



Feed Outlook

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First Projection for 2019/20: Large Crop and Low Price

The first forecast for the 2019/20 corn crop is for record-high supply, slightly higher disappearance, and much higher stocks. Acreage is projected at 92.8 million bushels, based on the March 29 *Prospective Plantings* report from USDA's National Agricultural Statistics Service (NASS). A weather-adjusted trend model provides a yield forecast of 176.0 bushels per acre which, if realized, will produce a crop of 15,030 million bushels. Combining this amount with projected imports of 35 million bushels and beginning stocks of 2,095 million gives total supply of 17,160 million, 565 million greater than 2018/19. Carryout is forecast at 2,485 million bushels, 390 million higher than last year. The 2019/20 corn season-average price is projected at \$3.30 per bushel. For 2018/19, the season-average price for corn is lowered \$0.05 per bushel to \$3.50, based on sales to date and greater carryout.

Global 2019/20 coarse grain production is projected at a new record of 1.4 billion tons, driven mostly by larger production in the United States and the European Union (EU). Despite second-high corn production prospects, U.S. 2019/20 corn exports face tough competition. Corn exports coming from Brazil, Argentina, Ukraine, and Russia, whose combined exports are to reach 97.5 million tons, are expected to provide a headwind for U.S. exports. Marketing of the record 2018/19 Brazilian crop that is going to begin in July-August and continue through March 2020 is expected to affect export markets going into 2019/20. As a result, U.S. corn exports during the first half of the 2019/20 marketing year are expected to be weak.

Coarse grain production is forecast to be lower than use for the third consecutive year, and ending stocks for 2019/20 are projected down, led by a drop in corn stocks. Global corn ending stocks are expected to fall to the lowest level since 2015/16. The largest stock decline is forecast for China, and corn global stocks less China are forecast higher with major stocks accumulation by the United States.

Domestic Outlook

U.S. Feed Grain Use Lowered

U.S. feed grain disappearance for 2019/20 is projected at 387.2 million tons, 4.3 million above the revised estimate of 382.9 million for 2018/19. Feed and residual use, projected at 143.3 million tons, is 3.3 million higher than the 2018/19 estimate. Food, seed, and industrial (FSI) use, at 183.5 million tons, is 1.2 million over last year. Exports are projected to decline 0.3 million tons to 60.4 million. Total feed grain disappearance in 2018/19 is estimated at 382.9 million tons.

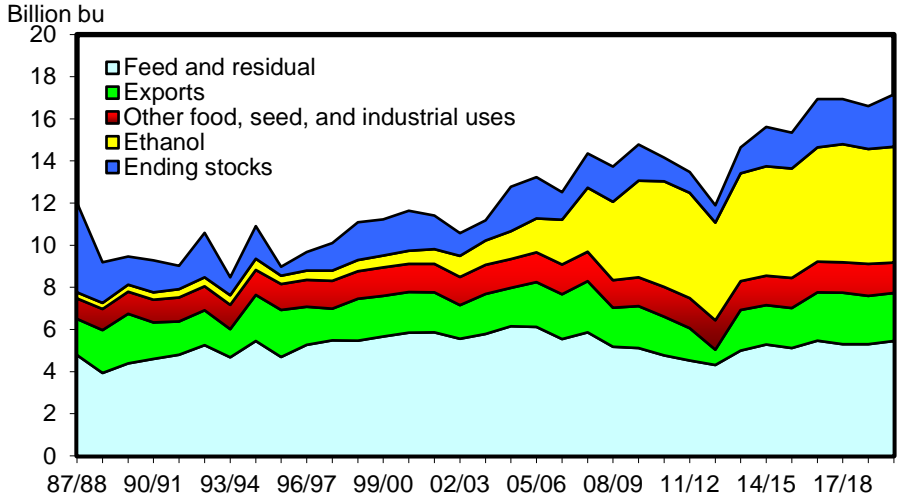
Grain Consuming Animal Units

Grain consuming animal units (GCAU) for 2019/20 are projected at 102.4 million units, 1.8 million over last year's revision of 100.6 million. Feed and residual use per GCAU is projected at 1.4 tons and has been relatively steady for 3 years.

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 146.6 million tons, 4.7 million higher than the 2018/19 estimate of 141.9 million tons. The increases are based on production increases, where corn, barley, and oats are expected to have higher production and lower prices than 2018. Stronger feed demand is also a factor, as total U.S. meat and poultry production is projected higher for 2020, and both beef and pork exports are expected to increase. Wheat feeding is also up year on year based on higher production, particularly hard red winter wheat.

Figure 1
U.S. corn utilization

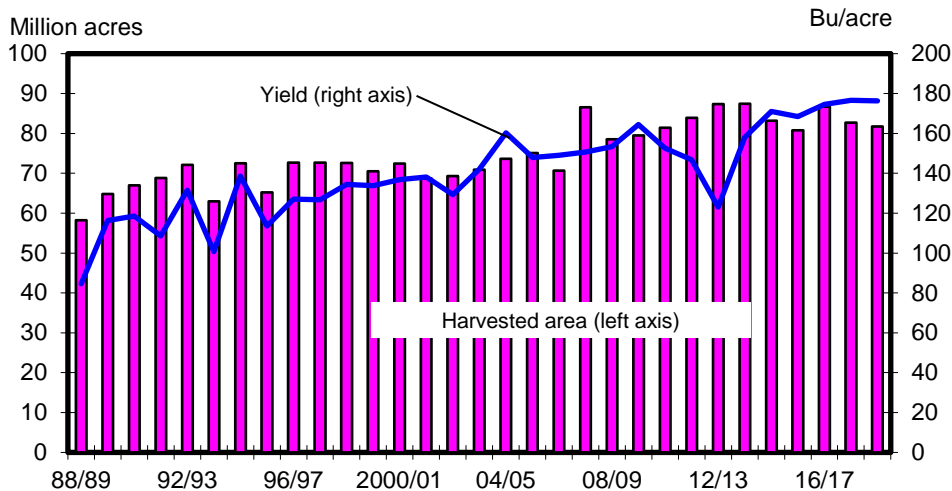


Note: Marketing year 2018/19 is projected.
 Source: USDA, World Agricultural Outlook Board, WASDE.

Balance Sheet Changes Boost Stocks in 2019/20

The first 2019/20 corn crop forecast is for increased supply, larger disappearance, and higher stocks. Acreage is projected at 92.8 million bushels, based on NASS's March 29 *Prospective Plantings* report. A weather-adjusted trend model provides a yield forecast of 176.0 bushels per acre, which, if realized, will produce a crop of 15,030 million bushels. Combining this amount with projected imports of 35 million bushels and beginning stocks of 2,095 million gives total supply of 17,160 million, 565 million greater than 2018/19.

Figure 2
U.S. corn harvested area and yield

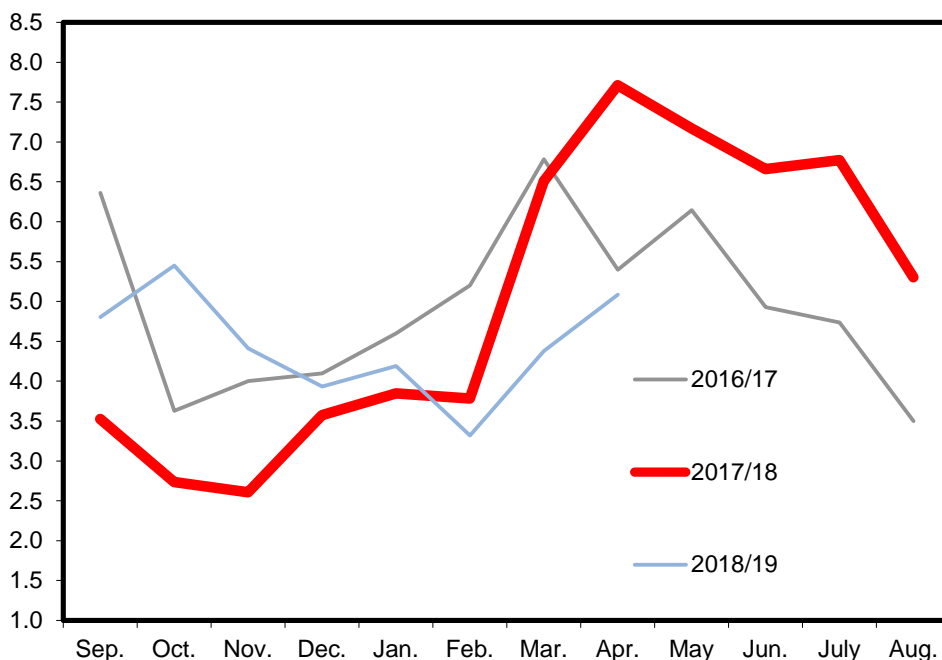


Sources: USDA Economic Research Service with data from USDA, National Agricultural Statistics Service, QuickStats and USDA, World Agricultural Outlook Board, Crop Projections, 2019.

Total disappearance is projected at 14,675 million bushels, 175 million over 2018/19. Feed and residual is projected at 5,450 million bushels, 150 million higher than the forecast for 2018/19. FSI use is projected up 50 million bushels from 2018/19 at 6,950 million, with corn for ethanol 50 million higher than 2018/19 at 5,500 million bushels and other FSI categories unchanged with high fructose corn syrup (HFCS) down 5 million bushels from the current crop, and glucose and dextrose and starch unchanged. Other FSI totals 395 million bushels, up 5 million from 2018/19. Exports are projected down 25 million bushels from the 2018/19 forecast at 2,275 million bushels.

Figure 3
Monthly U.S. corn exports

Million metric tons



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

Resulting ending stocks are projected at 2,485 million bushels, the highest since 1987 and 390 million higher than carryout for the previous crop.

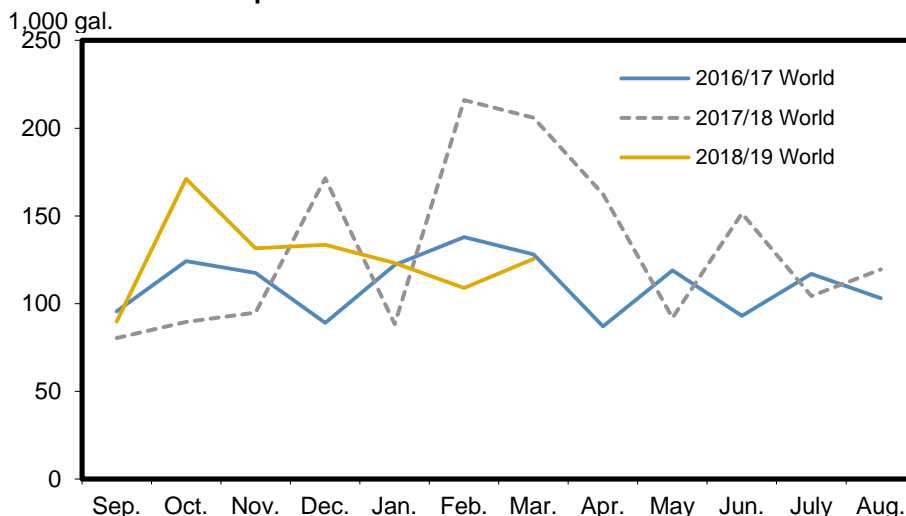
2018/19 Balance Sheet Impacted by Energy Issues

Estimated supplies for 2018/19 are lowered 5 million bushels on lower projected imports based on year-to-date pace. With carryin and production unchanged from last month, total supply is 16,595 million bushels. Total disappearance is estimated at 14,500 million bushels, 65 million bushels below last month's forecast. Non-ethanol FSI was reduced 15 million bushels with a 5-

million-bushel decline in corn used for HFCS and a 10-million-bushel decline in corn for glucose and dextrose. All other non-fuel FSI categories were unchanged.

