



# Feed Outlook

**Tom Capehart**  
**Olga Liefert**  
**David Olson**

## In this report:

- [Domestic Outlook](#)
- [International Outlook](#)

Feed Outlook monthly tables, in Excel format, can be found on the Feed Outlook report page on USDA's Economic Research Service website.

## Another Reduction in the 2019/20 Projected Corn Crop

The NASS Crop Production report lowered yield for the 2019/20 corn crop by 1.4 bushels per acre, resulting in a 118.3-million-bushel cut in production to 13,661 million bushels, and supplies of 15,825 million bushels. The harvested area is unchanged. 2019/20 demand is projected 100 million bushels lower at 13,915 million, due to lower feed and residual, corn for ethanol and exports. As a result of tightening supplies, the season average price for corn is raised \$0.05 per bushel to \$3.85 from last month's forecast.

The pace of U.S. corn exports continues to lag behind, as Census export data are the lowest since 1976. With reduced projected U.S. corn production, U.S. exports are projected 1.5 million tons lower on an October-September basis, which further decreases the country's share in global trade. For Brazil, corn exports are projected up 3.0 million tons this month.

# Domestic Outlook

---

## 2019/20 Corn Supplies Down on Lower Production

The November National Agricultural Statistics Service (NASS) *Crop Production* report forecast a 1.4 bushel per acre decline in projected yield to 167.0 bushels per acre. With harvested area unchanged, 2019/20 production is forecast at 13,661 million bushels, 118.3 lower than last month. With no change in carryin or imports, supplies are projected at 15,825 million bushels, compared with 16,588 million in 2018/19.

The NASS resurvey of corn acreage in Minnesota and North Dakota, to account for early snows, did not result in a change in harvested acreage for those States. For the main corn-producing States, yields increased for Indiana and Ohio, but lowered for Nebraska, Michigan, South Dakota, Minnesota, and Kansas.

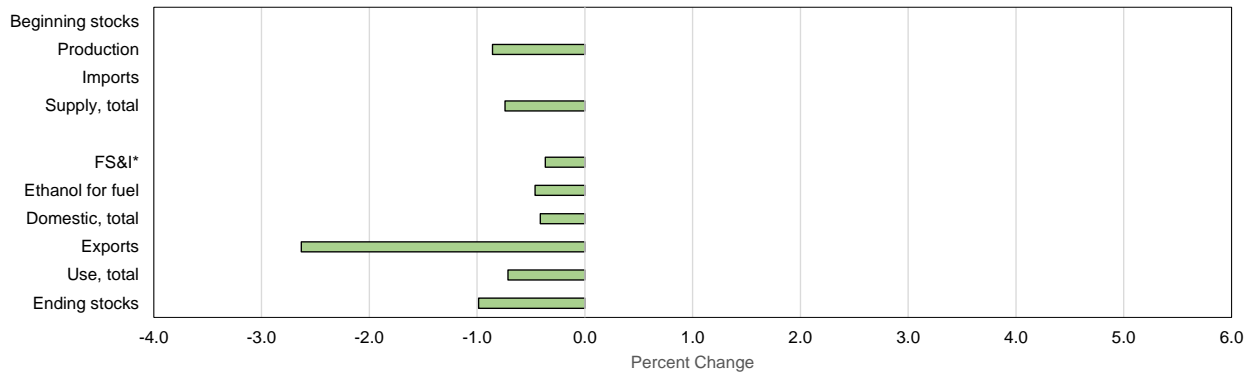
## Grain-Consuming Animal Units Raised

Grain-consuming animal units (GCAU) for 2019/20 are projected at 102.5 million units, down 0.3 million from last month. A decline in beef cattle more than offsets increases in broilers and turkey. GCAUs for 2018/19 are lowered by 0.1 million units.

## 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 144.1 million tons, 0.7 below last month. Feed and residual for corn was lowered 0.6 million tons and wheat edged down, while sorghum, barley, and oats showed no change. For 2018/19, there is no change from last month's forecast. Feed and residual per GCAU is virtually unchanged.

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.  
 \* Food, seed, and industrial

## 2019/20 Use Forecast Lowered 100 Million Bushels

Projected corn feed and residual use is lowered 25 million bushels due to the smaller crop and higher expected prices. Food, seed, and industrial use (FSI) is lowered 25 million bushels to 5,375 million based on ethanol production data to date supported by September data in the *Grain Crushings and Co-Products Production* report and weekly data from the Energy Information Administration (EIA). While margins have improved for ethanol producers, plant closings and cutbacks are still impacting production levels. With this month's reduction, corn for ethanol is forecast to be virtually unchanged from a year ago. Total food, seed, industrial use is projected at 6,790 million bushels, virtually unchanged from last year.

