lower this month at 1,062.1 million tons, though 16.0 million tons higher than a year ago. The **United States** coarse grain output increased 2-percent, with upward yield revisions for corn, sorghum, and barley.

The largest change in coarse grain output this month is a reduction for the **(EU)**, where persistent dryness and high temperatures in the two opposite “corners” of the region – **France** and southeastern **Romania** – limit yield prospects for corn and barley (see figure 13). France and Romania are the two largest EU corn producers and exporters, while France is also the top barley producer. Romanian corn output is projected at 12.8 million tons, down 1.1 million—while French corn is expected to reach 14.2 million tons, down 0.5 million month-over-month.

Figure 13

### Percent of rainfall in France and southeastern Romania was under 15 percent in July



Source: USDA, Foreign Agricultural Service, International Production Assessment Division (IPAD).

In several other European countries, corn output is projected higher this month. This output is partly offsetting the reductions in Romania and France, as the crop has been enjoying generally good growing conditions in July (see figure 13).

For more information and a display of this month’s output changes, see table A1 (for global, foreign, and U.S. changes) and table A2 (for country changes by type of crop).

**Table A1 - World and U.S. coarse grain production at a glance (2020/21), August 2020**

	Region or country	Production	Change from previous month <sup>1</sup>	YoY <sup>2</sup> change	Comments
<i>Million tons</i>					
<b>Coarse grain production (total)</b>					
↑	World	1,464.7	+6.3	+59.0	
↓	Foreign	1,062.1	-2.0	+15.7	Partly offsetting changes are made across countries and commodities. See table A2.
↑	United States	402.6	+8.3	+43.3	See section on U.S. domestic output.
<b>World production of coarse grains by type of grain</b>					
<b>CORN</b>					
↑	World	1,171.0	+7.8	+58.6	
↑	Foreign	782.9	+0.7	+16.4	Record-high Ukrainian corn output, an increase in Serbia, and higher Sub-Saharan Africa output are partly offset by reductions for the EU, Canada, and Thailand. Other smaller changes are offsetting.
↑	United States	388.1	+7.1	+42.2	See section on U.S. domestic output.
<b>BARLEY</b>					
↓	World	152.8	-1.9	-3.5	
↓	Foreign	149.0	-2.0	-3.6	Reductions are made for the EU, Kazakhstan, Ukraine, and Argentina. See table A2.
↑	United States	3.8	+0.1	+0.1	See section on U.S. domestic output.
<b>SORGHUM</b>					
↑	World	60.4	+1.1	+2.7	
	Foreign	51.0	No change	+1.9	Foreign production is unchanged.
↑	United States	9.4	+1.1	+0.8	See section on U.S. domestic output.
<b>OATS</b>					
↓	World	23.5	-1.1	+1.1	
↓	Foreign	22.4	-1.1	+0.9	<b>Lower projected output</b> for Russia and Argentina. See table A2.
	United States	0.9	Small change	+0.2	See section on U.S. domestic output.
<b>RYE</b>					
↑	World	13.2	+0.1	+1.1	
↑	Foreign	12.9	+0.1	+1.1	Several offsetting changes for Russia, Belarus (see table A2), as well as for Ukraine and Argentina (based on area changes).
	United States	0.3	No change	No change	See section on U.S. domestic output.
<b>MILLET</b>					
↑	World/Foreign	29.0	+0.3	-1.0	Increases in Russia and Ukraine, based on area revision.

<sup>1</sup>Change from previous month. <sup>2</sup>YoY: year over year changes. <sup>3</sup>EU: European Union. For changes and notes by country, see table A2.  
Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution online database.