Slackening ethanol production has impacted many ethanol producers. Although margins have improved, they have not yet reached the levels seen a year ago. In addition, reduced consumption due to the lackluster gasoline use and small refinery exemptions (SREs) has dampened demand. Though March, corn for ethanol totaled 3,116 million bushels, compared with 3,262 million during the same period last year. To reach the previous projection of 5,500 million bushels, monthly grind during the last 5 months of the marketing year would have to average 477 million bushels per month, 32 million above the average for the first 7 months of the marketing year.

Figure 4
U.S. fuel ethanol exports

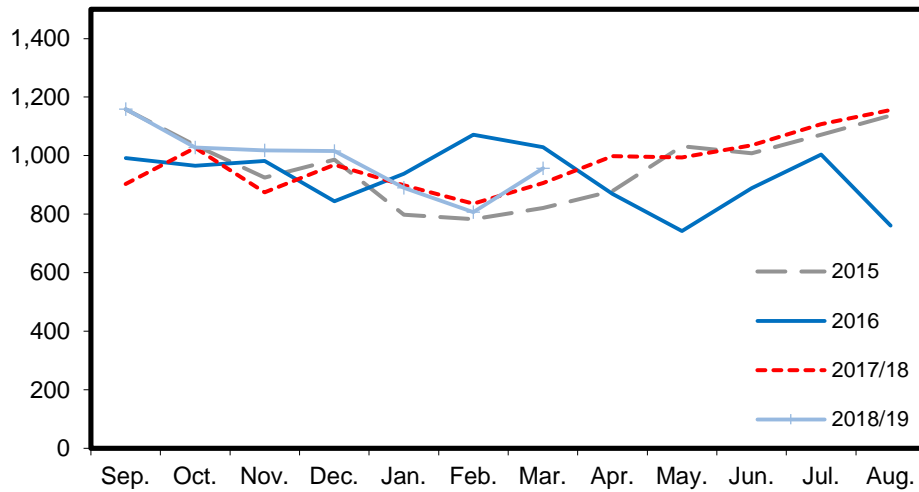


Source: USDA, Economic Research Service with data from USDC, U.S. Census Bureau.

On a more positive note, year-over-year ethanol exports for the first half of the marketing year are up 2.1 percent, and total ethanol exports to date represent nearly 300 million bushels of corn disappearance. Exports would be even higher if Brazil had continued last year's pace. However, low sugar prices have caused Brazilian refiners to switch to ethanol production, reducing the need for imports. In 2017/18, Brazil was the largest destination for U.S. ethanol.

Forecast 2018/19 corn exports are unchanged at 2,300 million. The United States continues to face stiff price competition from Brazil, Argentina, and the Ukraine. Estimated exports are 138 million bushels below 2017/18.

Figure 5
U.S. exports of dried distillers grains with solubles
 Thousand metric tons



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

Resulting ending stocks are projected at 2,095 million bushels, 60 million above last month but 44 million below 2017/18. The stocks-to-use ratio increased this month to 14.5 from last month's 14.0.

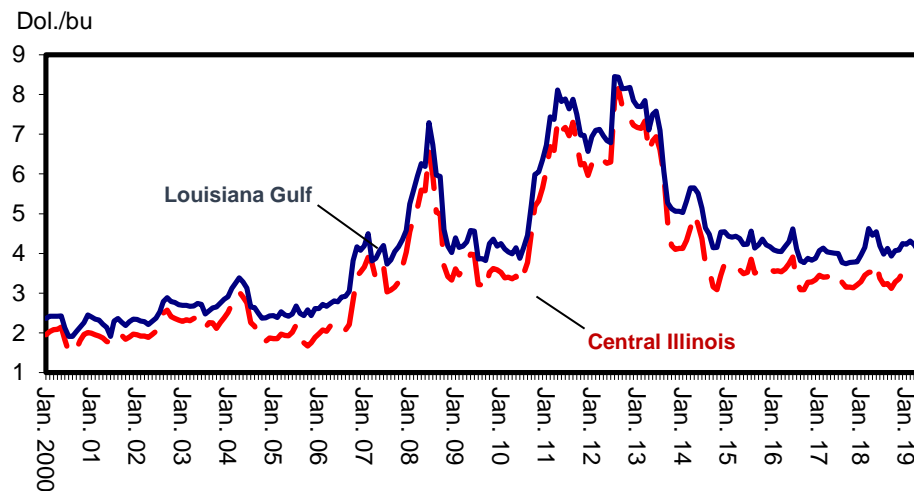
2019/20 Corn Price

The projected season-average corn price received by farmers for 2019/20 is unchanged at \$3.30 per bushel, \$0.35 lower than the Agricultural Outlook Forum projection from February. The decline is driven by ending stocks relative to use and forward pricing opportunities available as of early May. The projection is down \$0.20 from 2018/19 and is the lowest since 2006/07. The projected stocks-to-use ratio is 16.9, which would be the highest since 2005/06.

For 2018/19, the season-average price for corn is lowered \$0.05 per bushel to \$3.50, based on sales to date and greater carryout. The stocks-use-ratio is projected at 14.5.

Figure 6

Monthly corn (yellow no. 2) prices for Central Illinois and Louisiana Gulf



Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service, <http://marketnews.usda.gov/portal/lg>.

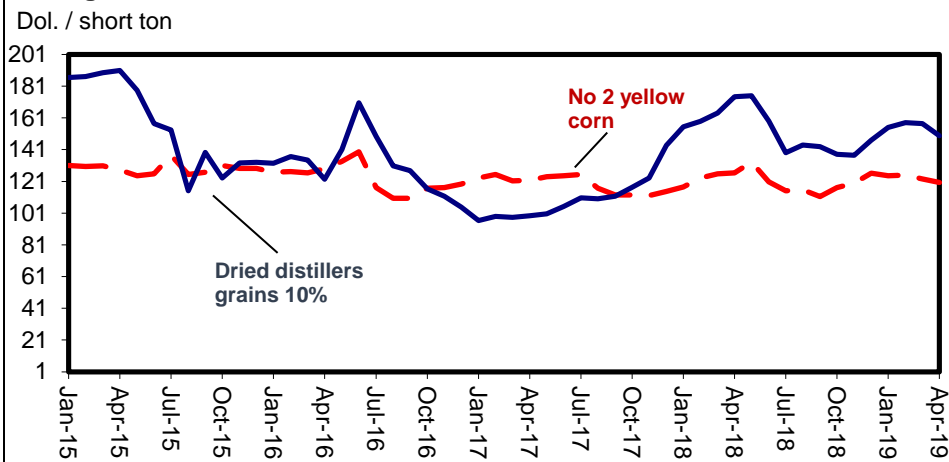
2018/19: Fractional Changes in Sorghum Supply and Ending Stocks

U.S. sorghum production in 2018/19 remains unchanged at 365.0 million bushels. Imports are increased to 0.04 million bushels from prior estimates of no imports at all.

These imported 0.04 million bushels feeds through the national balance sheet and results in a fractional increase in the total ending stocks. Ending stocks are estimated at 59.9 million bushels, up from 59.8 million in last month's report. Exports remain constant at 85.0 million bushels. If realized, this is the largest ending stocks figure since 2005/06 and the smallest export figure on record.

ERS's outlook newsletters will follow the WASDE process in transitioning away from a price range to point estimates. This month's price estimate for sorghum in 2018/19 is \$3.20 per bushel.

Figure 7
Monthly and prices for Central Illinois no. 2 yellow corn and corn distillers dried grain

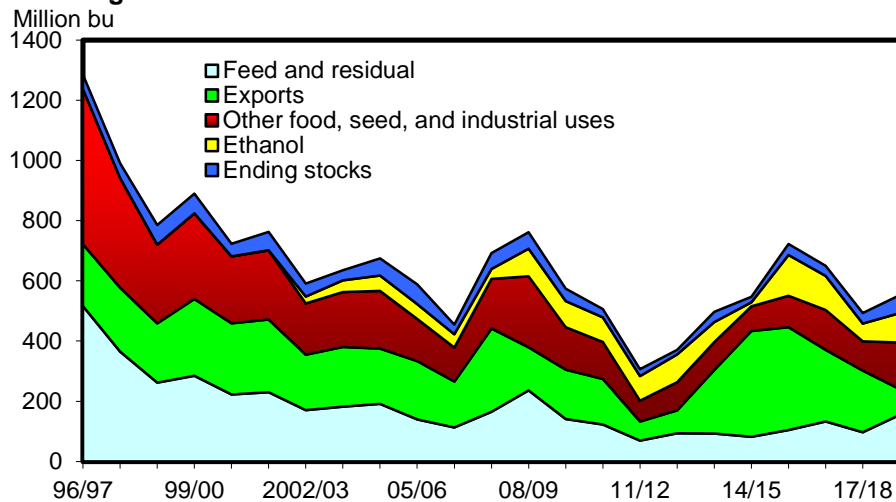


Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service, <http://marketnews.usda.gov/portal/lg>.

2019/20: Exports Slashed as Sorghum Suffers From Shrinking Market Share and Trade Frictions Continue

Total U.S. supply of sorghum is expected to decline relative to 2018/19 due to reductions in area planted, area harvested, and a substantial increase in beginning stocks. The area and yield forecasts result in production of 310.0 million bushels, down from 365.0 million the prior year, a 55.0-million-bushel decrease.