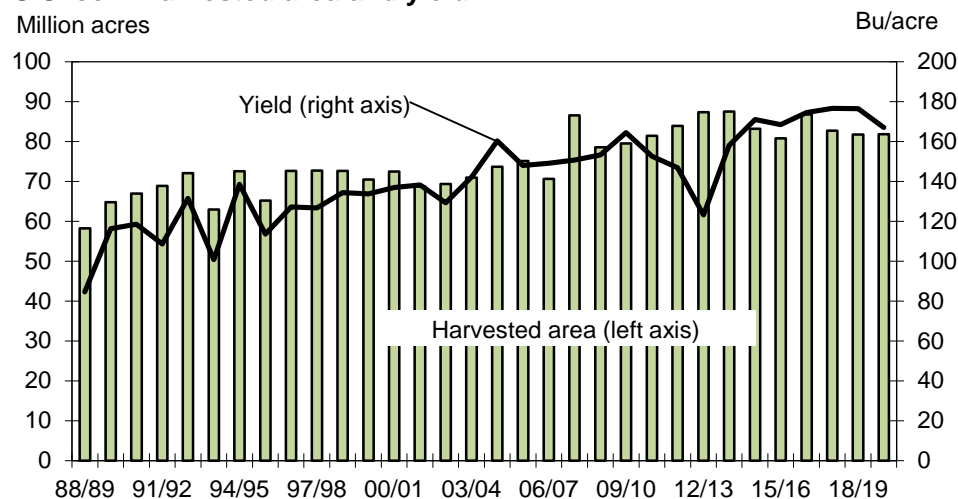
Export prospects are reduced 50 million bushels to 1,850 million. Slow early-season shipments and sales due to the non-competitiveness of the U.S. crop relative to other suppliers such as Brazil, Argentina, and the Ukraine has dampened early season sales.

These changes result in ending stocks of 1,910 million bushels, 18.3 million below last month's forecast. The stocks-to-use ratio is lowered to 13.7, compared with last month's 13.8.

The projected season-average corn price received by farmers for 2019/20 is raised \$0.05 per bushel to \$3.85, reflecting tightening supplies and observed prices to date.

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.

## 2018/19 Byproduct Trade Wrap-Up

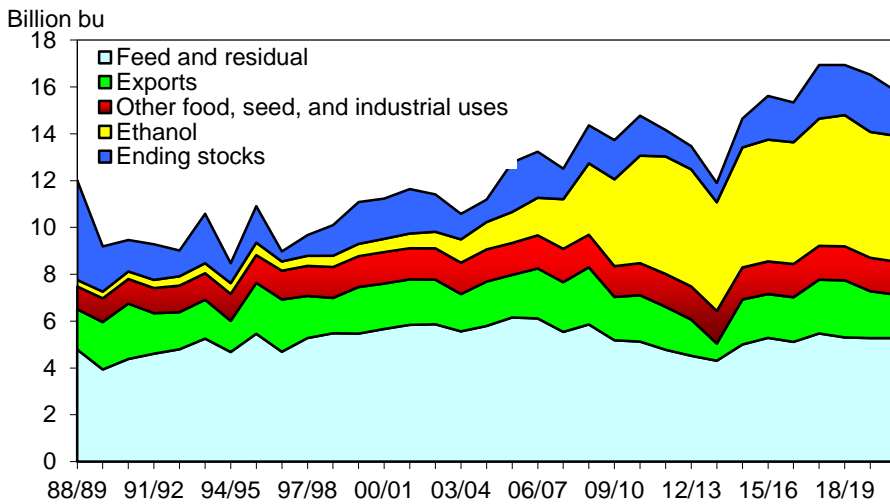
U.S. ethanol exports for 2018/19 totaled 1,547 million gallons, 4.7 percent below 2017/18 and representing roughly 550 million bushels of corn. The major dampening factor were ethanol shipments to Brazil which declined 72 million (16 percent) as mills shifted from sugar production to ethanol, displacing imports. Shipments to Canada and India also declined. China fell from number four in terms of volume in 2017/18 to thirty-fourth due to the impacts of retaliatory tariffs, slashing export demand by nearly 110 million gallons.

Dried distillers grains with solubles (DDGS) shipments declined 3.5 percent to 11.6 million metric tons (MT) reflecting lower shipments major destinations such as Mexico, Vietnam, Thailand, Turkey, and Ireland. The five largest destinations during the year were Mexico, Vietnam, South Korea, Indonesia, and Thailand. During the past decade, DDGS shipments have increased along with animal protein in diets as incomes in these countries have risen, allowing a transition from traditional plant based protein.