**Table A2 - Coarse grain foreign production by country and type of grain (2020/21), August 2020**

Type of crop	Crop year	Production	Change in forecast <sup>1</sup>	YoY <sup>2</sup> change	Comments
<i>Million tons</i>					
<b>UKRAINE<sup>3</sup></b>					
↑ Corn	Oct-Sep	39.5	+0.5	+3.6	Higher officially reported planted corn area and generally favorable weather support an increase in projected corn output. Final planted area is reported for all crops, and outputs are adjusted accordingly.
↓ Barley	Jul-Jun	9.2	-0.2	-0.3	A combination of reduced winter barley area and higher yields result in lower barley output. The changes are based on reported final area, as well as harvest reports with more than 80 percent completed.
<b>EUROPEAN UNION (EU)</b>					
↓ Corn	Oct-Sep	67.8	-0.5	+1.1	While most of the corn crop is in the grain fill stage of development, July drought and heat <b>will</b> limit yield potential in <b>France</b> and the south-eastern part of <b>Romania</b> - the two largest European corn producers. At the same time, changes in a number of lesser-producing countries - such as <b>Poland, Italy, Hungary</b> , and several other countries - are partly offsetting a reduction with higher projected yields and output.
↓ Barley	Jul-Jun	62.5	-1.1	-0.5	A persistent precipitation deficit in <b>France</b> - the largest barley (mainly winter) producer, as well as in <b>Romania</b> - had a negative impact on the barley crop passing through reproductive period.
<b>SERBIA</b>					
↑ Corn	Oct-Sep	7.2	+0.2	-0.5	Corn yields benefited from the lack of heat and favorable rains, although yields are still lower than last year's record.
<b>CANADA</b>					
↓ Corn	Sep-Aug	14.3	-0.3	+0.9	Satellite imagery and related projections reflect below-average conditions early in growing season, suggesting slightly lower yield.
<b>RUSSIA<sup>3</sup></b>					
↓ Oats	Jul-Jun	4.0	-1.0	-0.4	Planted oats area is sharply reduced, based on the final official crop area report.
↓ Rye	Jul-Jun	1.8	-0.2	+0.4	Reduction in the final reported rye area and lower projected yields because of persistent dryness in the rye growing area in the South.
<b>KAZAKHSTAN<sup>3</sup></b>					
↓ Barley	Jul-Jun	3.8	-0.6	Small change	Lower area and unfavorable dryness in the major producing areas (north of the country) followed by deterioration of crop conditions.
<b>BELARUS<sup>3</sup></b>					
↑ Rye	Jul-Jun	0.9	+0.4	+0.3	A fifty-percent higher reported area with a corresponding increase of output.
<b>ARGENTINA</b>					
↓ Barley	Dec-Nov	3.5	-0.2	-0.3	Barley area is adjusted down 0.2 million hectares, based on data from the Argentine Ministry of Agriculture. Planting was completed by the end of July. Oats and rye area is also revised with small production changes.
<b>THAILAND</b>					
↓ Corn	Jul-Jun	5.4	-0.2	-0.2	Delayed rains and a water deficit shifted area away from corn to cassava and other less water-dependent crops, supporting a small reduction in area and output.
<b>SUB-SAHARAN AFRICA</b>					
↑ Corn	May-Apr	75.5	+1.1	+0.4	Area and yield revision for <b>Angola, Malawi, Mozambique</b> , and <b>Zimbabwe</b> based on Government reports.
<sup>1</sup> Change from previous month. Smaller changes for coarse grain output are made for several countries.					
<sup>2</sup> YoY: year over year changes. <sup>3</sup> Area is revised for every grain crop in Ukraine, Russia, and Kazakhstan based on newly reported official area.					
Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution online database.					

## A Shift Away from Wheat and Barley Boosts Corn Feeding

Changes in global coarse grain use are fractional this month—with higher corn, but lower barley feeding—while changes in oats, rye, and millet are smaller and follow production revisions.

A sizeable reduction of wheat and barley crops output this month in the **EU**, and competitively priced corn imports, are expected to boost corn use in the region while limiting wheat and barley feeding. Currently projected EU wheat production is almost 20 million tons, or 12.5 percent, lower year-over-year (see this month's wheat outlook report for detail). Barley output is also projected lower than last year, leaving corn as a viable competitor in feed use. Corn feeding in the **EU** is projected 2.0 million tons higher this month, with an offsetting decline in wheat and barley feed use.

Barley feed use in **Iran** is slightly reduced this month, down 0.3 million tons, leaving barley feed consumption on par with the last two years. The change follows a reduction in barley output and exports for **Kazakhstan**, the major supplier of Iranian barley. However, total grain feeding for Iran is not reduced this month, as the country imports more wheat from Russia boosting its feed use.

Chinese sorghum feed use is projected 1.0 million tons higher this month to reach 6.8 million, and 2.1 million higher than a year ago, owing to increased imports from the United States and cheap sorghum from **Argentina**. In turn, Argentine sorghum feed use is reduced by the same amount ([see a discussion on China's sorghum imports and use above](#)).

With smaller oats and rye production in **Russia** this month, the country's coarse grain feeding is projected 0.5 million tons lower.



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