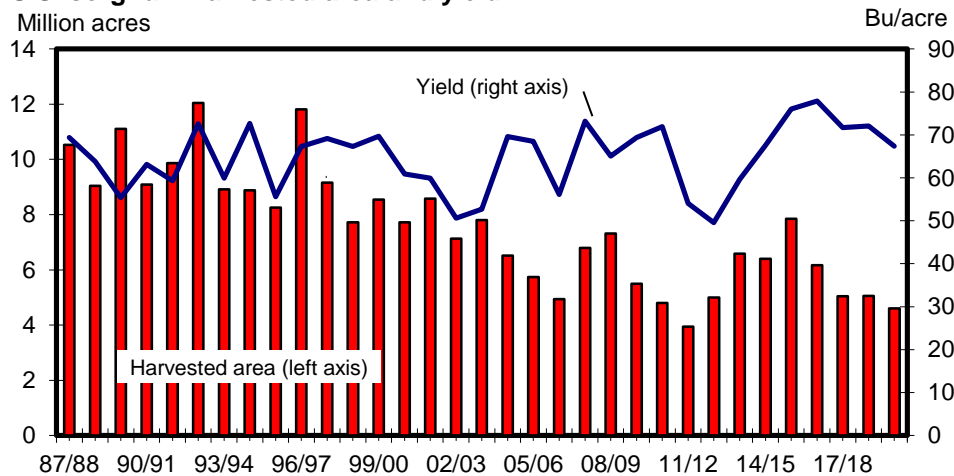
Figure 8
U.S. sorghum utilization



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

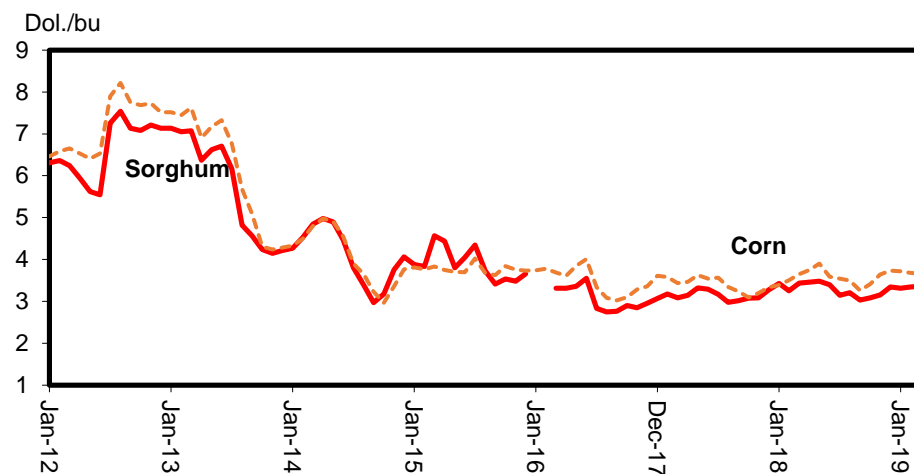
U.S. sorghum exports are forecast at 100.0 million bushels, due largely to abundant global supplies of corn and sharply lower import demand from China. If realized, global sorghum trade would be the fourth lowest since 1960. FSI use of sorghum is projected at 100 million bushels, unchanged from 2018/19. With abundant corn supplies and only modest growth in ethanol use driven by exports, sorghum is expected to be a less attractive feedstock relative to corn. Feed and residual use is expected to decline year-over-year by 30.0 million bushels to 125.0 million based on lower sorghum supplies and relatively favorable corn prices. These changes result in domestic use falling 30 million bushels from the prior year to 225.0 million. Total use is projected at 325.0 million bushels, down from 340.0 million in 2018/19 as an increase in exports is more than offset by lower domestic use. These changes roll up into an ending stocks projection of 44.9 million bushels, down from 59.9 million in 2018/19.

Figure 9
U.S. sorghum harvested area and yield



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

Figure 10
Monthly yellow no. 2 grain sorghum and corn prices for Kansas City

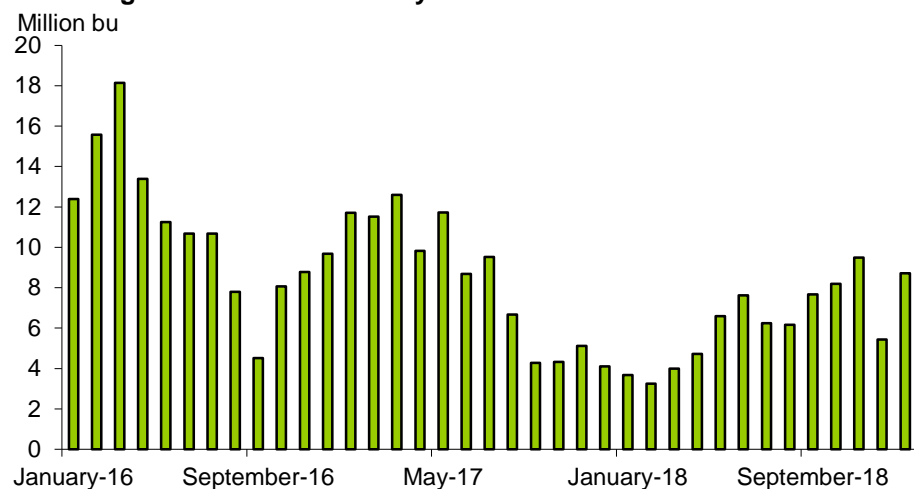


Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, Agricultural Marketing Service, <http://marketnews.usda.gov/portal/lg>.

Season Anticipated Average Price Is \$3.00 per Bushel, Down \$0.20 From the Projected 2018/19 Price

Sorghum planting progress, as reported by NASS on May 5, 2019, was at 22 percent, compared to 29 percent at the same time last year. The major sorghum producers Texas and Nebraska are also lagging at a similar rate of 14 percent and 5 percent, respectively, behind last year's progress at this time.

Figure 11
U.S. sorghum for ethanol use by month



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

No Changes in the 2018/19 Barley Crop as Price Moves to a Point Estimate

For 2018/19, production and total use remain unchanged at 153.1 million bushels and 165 million bushels, respectively. Supplies are projected slightly lower due to reduced imports. The season-average price is expected to be \$4.60 per bushel.

Barley Production, Use, and Exports Down in 2019/20

U.S. barley area planted is forecast at 2.55 million acres, based on NASS's March 29 *Prospective Plantings* report. Similarly, the barley area harvested is estimated at 2.1 million acres based on historical harvested-to-planted ratios. The yield is projected at 74.8 bushels per acre, based on the linear trend from 1990 to 2018.

Barley supply is expected to rise slightly from the prior year as a decline in beginning stocks is more than offset by larger production. With higher imports, supplies are up 2 million bushels from the prior year. Domestic use of barley is expected to rise 3 million bushels in 2019/20, as a slight decline in FSI use is more than offset by larger feed and residual use. Food and industrial use are expected to decline with lower beer production and limited growth in the craft beer sector.

Barley ending stocks are projected to be up fractionally from 2018/19, with the increase in supply slightly outpacing use. The season-average price estimate is \$4.20 per bushel for 2019/20.

The planting progress of barley shows that the crop is in line with last year's progress at this time. The 5 States surveyed showed that 37 percent of the crop was planted, compared to 40 percent last year at this time. Similarly, the percent emerged this year and last year match at 12 percent of the crop.

Total Use Is Trimmed, and Prices Move to Point Estimate in 2018/19

U.S. oats supply is reduced 5 million bushels to 182 million based on a reduction in imports. FSI use is lowered 2 million bushels based on updated food and industrial use expectations.

The season-average price is expected to be \$2.65 per bushel in 2018/19.

Larger Imports in 2018/19

Oats area planted and harvested in the 2019/20 season is projected at 2.6 million acres based on NASS's March 29 *Prospective Plantings* report. Yield is forecast at 66.7 bushels per acre based on the 1990-2018 trend. Imports are forecast at 100 million bushels based on larger supplies in Canada.

Food, seed, and residual use of oats in 2019/20 is forecast to rise slightly in 2019/20, reflecting population growth. Ending stocks are expected to be 33.1 million bushels, virtually unchanged from the prior year. The expected season-average price is \$2.50 per bushel.

Oats planting progress is fractionally behind last year. NASS reported on May 5 that across the 9 States surveyed, the oats planting progress was 50 percent complete, whereas it was 54 percent last year at this time. Oats that have emerged are at 36 percent in the same survey, whereas it was only 33 percent last year. This suggests that planting may be slightly slower but where planted emergence is moving forward strongly.

Assorted Updates on Rye: Production up on Larger Harvested Acres

U.S. rye production is forecast at 11.0 million bushels for the 2019/20 crop year, up from 8.432 million bushels in 2018/19. Yield is forecast down slightly at 30.6 bushels per acre. Beginning stocks of .66 million bushels are up from last year's .593 million bushels. Food, feed and residual, and industrial use are all forecast higher, for a total domestic demand of 22.75 million bushels. Imports are forecast down slightly, to 12 million bushels, mostly from Canada. The market year price is forecast up \$0.05, to \$5.55, based on increased domestic demand for all

uses except seed. NASS's *Flour Milling Products* 2018 summary reported that 1.83 million bushels of rye were ground for flour in calendar year 2018, up 1 percent from 2017.

NASS does not publish planting intentions for rye, so the forecast acreage is based on WAOB estimations of demand and rye returns per acre versus competing crops. Georgia and Oklahoma are the largest rye-producing States, with about 21 percent of the 2018 planted acres.

International Outlook

Record-High Coarse Grain Production Projected for 2019/20

Global coarse grain production in 2019/20 is projected to reach a new record at 1,425.7 million tons, up 2.4 percent, or 33.1 million tons, from the previous year.

Higher global coarse grain area for 2019/20 is projected at 7.4 million hectares, or 2.2 percent higher, with growth in all coarse grains except sorghum (due to decline in the United States). Relatively low prevailing coarse grain prices in most areas are a disincentive to expand area, but expected net returns, especially for corn compared to other crops, support area expansion. World **corn area** is projected 1.3 percent higher, with the largest increase in the United States (which comes mainly at the expense of soybeans), South America, South Africa, and the European Union (EU), more than offsetting area drops in China and several Sub-Saharan Africa countries.

For **barley area**, robust demand from Saudi Arabia and higher demand from China (although not as strong as in 2016 and 2017) both provide incentives for area expansion throughout the world, leading to an increase in projected barley area and output. Several major producers, such as Canada, Australia, the EU, Ukraine, and Russia, are expanding barley area. Barley area and production are also projected to increase in the countries of the Middle East (Iraq, Syria, Iran, and Turkey), where soaking rains were widespread across the whole region, even hitting areas that normally do not have any precipitation and promoting outstanding planting conditions. Partly offsetting is a decline in Morocco because of severe drought in the western part of the country.

Under the assumption that China will continue its policy of tariffs on sorghum originating from the United States, the 2019/20 demand for sorghum is projected about 10 percent lower than last year. Current prices for sorghum suggest a small decline in global **sorghum area**, mainly in the United States, but also in India and Argentina. The reductions are partly offset by higher projected sorghum area in Mexico, Mali, and Ethiopia.