Corn gluten feed (CGF) shipments fell 12 percent in 2018/19 from the previous year to 1,074 million metric tons. Ireland, Israel, the United Kingdom, and Turkey were the major destinations, unchanged from last year. All but Turkey substantially reduced volumes. Corn gluten meal (CGM) volume slipped 2 percent in 2018/19, to 787 million MT. Indonesia is the leading destination, even though it reduced volume from the previous year. Chile, Egypt, Colombia, and

Canada received smaller volumes. For CGF and, to a lesser extent, CGM, lower available supplies dampened exports.

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



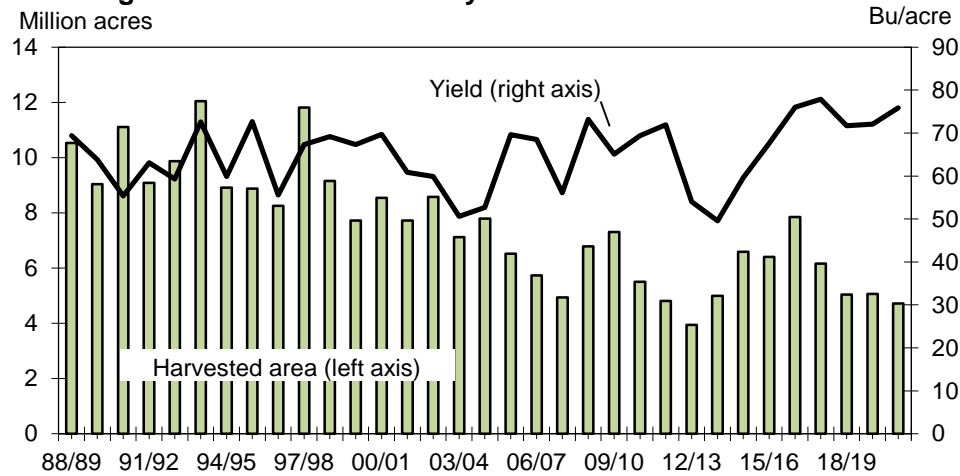
Note: Marketing year 2018/19 and 2019/20 are projected.  
 Source: USDA, World Agricultural Outlook Board, WASDE.

## Sorghum 2019/20 Supply Projection Edges Up

A 2-bushel-per-acre increase in projected sorghum yields to 75.9 bushels boosted production by 9.0 million bushels to 357.6 million, 7.3 below last year's crop. Yield is the highest since 2016. Supplies are projected at 421.3 million bushels. Use is raised 10 million bushels to 370.0 million due to increased export pace. Ending stocks are lowered 1.0 million bushels to 51.3 million. The average price received by farmers is unchanged this month at \$3.40 per bushel.

Figure 4

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



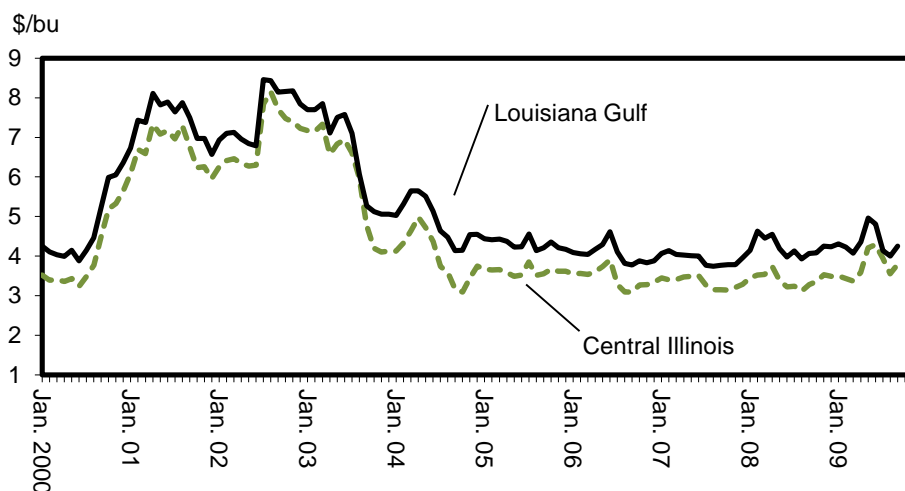
Sources: USDA Economic Research Service with data from, USDA, National Agricultural Statistics Service, *Quick Stats* and USDA, World Agricultural Outlook Board, *WASDE*.