The May initial assessment of world coarse grain supply and demand in 2019/20 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 2018/19 crop is still being harvested. Trend yields imply a mix of favorable and

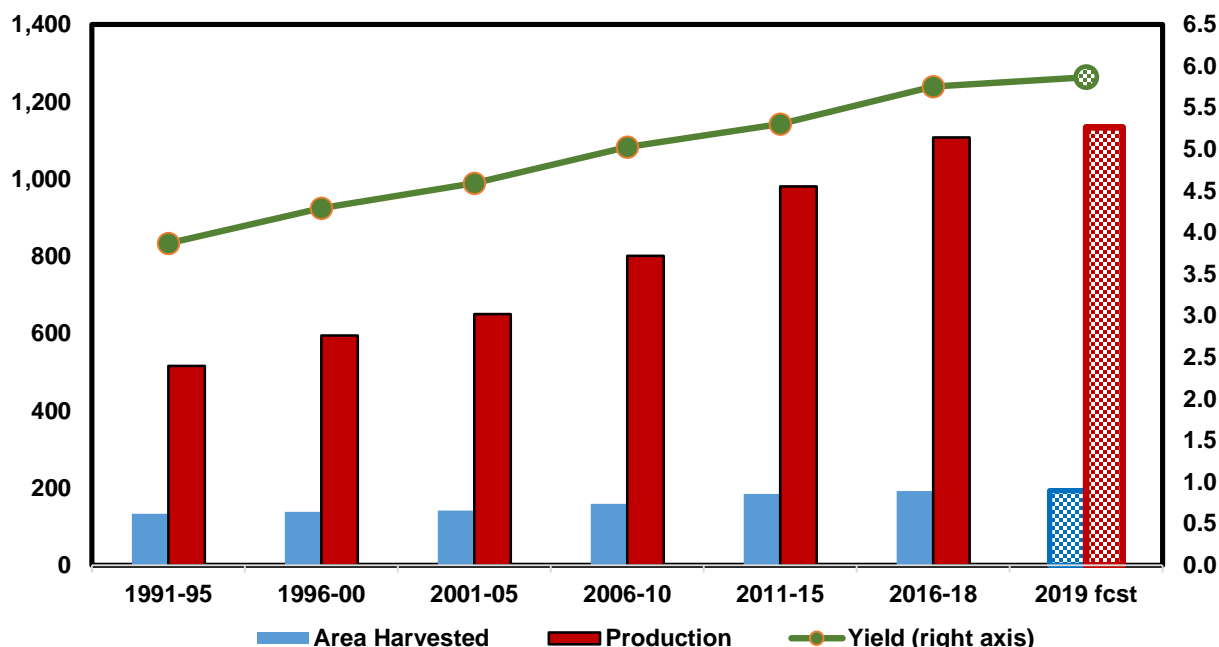
unfavorable weather. However, for fall planted coarse grains, such as winter barley in the Northern Hemisphere, yield prospects can be better defined, with excellent conditions across parts of the Middle East and EU, but drought in parts of North and Sub-Saharan Africa. The large increase in corn area in the United States, whose average yields almost double those of all other countries, supports higher global yield prospects.

The average world coarse grain **yield** in 2019/20 is projected to reach a record 4.28 tons per hectare, up almost 1.0 percent from last year, which was also a record. An assumed return to trend yields from the extremes of 2018/19 push corn yields for 2019/20 a tad higher than a year ago. Barley, oats, and rye yields are also projected higher, following a recovery from last year's adverse weather in Australia, Canada, EU, and Middle East, as well as in Ukraine and Russia. Sorghum yields are projected higher mainly due to a recovery in Argentina, Australia, and Sun-Saharan Africa, despite lower projected yields for the United States and Mexico, as these countries return to trend yields from a bumper year.

The expected second-highest U.S. corn crop underpins the growth in 2019/20 world coarse grain production, but foreign (global minus the United States) coarse grain production is also expected to expand to a record-high, reaching 1,031.5 million tons, up 1.9 percent year-to-year. Output of all types of foreign-produced coarse grains except corn are projected higher. Foreign corn output is slightly below the bumper 2018/19 year, as yields return to trend. A reduction in China's corn production will also contribute to the drop. Foreign corn production is projected down just 0.7 million tons in 2019/20 to 752.0 million. A steep increase in barley production takes it to a record-high of 149.9 million tons, up 13.4 million; sorghum produced outside of the United States is up slightly by 0.3 million tons to 50.8 million; oats are sharply higher by 2.3 million tons to 23.5 million (the highest since 2008/09); mixed grain is increased 1.9 million tons to 15.3 million; rye is up 1.6 million tons to 11.8 million; and millet is up by 0.1 million tons to 28.3 million. See figure 12 for a graphic display of the global corn area, production, and yields.

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

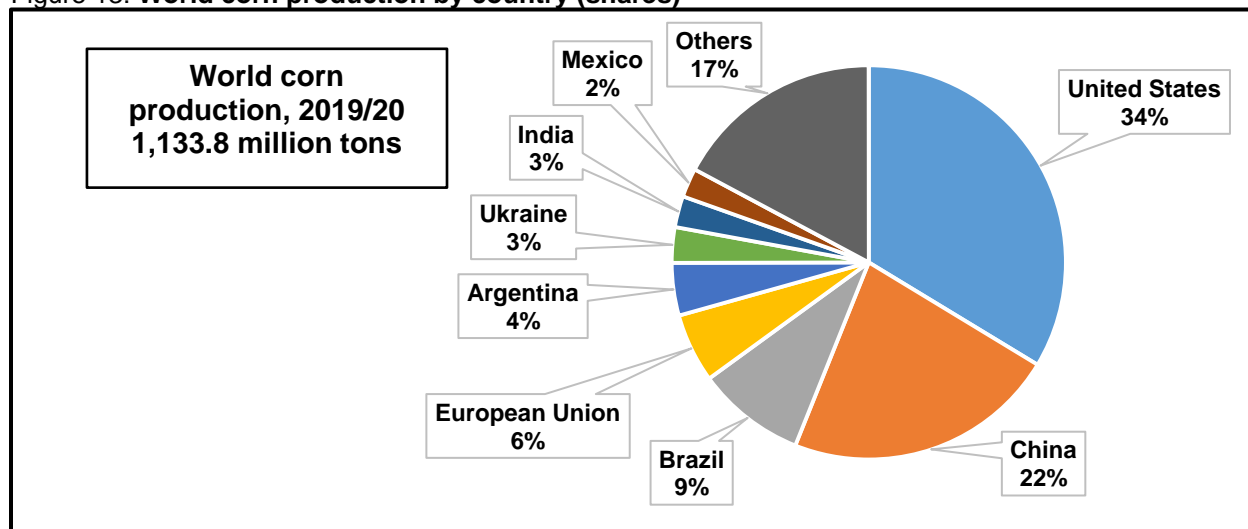
Figure 12: **World corn area-production-yield (AYP): Five-year averages and a forecast for 2019**
 Area in million hectares; production in million tons Yield, tons per hectare



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

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 share of Brazil and Argentina has increased from 10 to 13 percent (see figure 13).

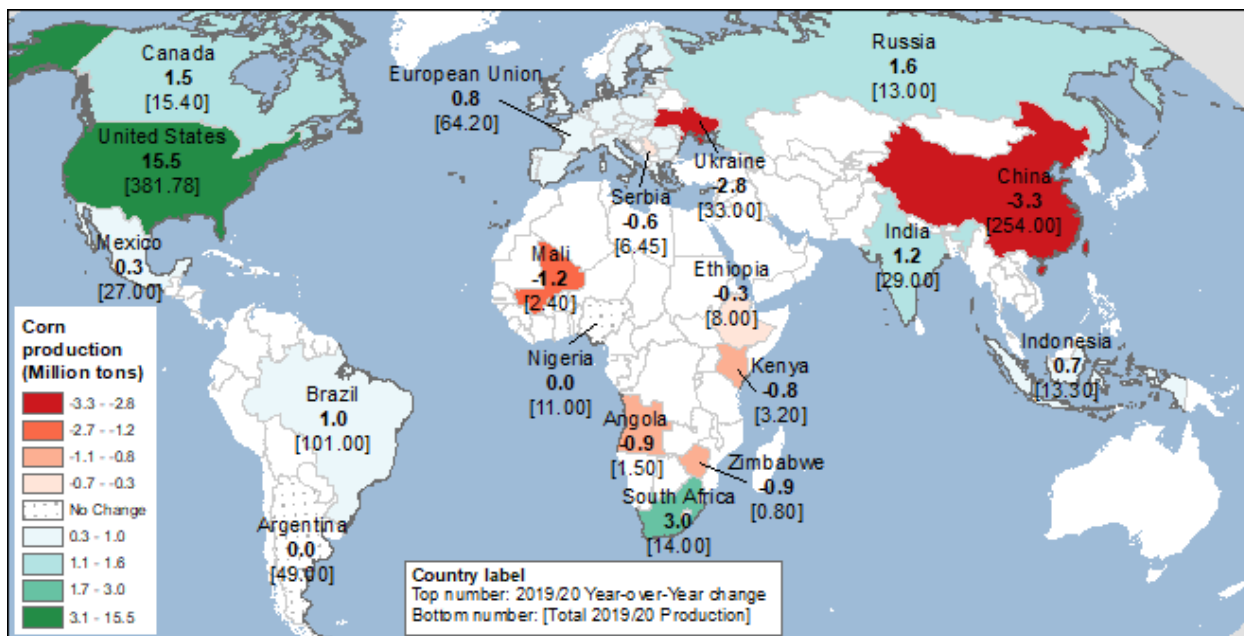
Figure 13: **World corn production by country (shares)**



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 YoY changes in corn production for 2019/20

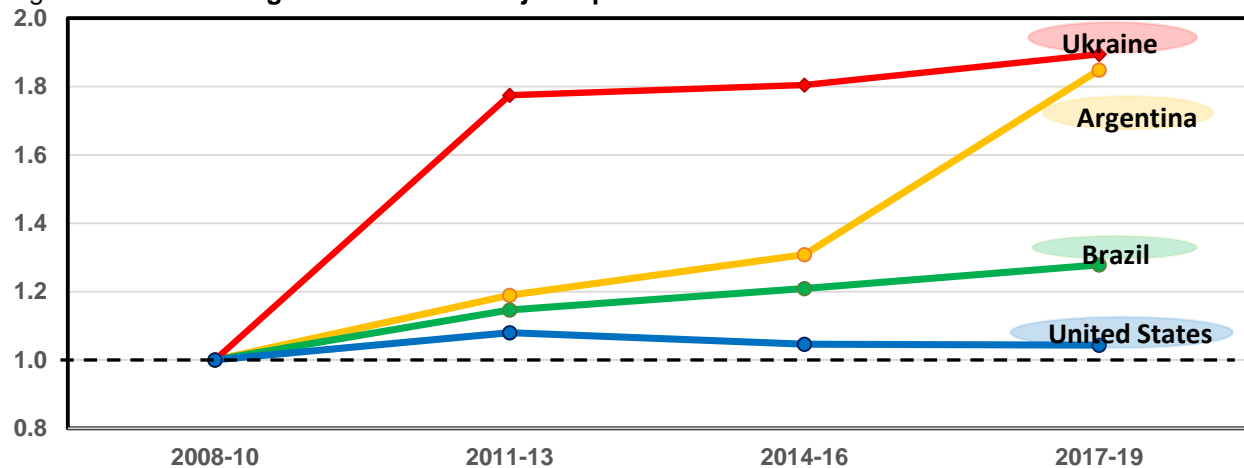


Note: Year-over-year (YoY) changes are in bold under the country name; 2019/20 output forecast is in parentheses below the country name.

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

Over time, corn area and yield change unevenly among corn producers, and the fastest to expand corn area in the last 10 years have been **Argentina** and **Ukraine** (see figure 14). However, in absolute terms, corn area in the **United States** is about double that in **Brazil**, around 6 times that in **Argentina**, and 7.5 times that in **Ukraine**.

Figure 14: Corn area growth index for major exporters

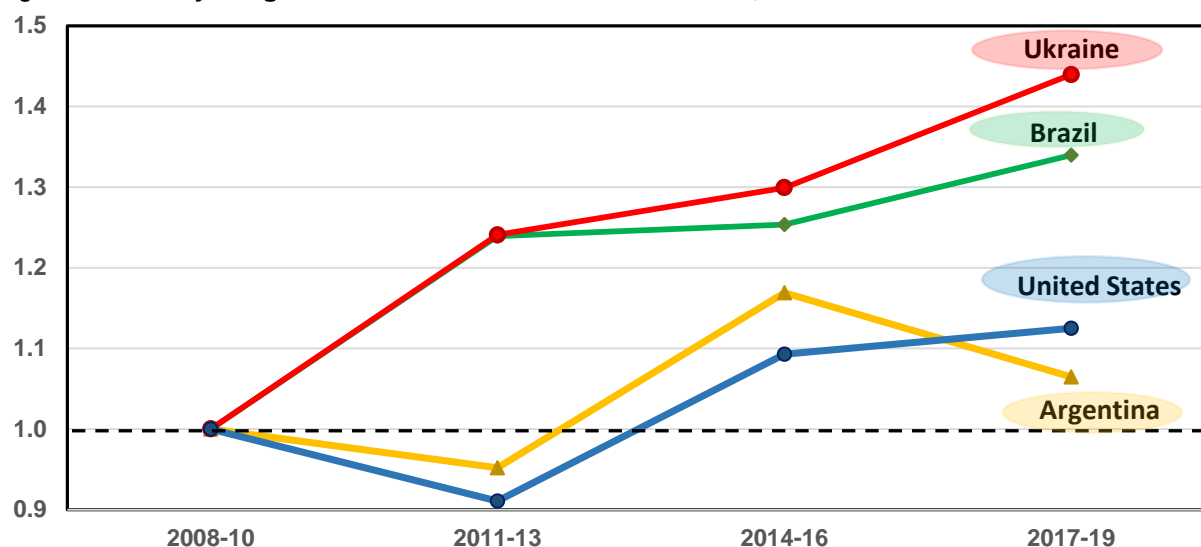


Note: Index, 2008-10 = 100.

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

Corn yield progress is also uneven among major corn exporters, with the fastest growth in **Ukraine** and **Brazil**. However, even with a strong yield trend, in absolute terms corn yields in these two countries are lower than in **Argentina** and significantly below **U.S.** values.

Figure 15: **Corn yield grows the fastest in Ukraine and Brazil, index**



Note: Index, 2008-10 = 100.

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

Regional/Country 2019/20 Coarse Grain Production

Prospects

China is the largest coarse grain and corn producer after the United States, with 2019/20 coarse grain production projected to reach 262.5 million tons, down 2.9 million year-over-year. Corn dominates with expected production of 254.0 million tons, down 3.3 million, despite record-high projected yields. Corn harvested area is forecast down 2.7 percent, as revealed by the recently published planting intentions. The Chinese Government reduced support for corn growers while encouraging the planting of soybeans and other oilseeds. However, the Government 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 still higher than world prices.

Coarse grain production in the **EU** is projected sharply higher, up 10.7 million tons to 157.8 million in 2019/20. The **EU** is expected to plant more corn this year, with an expansion driven by an expected decline in rapeseed area, a result of the neonicotinoid ban in France, or in areas where winter rapeseed crops suffered from poor establishment, such as in Romania. Corn prices have also been supportive in countries such as Italy. Yields are recovering from last

year's hot and dry weather. Output for each of the coarse grain crops is projected to be higher in 2019/20 than a year before, with massive increases in barley, mixed grains, and rye, with a return to trend yields. Higher corn, barley, oats, and rye output are expected in countries that suffered from adverse weather in 2018/19 (such as France, Germany, United Kingdom, Poland, and the Baltic countries) and that are presently enjoying excellent growing conditions. The increase, especially in corn output, is partly offset by lower corn yields in the EU countries that had near-record or record yields in 2018/19 and are projected to return to trend yields (Romania, Hungary, Italy and several other countries in the southeast of the region).

The **South America region**, one of the most dynamic and fastest-growing corn producers in the world, is forecast to produce 175.5 million tons of coarse grains in 2019/20, just 0.6 million tons higher than in 2018/19, as lower projected Argentine barley is partly offsetting a corn increase. Corn is the region's dominant grain, and **Brazil** and **Argentina**, as well as the smaller corn producer of **Paraguay**, which is exporting corn to the feed-deficit south of Brazil, are all expected to increase corn area further to record highs.

Higher 2019/20 corn area is projected for **Brazil**, which 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. The growers (especially large farms) are investing in improving the productivity of crop growing and limiting weather-related risk. The first-crop corn area, which is less than one-fourth of total planted area, keeps declining, but this decrease only partially offsets the expansion of safrinha second-crop corn area, as there are few limitations on area expansion given the large pool of land available for double cropping with soybeans in the Center-West.

Argentina also continues to expand its grain area. Eliminating 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, and since 2015, Argentina has increased corn area by more than 50 percent. The recent reinstatement of a different type of taxation is not expected to halt area growth. The new levy is tied to both commodity prices and the exchange rate (4 pesos per 1 \$U.S.). As massive depreciation of the Argentine peso gradually erodes the effect, this levy becomes less constraining and can be currently estimated at under 9 percent.

Although corn yields have been steadily growing in both Brazil and Argentina, the countries are also prone to adverse weather conditions and markedly variable yields. Following the bumper year of 2018/19, corn yields for 2019/20 for both countries are projected slightly lower. Planting for 2019/20 corn here will not begin for some time, mostly starting at the beginning of calendar

year 2020. Based on trend, projected yields take Brazilian corn production up by 1.0 million tons to 101.0 million; Argentine corn output is projected unchanged from 2018/19 with a small increase in area at 49.0 million and a slightly lower trend yield; and in Paraguay, corn output is projected at 0.8 million tons. For all three countries, 2019/20 corn output is expected to be record-high.

Coarse grain production in **Sub-Saharan Africa** is projected down 5.2 million tons to 113.4 million. Following last year's bumper crop in **West Africa**, a drought in 2019/20 is expected to cut yields in Mali, Angola, Zambia, and several other countries in the region. Several countries of **East Africa**, such as Kenya and Sudan, are also experiencing dry conditions. The region's largest corn producer, **South Africa**, is projected to rebound from last year's drought with higher corn area and yield and harvest a corn crop of 14.5 million tons, up 3.0 million from the previous scanty year.

In **India**, where coarse grains are mostly used for food, a year-over-year increase in production of 3.9 million tons is expected in 2019/20, with higher corn, barley, and millet area and a return to trend yields. Higher corn area is projected, owing to raised minimum support prices. While 2018 monsoon rains secured good conditions for last year's summer crops, the 2019 monsoon expected to begin in September will be critical for the current corn production forecasts.

Ukraine's 2019/20 coarse grain production is expected to decrease slightly, down 1.4 million tons to 43.1 million. The exchange rate encourages planting crops for export despite relatively low U.S. dollar-denominated corn prices. Ukraine's corn area is forecast slightly higher than a year ago, while a return to trend yields implies a reduction from 2018/19 exceptional yields. Corn production is projected down 2.8 million tons from last year to 33.0 million. However, expected barley production is up 1.4 million tons to 9.0 million.

Russia is projected to produce 38.4 million tons of coarse grain in 2019/20, up 3.4 million. Corn area is forecast up 5.3 percent, as expected returns are better than those for most other crops, except for oilseeds that are expanding in the southern and central regions. However, corn area is still lower than in years before 2018/19. Projected yields are 8 percent above the 2018/19 lackluster levels and support a crop of 13.0 million tons, up 1.6 million from a year earlier. Russia's barley harvested area is projected up slightly, but a return to trend yields boosts production 1.3 million tons to 18.0 million. Russia's oats, rye, and millet production is expected to increase.

Canada is projected to produce 29.8 million tons of coarse grain in 2019/20, up 3.5 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 higher production for all types of coarse grains, down from the previous year's low yields.

North Africa's 2019/20 coarse grain crop is projected at 12.1 million tons, 0.7 million below last year. Winter drought has devastated Morocco and hurt western Algeria, but rains were very favorable in Tunisia and eastern Algeria, suggesting record-high yields. Morocco's barley crop is forecast down 1.5 million tons to just 1.0 million. Production in Egypt is mostly irrigated corn, with fairly stable production prospects at 7.2 million tons.

Middle East coarse grain production is forecast up 3.6 million tons in 2019/20 to 23.6 million. Fall and winter rains at the end of 2019 and the beginning of 2020 were exceptionally abundant across most of the region. The soaking rains were widespread across the whole region, and even more rain is forecast for this region. Excellent conditions in **Turkey**, especially in Anatolian Plato, and incredibly wet conditions in northern **Iraq**, **Iran**, **Syria** (and in its most productive region Al Haska), **Jordan**, and **Israel** drive projected wheat yields to records. Record-high barley yield is forecast for Turkey, boosting production 1.1 million tons to 8.5 million. Barley production is expected to triple in Syria, more than double in Iraq, and increase 29 percent in Iran.

Australian 2019/20 coarse grain production is projected up 1.9 million tons to 12.7 million. Area is forecast higher for barley, oats, and sorghum, boosting output prospects. Higher area is supported by domestic prices, and yields are projected to return to trend, which will be an increase compared to last year.

2018/19 Coarse Grain Production Sharply Higher

Global coarse grain production in 2018/19 is forecast sharply higher, up 15.4 million tons this month to 1,392,5 million. While 2018/19 harvests in the Northern Hemisphere were generally complete months ago, important Southern Hemisphere crops are still growing. Second-crop corn in Brazil was planted early this year, and Brazil's 2018/19 second-crop corn is more advanced than on average (currently going through key reproductive stages). The major corn-producing States of Mato Grosso, Parana, Mato Grosso de Sul, and Goias have been receiving very favorable rains through April and into May, a crucial period for crop development, pushing expected corn yields further into the new record. Second-crop corn area is also projected higher this month, with corn production hitting 100.0 million tons, up 4.0 million from a month ago.

With higher projected corn area and record yields, Argentina's corn production is raised 2.0 million tons to 49.0 million, based on excellent harvest reports.