## Changes to Barley and Oats Due to NASS Re-survey

Survey respondents reporting unharvested acreage prior to the NASS *Small Grains Summary* were re-surveyed in late October and results are released in the November *Crop Production* report. The re-survey included barley in Idaho, Maine, Minnesota, Montana, North Dakota, Oregon, South Dakota, and Washington, and oats in Idaho, Maine, Minnesota, Montana, North Dakota, Oregon, and South Dakota.

As a result, barley harvested area was lowered 32,000 acres and yield is raised 0.3 bushels per acre to 77.7 bushels for a production decrease of 1.8 million bushels to 169.6 million. Combined with a 2-million-bushel reduction in forecast imports, anticipated supply is 264.1 million bushels. With no changes in use, the 3.8-million-bushel decrease in supply is passed through to ending stocks which are now projected at 93.0 million bushels. Higher-than-expected malting barley prices to date boost the all barley price \$0.05 per bushel to \$4.70.

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.

The NASS *Crop Production* report projects lower 2019/20 oat production due to a 16,000-acre reduction in harvested and a 0.1 reduction in yield to 64.3 bushels per acre. If realized, this will result in a crop of 53.1 million bushels and a supply of 186.0 million bushels. With no changes in use this month, lower supplies are passed through to ending stocks which are lowered 1.0 million bushels to 36.0 million. Anticipated season-average price is unchanged at \$2.95 per bushel for 2019/20, based on observed prices through September.

# International Outlook

---

## United States and Mexico Lead Global Coarse Grain Production Down

The projection for 2019/20 global coarse grain production is down slightly from last month to 1,394.9 million tons, a less than one percent change from the previous projection. The decrease is led by the **United States**, as well as by the reduced crop expectations in **Mexico, Ukraine, Australia**, and the **European Union (EU)**. These reductions are partly offset by increases in **Sub-Saharan Africa, Russia, Turkey**, and, to a lesser extent, other countries.

For information on this month's foreign coarse grain production changes by specific country and a visual display of production and trade, see **table A** and **maps A1–A4** at the end of this international section.

In contrast, the global coarse grain trade projection is up slightly month-over-month, with international October to September trade year (TY) imports getting a 1.7-million-ton bump and TY exports estimated higher by 1.3 million tons. The bulk of this trade change is in the corn market, where November expectations are that 1.6 million more tons will be imported worldwide on a TY basis, bringing global 2019/20 imports to 167.8 million tons. Trade year corn exports are estimated to increase by 1.2 million tons, to 172.0 million, despite historically poor U.S. exports observed in the first two months of the year. The difference between TY imports and exports includes mainly trade to countries outside the USDA database and/or timing differences between exporter and importer data. For detailed clarification, see endnotes in the monthly Foreign Agricultural Service report, *Grain: World Markets and Trade*.



## Foreign Corn Production and Trade Projected Higher

Global corn production estimates are down 1.8 million tons to 1,102.2. This change is driven by a 3.0-million-ton reduction in the **U.S.** crop due to a lower yield forecast (see domestic section above). On the other hand, total **foreign** corn production November estimates are higher at 755.2 million tons, up 1.2 million.

Larger-than-anticipated production is now projected for many African countries, including **Tanzania**, **Mali**, and **Ethiopia**, though these countries are not expected to export their increased supplies, but rather consume the grain domestically. The total corn production increase in the **Sub-Saharan Africa** this month reached 3.1 million tons. Corn output for **Russia** is also projected 0.5 million tons higher to 14.0 million in November, all of which is expected to be exported.

Due to unfavorably dry conditions in **Mexico**, decreases in estimated production partially offset the global gains. Mexican corn output is reduced by 2.0 million tons to 25.0 million this month, on lower-than-anticipated area planted in the eastern Corn Belt region where there was significant moisture deficiency throughout the main summer growing season, which is expected to result in an increase in abandonment. This caused the lowest summer corn area on record, and a decline in summer planting was reported by the Mexican statistical agency (SADER) in their planting progress reports. Mexico produces mainly white corn (about 90 percent of total corn production) for domestic consumption and some exports. It imports yellow corn (mainly from the United States) as livestock feed. Imports of substantial quantities of white corn from **South Africa** (the substitute white corn producer) are not expected. Rather, the country is projected to cut domestic corn consumption, exports, and stocks. With the reduced output, Mexican corn exports are projected 0.7 million tons lower, and 0.9 million fewer tons will be used domestically.