Sub-Saharan Africa's production projections and prior year estimates are reviewed by the USDA interagency committee twice a year, and this month included such a review. Coarse grain production is estimated up 9.3 million tons to 118.6 million compared to the month before, with the largest 2018/19 coarse grain production changes for Ethiopia, Mali, and Sudan that gained some area, along with higher yields for corn, sorghum, and millet. Corn production for 2018/19 is estimated up 4.1 million tons to 71.9 million, sorghum up 2.4 million tons to 28.5 million, and millet output is up 2.8 million tons to 15.3 million. Other month-to-month 2018/19 production changes are smaller.

World Coarse Grains Use To Grow Modestly in 2019/20

Increased competition among exporters and sharply lower prices in the current **2018/19** boosted coarse grain feed and residual use around the globe. In **2019/20**, prices are expected to remain attractive for users, and the growth in coarse grains feed consumption for the world (excluding China) is projected to be stronger by an estimated 2.7 percent, generally consistent with the growth rate of just under 3 percent seen over the past two decades. The growth happens partly on account of an increase of (mainly corn) consumption in the United States (driven by the higher crop), and increased feed and residual use in Brazil (record-large crop) and Australia (for barley, sorghum, and oats). Consumption of all coarse grains is projected higher, with an exception in world sorghum consumption, mainly with lower feed use in the United States, and a reduction in food use in Sudan.

One noticeable exception to the increased feed use of coarse grains in the world is China, the largest coarse grain feeder in the world, where an outbreak of African Swine Fever (ASF) is expected to cut the country's swine herd and pork output, thereby reducing grain feed requirements. This month, the forecast for China's 2018/19 feed and residual use of coarse grain is reduced an estimated 3.3 percent, or 6.4 million tons, mainly in corn, but also in barley, indicating a first year-over-year reduction in feeding in more than 40 years. The decline is expected to continue into 2019/20, with a further reduction in coarse grain feeding of 1.6 million tons from last year.

Food and industrial use (FSI) of coarse grains is forecast to grow by 9.0 million tons, or just above 2.0 percent, in 2019/20. Expansion in China of the corn processing industry, for both domestic use and exports, promotes increased FSI corn use. Chinese FSI use of coarse grains

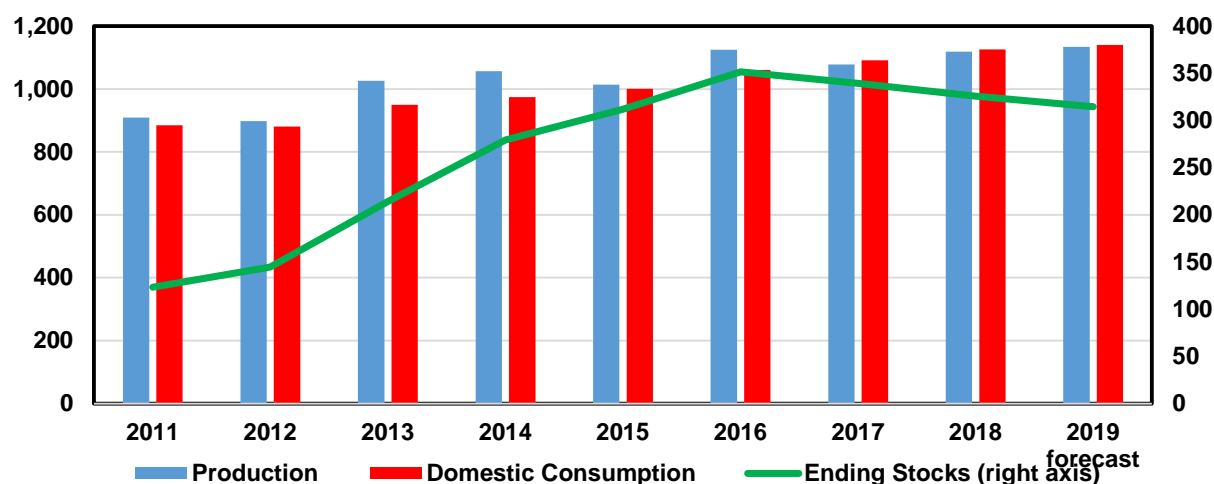
is expected to be up 6.4 million tons, while changes for other countries include higher use in the United States, India, Argentina, and Brazil, partly offset by a reduction in Sudan.

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

China Leads Coarse Grain Stocks’ Decline

With coarse grain production forecast to be lower than consumption for the third consecutive year, projected world ending stocks for 2019/20 are down 8.1 million tons from a year earlier to 343.6 million, with a major reduction for corn, a small reduction for sorghum, and a slightly higher forecast for barley, oats, rye, and mixed grain stocks. Corn stocks are projected to decline over the year by 11.2 million tons, the lowest level since 2015/16. With a 9.9-million-ton increase in U.S corn stocks, foreign stocks are projected down by 21.1 million.

Figure 16: **World corn production, consumption, and stocks**

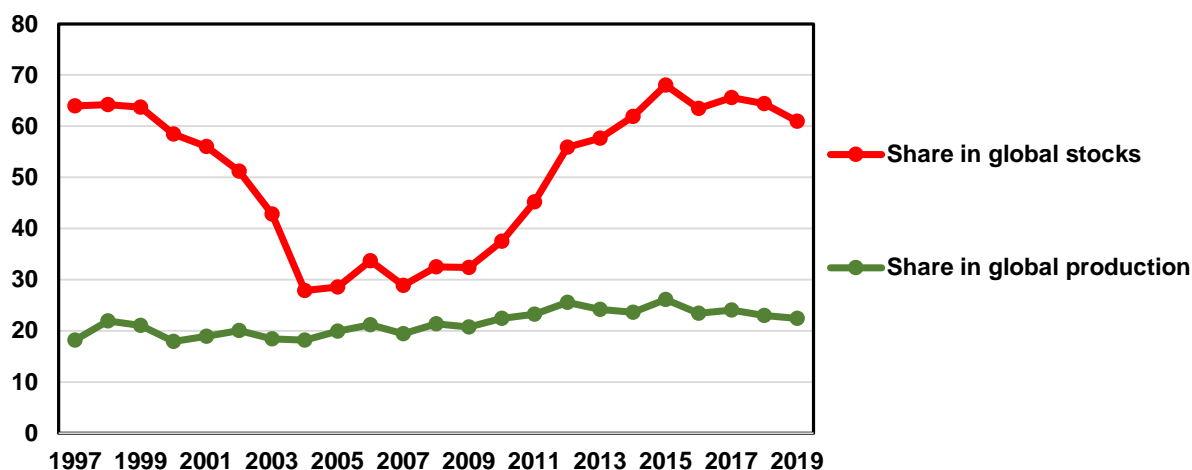


Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution database.

A decline in foreign corn stocks is driven mainly by China, where a substantial drop of 8.6 percent, or 18.0 million tons, is projected. China’s share in world corn stocks is projected to decline this year to 61 percent, down from 68 percent in 2015/16, before the policy reforms aimed at reducing large Government-owned corn stocks began to unravel. Nonetheless, during the mid-2000s, China’s share of total stocks fell to as low as 28 percent (in 2004/05). Moreover, China’s share in world stocks is still much higher (almost triple) than its share in global corn output. A previous decline in corn stocks occurred after China joined the World Trade Organization in 2001 (see figure 17).

Corn grain stocks are projected down 1.5 million tons in Brazil and Mexico. Ending stocks are also projected 1.5 million up in Argentina.

Figure 17: **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.

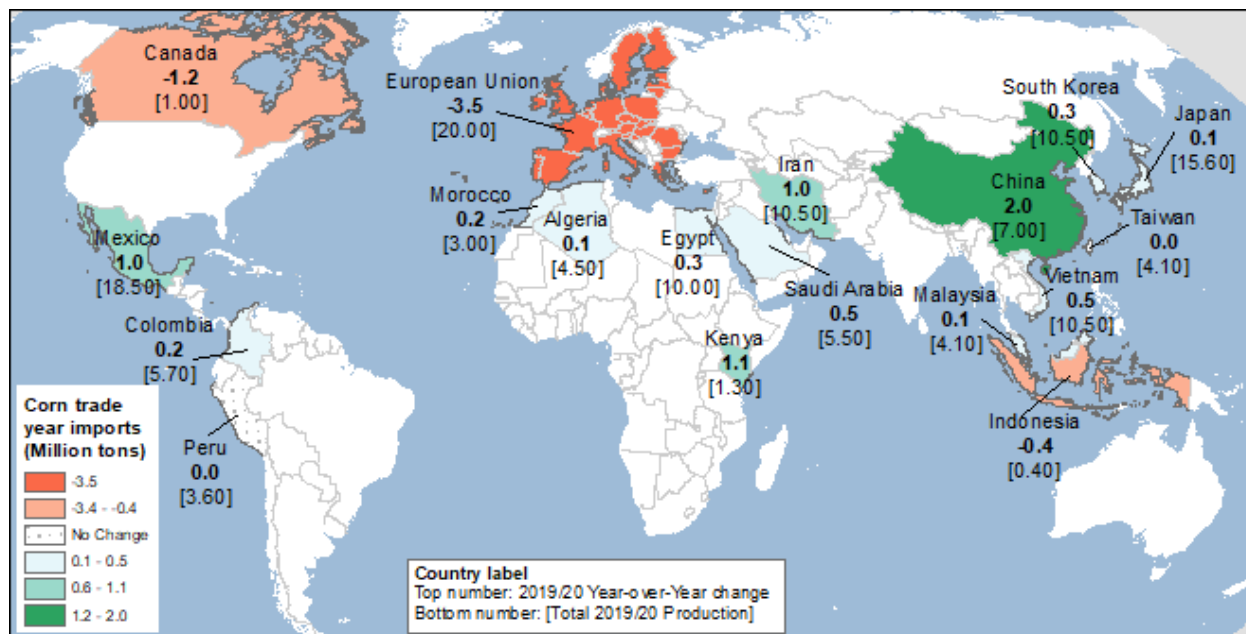
U.S. 2019/20 Corn Export Prospects Face Tough Competition

Global corn trade in October-September 2019/20 is projected to reach a new record of 171.3 million tons, up 3.3 million from the corn trade forecast for 2018/20. 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. The countries with expected weather-related production failure also usually require additional imported grain. For example, Kenya is expected to increase corn imports more than sixfold, from 0.2 million tons to 1.3 million, due to drought and a poor corn and wheat crop.

In China, the price structure for feed grains, particularly in the feed-deficit South, creates strong incentive for feed mills to use imported feeds. China is expected to import an additional 2.0 million tons of corn this year (as well as 0.5 million tons of additional barley and 0.2 million tons more oats). Higher corn imports are projected for Iran, which is expected to continue to expand its poultry production, and for Saudi Arabia, South Korea, and Vietnam, among other countries. With a return to a normal level of corn output, South African imports are reduced.

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

Map B. Major YoY changes in corn imports for 2019/20



Note: Year-over-year (YoY) changes are in bold under the country name; 2019/20 output forecast is in parentheses below the country name.

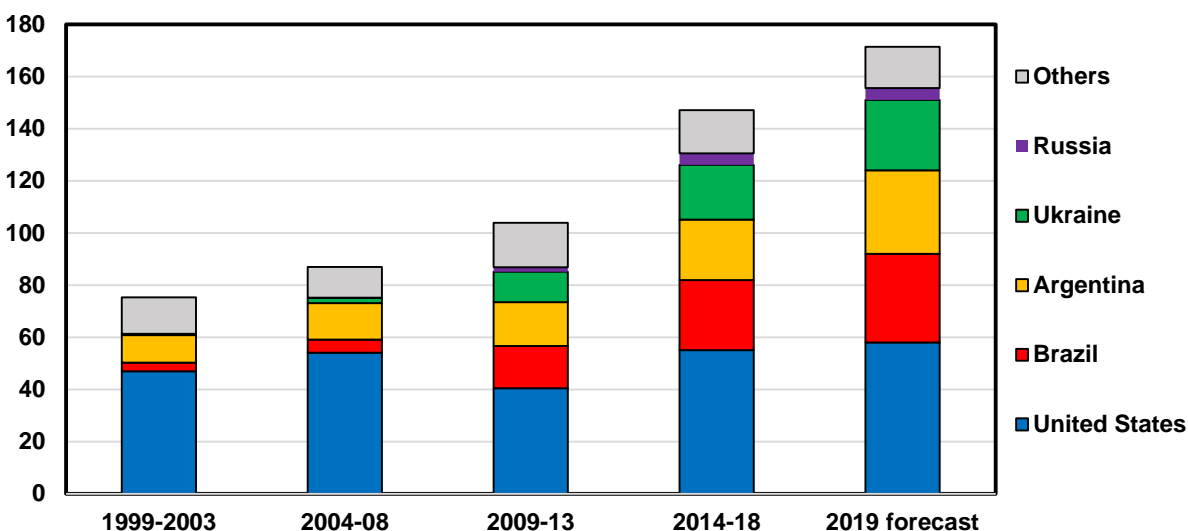
Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution database.

Ample supplies in most exporting countries in 2019/20 are expected to support strong competition and limit prices. A record world crop, a rebound in South America, especially in Brazil's 2018/19 second-crop corn that is expected to provide stiff competition to 2019/20 corn of the Northern Hemisphere, and a large crop in Ukraine and Russia are all pointing to fierce competition in world corn trade.

Corn producers in South America (Brazil and Argentina), Ukraine, and Russia 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. In 2019/20, the combined corn production of Brazil, Argentina, Ukraine, and Russia is expected to reach almost 200 million tons. These export-oriented countries are expected to export a combined 97.5 million tons, more than 1.5 times the U.S. export level projected at 58.0 million tons.

Figure 18: **Growing global corn demand captured by U.S. competitors**

95-year averages and a forecast for 2019



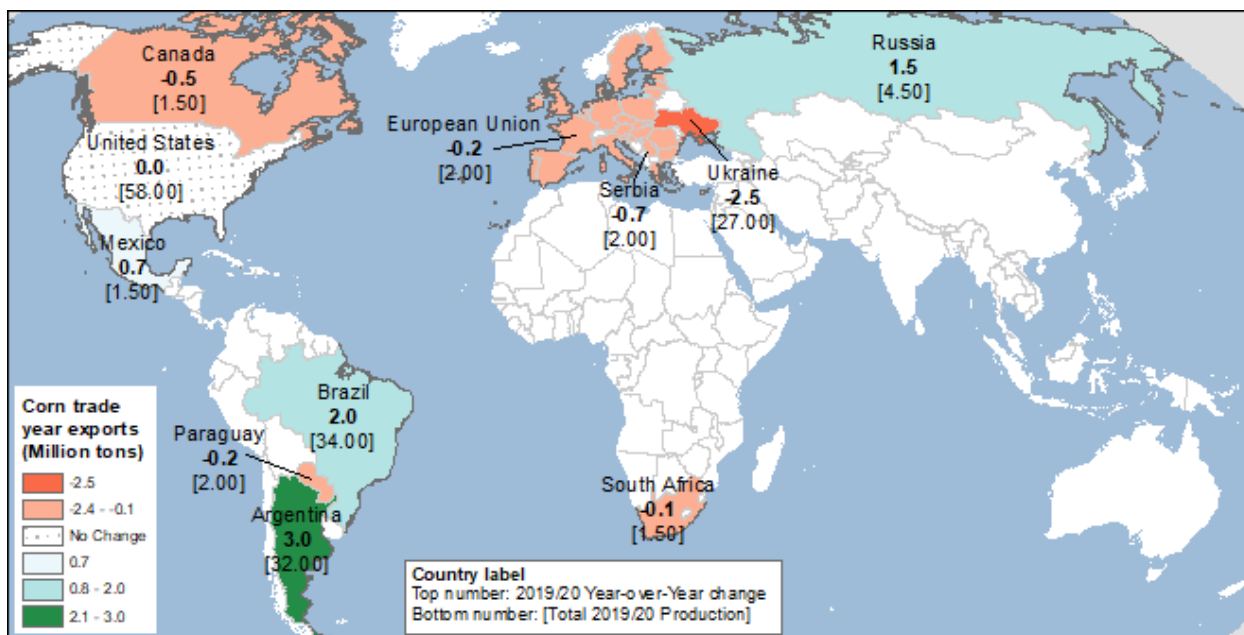
Source: USDA, Foreign Agricultural Service, Production, Supply, and Distribution database.

Higher export volumes have come with a re-distribution of the markets. During the last several years, Brazil, Argentina, Ukraine, and Russia expanded their outreach to partly (and sometimes fully) replace the United States in many corn markets. A good example is Egypt, one of the world's top corn importers, which used to import the bulk of its corn from the United States. However, for several years now, Egypt has imported very little corn from the United States, which has shifted most of its sales to Brazil, Argentina, and Ukraine. A similar story has happened with Morocco and Algeria.

U.S. corn exports in 2019/20 (October-September) are projected to reach 58.0 million tons, on par with the revised current 2018/19 (for the September-August local marketing year, U.S. exports are projected at 2,275 million bushels, down 25 million bushels from the 2018/19 estimate of 2,300 million). Competition from **South America** is expected to weigh down on U.S. exports. Marketing of the record 2018/19 Brazilian crop that is going to begin in July-August and continue through March 2020 is expected to affect export markets going into the 2019/20 October-September trade year. In addition, after a period of appreciation, the Brazilian Real has recently started to depreciate vis-à-vis the U.S. dollar, while the Argentine Peso continues to fall, which can boost export activity further. Brazilian corn exports are expected to reach 34.0 million tons, still below the record of 2015/16. Argentina, with a large crop in 2 consecutive years, is projected to increase exports by 3.0 million tons to a record 32.0 million, supported by high supplies and reduced Government market interference. Outside of South America, Russia is expected to boost its corn exports, while Ukrainian exports, although high, are projected to decline after an exceptional crop of 2018/19.

The map below provides a quick look at the size and year-over-year changes in corn exports for the major exporters.

Map C: Major YoY changes in corn exports for 2019/20



Note: Year-over-year (YoY) changes are in bold under the country name; 2019/20 output forecast is in parentheses below the country name.

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

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Table 1--Feed grains: U.S. quarterly supply and disappearance (million bushels), 5/14/2019

Commodity, market year, and quarter 1/			Beginning stocks	Production	Imports	Total supply	Food, seed, and industrial use	Feed and residual use	Exports	Total disappear- ance	Ending stocks	Farm price 2/ (dollars per bushel)	
Corn	2016/17	Sep-Nov	1,737	15,148	14	16,899	1,689	2,279	548	4,516	12,383	3.26	
		Dec-Feb	12,383		12	12,395	1,711	1,523	539	3,773	8,622	3.39	
		Mar-May	8,622		17	8,639	1,741	982	687	3,410	5,229	3.46	
		Jun-Aug	5,229		14	5,243	1,743	686	520	2,949	2,293	3.40	
		Mkt yr	1,737	15,148	57	16,942	6,885	5,470	2,294	14,649	2,293	3.36	
	2017/18	Sep-Nov	2,293	14,609	11	16,914	1,743	2,255	349	4,347	12,567	3.21	
		Dec-Feb	12,567		9	12,575	1,739	1,503	441	3,683	8,892	3.30	
		Mar-May	8,892		8	8,900	1,782	943	871	3,595	5,305	3.58	
		Jun-Aug	5,305		9	5,314	1,793	603	777	3,174	2,140	3.46	
		Mkt yr	2,293	14,609	36	16,939	7,056	5,304	2,438	14,799	2,140	3.36	
	2018/19	Sep-Nov	2,140	14,420	6	16,567	1,712	2,285	633	4,630	11,937	3.41	
		Dec-Feb	11,937		9	11,945	1,640	1,202	499	3,341	8,605	3.56	
		Mkt yr	2,140	14,420	35	16,595	6,900	5,300	2,300	14,500	2,095	3.50	
	2019/20	Mkt yr	2,095	15,030	35	17,160	6,950	5,450	2,275	14,675	2,485	3.30	
	Sorghum	2016/17	Sep-Nov	36.63	480.26	0.00	516.90	21.65	144.36	41.81	207.82	309.08	2.62
			Dec-Feb	309.08		0.00	309.08	33.06	5.97	89.32	128.34	180.75	2.69
			Mar-May	180.75		0.00	180.75	34.62	2.41	59.02	96.04	84.71	2.79
			Jun-Aug	84.71		1.73	86.44	25.30	-19.99	47.67	52.98	33.46	3.53
			Mkt yr	36.63	480.26	1.74	518.63	114.61	132.74	237.82	485.18	33.46	2.79
		2017/18	Sep-Nov	33.46	361.87	1.91	397.24	13.92	110.13	45.71	169.75	227.49	3.05
Dec-Feb			227.49		0.05	227.55	10.24	5.72	71.33	87.29	140.26	3.18	
Mar-May			140.26		0.01	140.27	15.81	-14.45	73.58	74.93	65.33	3.40	
Jun-Aug			65.33		0.04	65.38	20.44	-4.45	14.53	30.52	34.85	3.78	
Mkt yr			33.46	361.87	2.02	397.35	60.40	96.94	205.15	362.49	34.85	3.22	
2018/19		Sep-Nov	34.85	364.99	0.00	399.84	25.56	99.13	16.37	141.06	258.78	3.18	
		Dec-Feb	258.78		0.00	258.78	23.36	19.83	22.87	66.06	192.73	3.20	
		Mkt yr	34.85	364.99	0.04	399.88	100.00	155.00	85.00	340.00	59.88	3.20	
2019/20		Mkt yr	59.88	310.00		369.88	100.00	125.00	100.00	325.00	44.88	3.00	

Table 1--Feed grains: U.S. quarterly supply and disappearance, continued (million bushels), 5/14/2019