**Map A1** below displays corn production changes for November.

Monthly corn exports continue to set records in Brazil, boosting projections for the 2019/20 October-September trade year and for the 2018/19 March-February local marketing year. For the October-September 2019/20 international trade year (beginning in October 2019), Brazilian corn exports are projected 3.0 million tons higher as this brisk export pace is expected to last for several more months. For the local marketing year 2018/19 (beginning in March 2019), **Brazil** corn exports are up 2.0 million tons this month to a new record of 41.0 million. Going forward, for the next 2019/20 local marketing year (beginning in March 2020), a projection for Brazilian corn exports is up 2.0 million tons to 36.0 million, based on the expectation of sufficiently high supplies in 2019/20 on observed exports during 2018/19. The export pull from other countries is strong, given Brazil's current high price competitiveness, which motivates a reduction in the country's domestic consumption by a projected 1.0 million tons. The Southern regions of **Brazil (Santa Catarina and Mato Grosso do Sul)**, where the amount of corn grown in the first season does not cover their feeding needs, import corn mainly from **Paraguay**, but also from **Argentina**, to support the local poultry and hog sector. Corn available in the Center-West of the country is of little use to these southern meat producers, due to inadequate transportation infrastructure and high trucking costs. To meet anticipated needs in Southern Brazil, trade year 2019/20 corn imports to Brazil are increased by 0.2 million tons, and by 0.3 million tons on a local year basis.

**U.S.** corn exports continue to lag behind previous expectations. Export data from the September Census report (the lowest since 1976) and October sales and inspections data indicate an exceptionally slow start to the 2019/20 year. Although slow exports are anticipated to continue for several more months, in the latter part of the 2019/20 season the export pace is expected to improve. Relative U.S. prices are the current driver of this slow pace; however, as supplies in **Brazil** get tighter, **U.S.** prices are expected to become more competitive, which should enhance export activity.

**Map A3** below displays corn trade year export changes for November.

Corn imports are projected 1.0 million tons higher for **Vietnam**, reflecting a swift pace of imports, with the imports in September the largest on record. Imports are also increased by 0.5 million tons in **Colombia**, where a steady growth in feed use has been observed. Based on

2018/19 adjustments, corn imports are also projected higher for **Japan** and **Korea**. Partly offsetting are reductions for **Iran** (down 0.5 million tons) and **Egypt** (down 0.3 million tons) based on newly available data.

**Map A4** below displays corn trade year import changes for November.

## Sorghum Production and Trade

Global sorghum production estimates for 2019/20 are marginally reduced by 0.3 million tons. The bulk of this loss is due to projected production decreases in **Mexico**, **Australia**, and **Cameroon**. Mexico, in particular, had a significant production cut of 0.5 million tons, or 10 percent of projected production. This decrease is concentrated in the central regions, where planting progress reports show the lowest summer crop area planted since 1993. Australian sorghum production is expected to be down due to dryness in the Eastern regions of Queensland and New South Wales, which account for nearly all of the country's sorghum production. It is expected that Australian farmers will have issues with germination. Rather than harvest the undeveloped crop for grain, farmers will likely feed part of it as forage, or cut for hay, depending on local prices. Additionally, sorghum prices in Australia are about 10 percent lower than a year ago, not incentivizing any late planting. Several countries of the Sub-Saharan region saw their sorghum production slightly increase this month. Sorghum output in the United States is projected slightly higher this month, up 0.2 million tons to 9.1 million.

**Map A2** below displays sorghum production changes for November.

World sorghum trade in TY 2019/20 is projected higher by 0.4 million tons this month compared with October. Mexico and China are both slated to increase sorghum imports by 0.2 million tons on a TY basis. The United States is expected to be the main supplier to both countries, especially given recent evidence of shipments, including two U.S. cargo vessels which have left for China. U.S. sorghum exports are projected 0.3 million tons higher this month to reach 2.8 million. Additionally, it is anticipated that given new opportunities in China, Argentina will also increase sorghum exports in 2019/20 by 0.1 million tons.

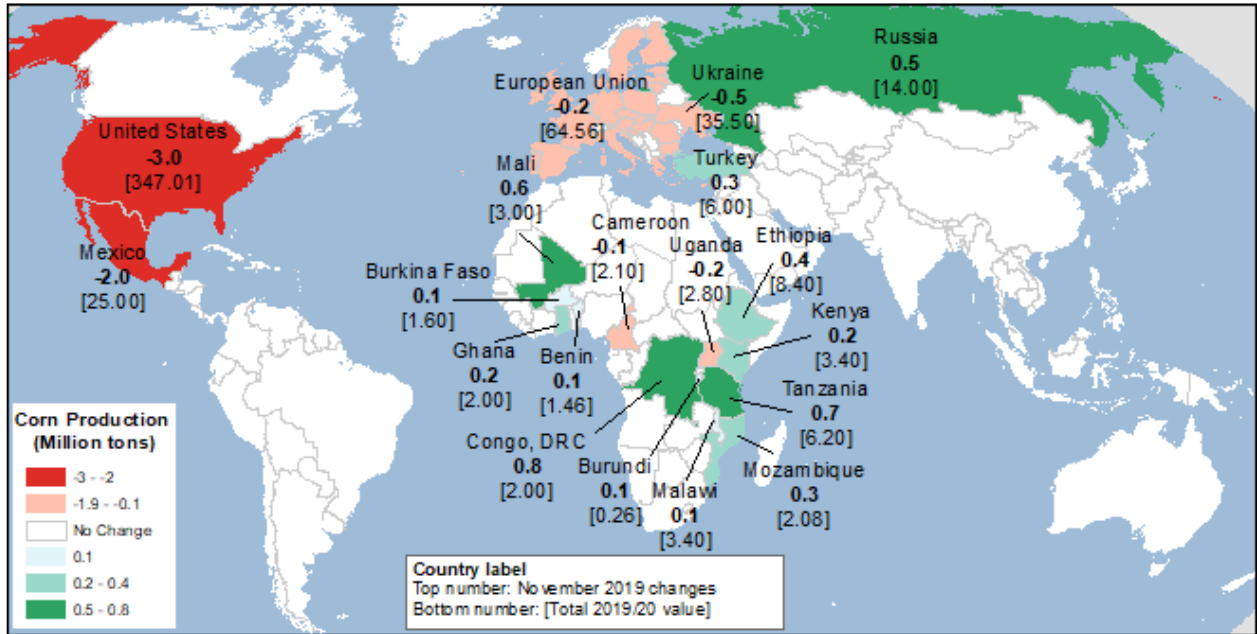
**Table A** below displays this month's foreign major coarse grain production changes by country for November.

**Table A - Coarse grain foreign production by country at a glance, November 2019**

	Type of crop	Crop year	Production	Change in forecast <sup>1</sup>	YoY <sup>2</sup> change	Comments
<i>Million tons</i>						
<b>Coarse grain production by country and by type of grain (2019/20)</b>						
<b>Sub-Saharan Africa</b>						
↑	Corn	Oct-Sep	72.7	+3.1	-1.5	As a result of a biannual SSA review, corn output in each country of the region is revised. Corn production is projected higher for Tanzania, Mali, Ethiopia, Mozambique, Ghana, Kenya, and several other countries. Partly offsetting are declines for Cameroon and Uganda.
↑	Sorghum	Various	27.5	+0.3	-1.4	As a result of a biannual SSA review, sorghum output in each country of the region is revised. Sorghum production is projected higher for Ethiopia, Mozambique, Niger, and several other countries. Partly offsetting are declines for Cameroon, with smaller changes for a number of countries.
<b>Russia</b>						
↑	Corn	Oct-Sep	14.0	+0.5	+2.6	Based on harvest reports, with roughly 80 percent of the harvest complete. Currently this is projected to be a record yield of 5.71 tons/ha.
<b>Turkey</b>						
↑	Corn	Sep-Aug	6.0	+0.3	+0.3	Beneficial rainfall throughout the season boosted yields. The increase is based on new data from the recent reports and satellite imagery.
↓	Barley	Jun-May	7.9	-0.1	+0.9	The increase is based on new data from the Ministry of Agriculture with slightly lower yields.
<b>Mexico</b>						
↓	Corn	Oct-Sep	25.0	-2.0	-2.6	Planted area for the main growing summer season is the lowest on record. Rain was also deficient throughout the growing season in the corn belt region.
↓	Sorghum	Oct-Sep	4.5	-0.5	-0.2	This change is driven by a decrease in area planted, based on planting progress as reported by the Mexican statistical agency. Area for the summer crop is the lowest since 1993.
<b>Ukraine</b>						
↓	Corn	Oct-Sep	35.5	-0.5	-0.3	With more than 80 percent harvested, corn yields appear to be lower than previously projected.
↑	Barley	Jul-Jun	9.5	+0.3	+1.9	Barley harvest is complete, and barley yield is projected to be at a record-high.
<b>Australia</b>						
↓	Sorghum	Mar-Feb	1.1	-0.3	-0.2	Continued dryness in the sorghum area in the East continues to cut into planting. With precipitation so low, there are concerns about potential germination.
↓	Barley	Nov-Oct	8.4	-0.2	+0.1	Area is reduced along with a projected lower yield. These changes are driven by vegetative health index (VHI) and satellite imagery. It is expected that more of the crop will be used for hay and grazing, especially in New South Wales.
<b>European Union</b>						
↓	Corn	Oct-Sep	64.6	-0.2	+0.3	Harvest results from official data sources influenced these revisions. Heavy rains slowed down harvest in France and Germany. Other small changes within the EU are driven by the official harvest data as they become available.
↓	Oats	Jul-Jun	7.9	-0.2	+0.2	Harvest results from official data sources influenced these revisions, with the main reduction in Spain.
<b>Argentina</b>						
↓	Barley	Dec-Nov	4.7	-0.1	-0.4	Barley yields are projected slightly lower. The change is driven by reported dryness in parts of Buenos Aires province and are in line with changes in wheat output this month.
<sup>1</sup> Change from previous month. Smaller changes are made for a number of countries, see map A for changes in <b>corn</b> production. <sup>2</sup> YoY: year over year changes.						
Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online database.						

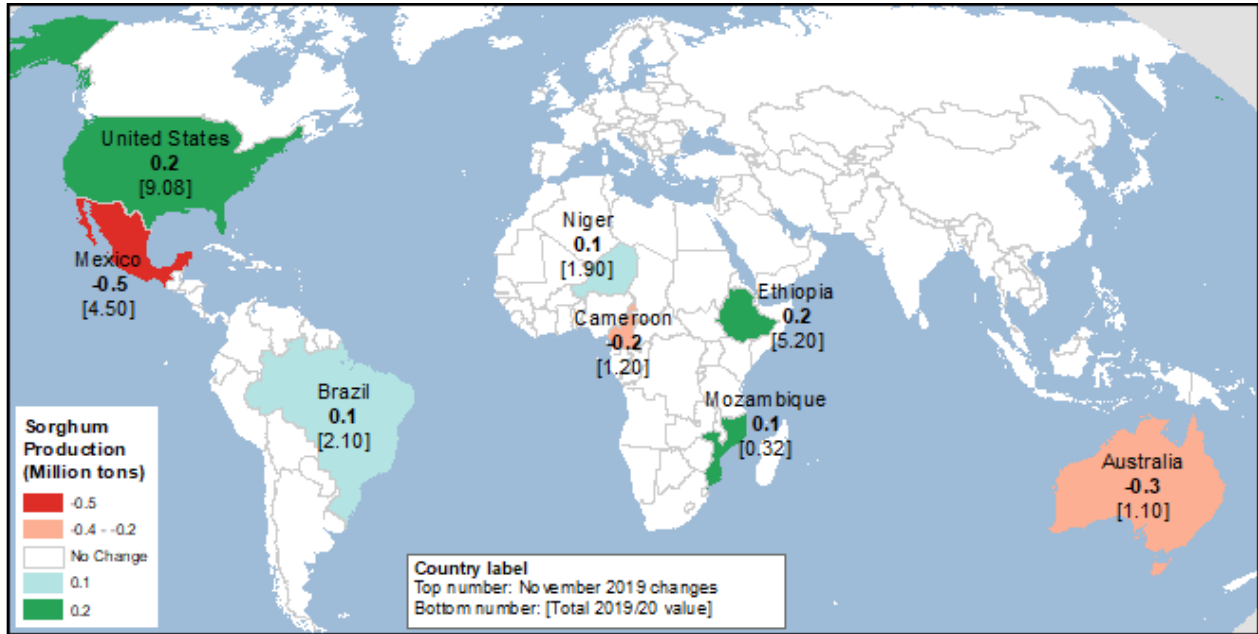
For a visual display of the changes in corn and sorghum production, and corn TY based exports and imports, see **maps A1–A4** below.

**Map A1 – Corn production changes, November 2019**



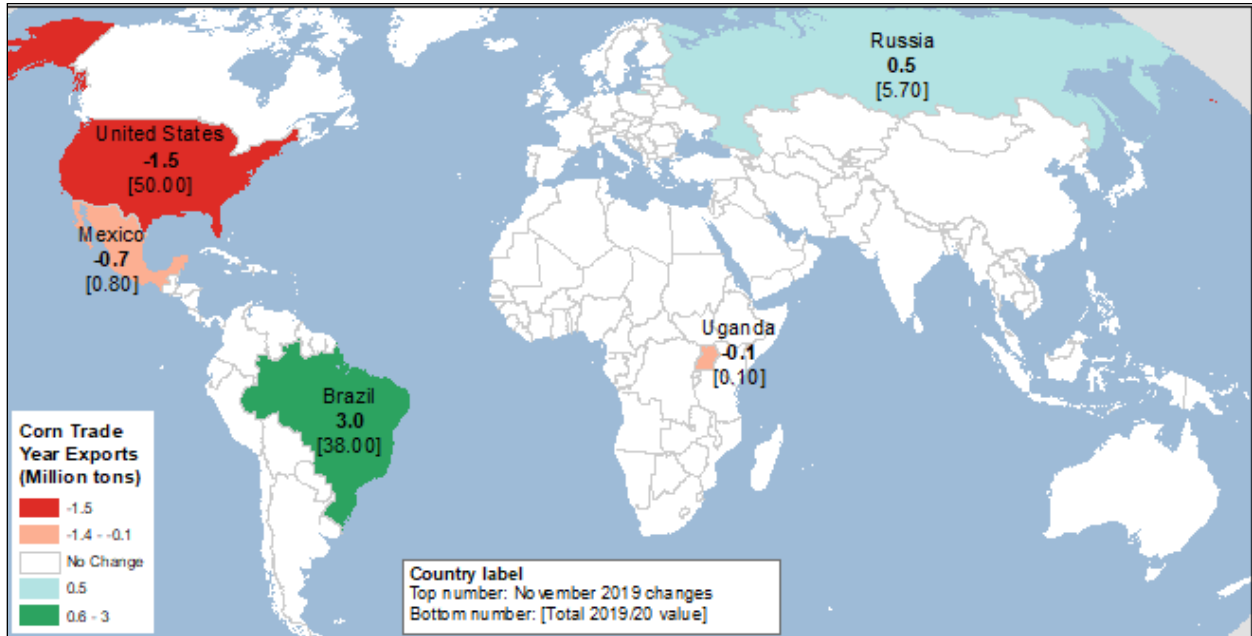
Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online database.

Map A2 – Sorghum production changes, November 2019



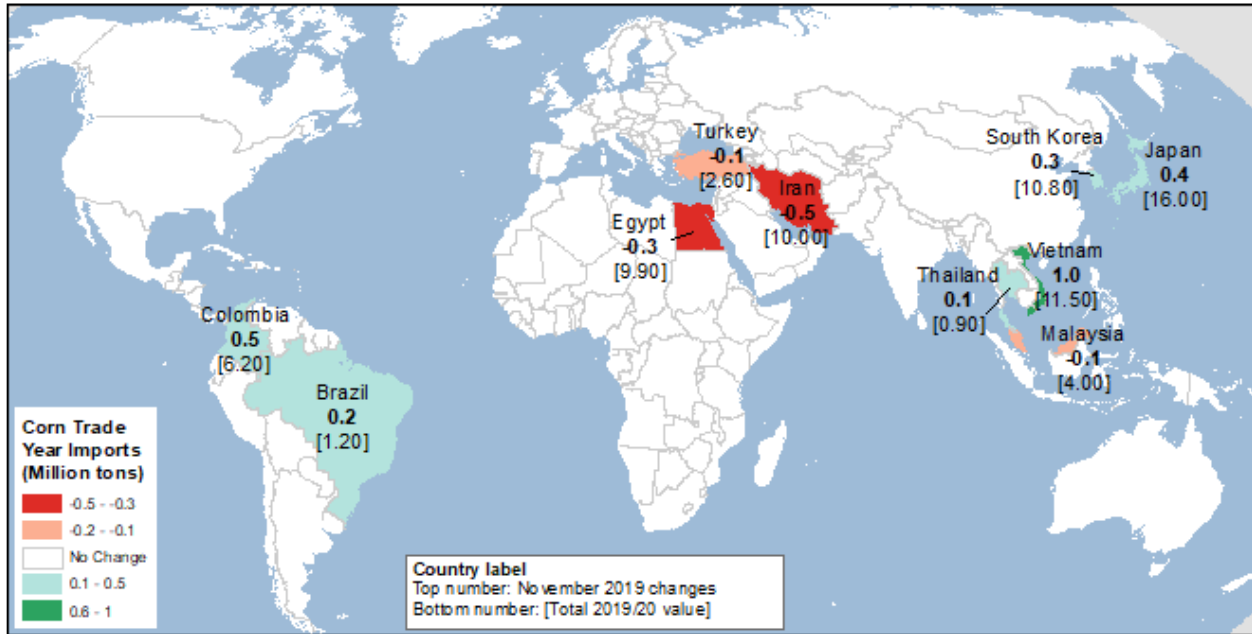
Source: USDA, Foreign Agricultural Service, Production, Supply and Distribution online database.

**Map A3 – Corn trade year exports changes, November 2019**



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

**Map A4 – Corn trade year imports changes, November 2019**



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