Commodity, market year, and quarter 1/		Beginning stocks	Production	Imports	Total supply	Food, seed, and industrial use	Feed and residual use	Exports	Total disappear- ance	Ending stocks	Farm price 2/ (dollars per bushel)		
Barley	2016/17	Jun-Aug	102	200	2	304	41	32	1	74	230	4.99	
		Sep-Nov	230		2	232	39	-0	1	40	193	4.78	
		Dec-Feb	193		2	195	37	12	1	50	145	5.04	
		Mar-May	145		3	148	45	-6	2	41	106	4.96	
		Mkt yr	102	200	10	312	162	39	4	205	106	4.96	
	2017/18	Jun-Aug	106	143	2	252	41	30	2	72	180		
		Sep-Nov	180		2	182	38	-17	2	23	159		
		Dec-Feb	159		2	161	35	-6	1	31	130		
		Mar-May	130		3	133	43	-5	1	38	94		
		Mkt yr	106	143	9	259	157	2	5	164	94	4.47	
	2018/19	Jun-Aug	94	153	1	249	40	33	1	74	175		
		Sep-Nov	175		1	176	38	-16	1	23	153		
		Dec-Feb	153		2	154	36	-5	1	33	121		
		Mkt yr	94	153	6	254	155	5	5	165	89	4.60	
	2019/20	Mkt yr	89	157	10	256	153	10	3	166	90	4.20	
	Oats	2016/17	Jun-Aug	57	65	21	142	19	44	1	63	79	1.87
			Sep-Nov	79		28	106	18	12	1	31	75	2.03
			Dec-Feb	75		24	100	17	18	1	37	63	2.35
			Mar-May	63		18	81	22	8	1	31	50	2.42
			Mkt yr	57	65	90	212	76	82	3	161	50	2.06
2017/18		Jun-Aug	50	50	19	119	19	27	1	47	72	2.35	
		Sep-Nov	72		30	102	18	17	1	36	66	2.58	
		Dec-Feb	66		20	86	18	13	1	31	55	3.03	
		Mar-May	55		20	75	22	11	1	34	41	2.94	
		Mkt yr	50	50	89	189	77	68	2	148	41	2.59	
2018/19		Jun-Aug	41	56	19	116	19	22	0	41	75	2.55	
		Sep-Nov	75		28	103	18	17	0	36	67	2.65	
		Dec-Feb	67		18	85	18	17	0	35	50	2.77	
		Mkt yr	41	56	85	182	77	70	2	149	33	2.65	
2019/20		Mkt yr	33	60	100	193	78	80	2	160	33	2.60	

Latest market year is projected; previous market year is estimated. Totals may not add due to rounding.

1/ Corn and sorghum, September 1-August 31 marketing year; Barley and oats, June 1-May 31 marketing year.

2/ Average price received by farmers based on monthly price weighted by monthly marketings. For the latest market year, quarterly prices are calculated by using the current monthly prices weighted by the monthly marketings for those months for the previous 5 years divided by the sum of marketings for those months.

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

Data run: 5/13/2019

Table 2--Feed and residual use of wheat and coarse grains, 5/14/2019

Market year and quarter 1/	Corn (million metric tons)	Sorghum (million metric tons)	Barley (million metric tons)	Oats (million metric tons)	Feed grains (million metric tons)	Wheat (million metric tons)	Energy feeds (million metric tons)	Grain consuming animal units (millions)	Energy feeds per grain consuming animal unit (tons)
2017/18 Q1 Sep-Nov	57.3	2.8	-0.4	0.3	60.0	-1.5	58.5		
Q2 Dec-Feb	38.2	0.1	-0.1	0.2	38.4	-0.4	38.1		
Q3 Mar-May	23.9	-0.4	-0.1	0.2	23.7	-1.2	22.5		
Q4 Jun-Aug	15.3	-0.1	0.7	0.4	16.3	5.2	21.5		
MY Sep-Aug	134.7	2.5	0.1	1.2	138.5	2.1	140.5	99.2	1.4
2018/19 Q1 Sep-Nov	58.0	2.5	-0.4	0.3	60.5	-2.1	58.4		
Q2 Dec-Feb	30.5	0.5	-0.1	0.3	31.2	-0.6	30.6		
MY Sep-Aug	134.6	3.9	0.3	1.5	140.3	1.6	141.9	100.6	1.4
2019/20 MY Sep-Aug	138.4	3.2	0.1	2.3	144.1	2.6	146.6	102.4	1.4

1/ Corn and sorghum, September 1-August 31 marketing year; Barley and oats, June 1-May 31 marketing year.

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

Table 3--Cash feed grain prices, 5/14/2019

Mkt year and month 1/	Corn, No. 2 yellow, Central IL (dollars per bushel)		Corn, No. 2 yellow, Gulf ports, LA (dollars per bushel)		Sorghum, No. 2 yellow, Gulf ports, LA (dollars per cwt)	
Sep	3.09	3.15	3.12	3.78	3.74	3.93
Oct	3.27	3.15	3.28	3.88	3.77	4.07
Nov	3.28	3.14	3.36	3.83	3.78	4.09
Dec	3.34	3.21	3.53	3.88	3.79	4.25
Jan	3.45	3.29	3.53	4.07	3.96	4.24
Feb	3.51	3.45	3.50	4.14	4.15	4.31
Mar	3.40	3.52	3.43	4.04	4.36	4.23
Apr	3.41	3.54	3.37	3.98	4.46	4.11
May	3.47	3.73		4.03	4.55	
Jun	3.49	3.38		4.01	4.19	7.56
Jul	3.51	3.22		4.00	3.98	
Aug	3.27	3.24		3.77	4.13	
Mkt year	3.37	3.34		3.95	4.07	7.56

	Barley, No. 2 feed, Minneapolis, MN (dollars per bushel)			Barley, No. 3 malting, Minneapolis, MN (dollars per bushel)		Oats, No. 2 white heavy, Minneapolis, MN (dollars per bushel)		
	2016/17	2017/18	2018/19	2016/17	2017/18	2016/17	2017/18	2018/19
	Jun	2.36	2.05	2.85		4.70	2.58	2.95
Jul	2.33	2.05	2.85		4.67	2.61	3.17	2.84
Aug	2.08	2.10	2.78		4.70	2.34	2.98	2.91
Sep	1.95	2.10	2.60		4.70	2.29	2.87	2.91
Oct	2.00	2.10	2.60		4.70	2.67	2.97	3.18
Nov	2.00	2.36	2.60			2.84	2.94	3.22
Dec	2.00	2.61	2.60		4.85	2.92	2.73	3.31
Jan	2.00	2.65	2.60		4.85	2.97	2.90	3.28
Feb	2.00	2.81	2.60		4.85	3.07	2.96	3.23
Mar	2.02	2.85	2.60	4.70	4.50	2.90	2.79	3.18
Apr	2.05	2.85	2.97			2.86	2.72	3.25
May	2.05	2.85				2.88	2.89	
Mkt year	2.07	2.45		4.70	4.72	2.74	2.90	

1/ Corn and sorghum, September 1-August 31 marketing year; Barley and oats, June 1-May 31 marketing year. Simple average of monthly prices for the marketing year.

Source: USDA, Agricultural Marketing Service, <http://marketnews.usda.gov/portal/lg>.

Data run: 5/13/2019

Table 4--Selected feed and feed byproduct prices (dollars per ton), 5/14/2019

Mkt year and month 1/	Soybean meal, high protein, Central Illinois, IL			Cottonseed meal, 41% solvent, Memphis, TN			Corn gluten feed, 21% protein, Midwest		Corn gluten meal, 60% protein, Midwest		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2016/17	2017/18	
Oct	323.26	319.24	319.15	241.88	229.00	249.00	77.00	80.70	466.13	469.30	
Nov	322.42	313.52	310.62	221.00	228.75	240.00	83.50	93.00	477.50	487.24	
Dec	321.03	327.17	311.70	217.50	232.50	243.50	92.83	96.25	501.67	482.88	
Jan	332.34	322.60	314.93	223.50	259.00	247.50	97.50	98.80	502.50	477.60	
Feb	334.32	362.85	290.12	221.88	303.13	235.00	88.13	106.25	516.50	483.13	
Mar	320.34	379.85	306.38	210.63	323.13	226.25	87.13	105.50	505.63	524.75	
Apr	305.67	385.85	304.26	195.00	263.13	216.50	75.00		501.13		
May	293.68	393.55		179.50	262.50		71.00		485.30		
Jun	258.75	355.71		179.38	257.50		68.38		475.75		
Jul	326.04	341.08		200.84	253.13		71.35		467.88		
Aug	301.05	332.50		198.50	260.00		73.10		475.50		
Sep	307.70	318.33		213.75	258.75		75.00		469.25		
Mkt yr	312.22	346.02		208.61	260.88		79.99	96.75	487.06	487.48	
	Meat and bone meal, Central US			Distillers dried grains, Central Illinois, IL			Wheat middlings, Kansas City, MO		Alfalfa hay, weighted-average farm price 2/		
	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2016/17	2017/18	2018/19	2017/18	2018/19
Oct	237.50	228.00	267.50	116.25	117.30	137.50	79.43	70.36	80.00	153.00	178.00
Nov	229.00	219.38	257.50	111.70	123.13	137.50	85.53	86.85	105.00	150.00	175.00
Dec	211.67	221.67	257.50	104.84	143.75	147.00	101.62	107.88	148.00	149.00	180.00
Jan	255.60	220.00	259.50	96.30	155.50	154.80	98.25	123.68	108.10	153.00	181.00
Feb	285.00	225.84	260.00	98.88	158.88	158.13	84.66	114.61	98.88	155.00	180.00
Mar	284.38	275.00	263.33	98.25	164.13	157.38	80.76	99.69	101.50	165.00	184.00
Apr	266.25	316.25		99.25	174.38	149.70	58.03	100.22	76.90	183.00	
May	245.50	293.00		100.50	174.90		48.41	98.90		189.00	
Jun	248.13	288.75		105.25	158.50		60.39	89.50		181.00	
Jul	276.25	283.75		110.63	139.30		67.10	64.50		179.00	
Aug	318.50	265.63		110.00	144.00		63.15	83.50		177.00	
Sep	301.88	266.25		111.63	142.50		67.48	84.00		180.00	
Mkt yr	263.31	258.63		105.29	149.69		74.57	93.64		154.00	181.00

1/ October 1-September 30 except for hay. Simple average of monthly prices for the marketing year except for hay.

2/ May 1-April 30 marketing year. U.S. season-average price based on monthly price received by farmers weighted by monthly marketings.

Source: USDA, Agricultural Marketing Service, <http://marketnews.usda.gov/portal/lg>, and USDA, National Agricultural Statistics Service, http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp.

Table 5--Corn: Food, seed, and industrial use (million bushels), 5/14/2019

Mkt year and qtr 1/		High-fructose corn syrup (HFCS)	Glucose and dextrose	Starch	Alcohol for fuel	Alcohol for beverages and manufacturing	Cereals and other products	Seed	Total food, seed, and industrial use
2017/18	Q1 Sep-Nov	111.69	93.51	59.42	1,391.29	36.46	50.38	0.00	1,742.74
	Q2 Dec-Feb	105.44	87.91	56.88	1,397.46	38.23	52.82	0.00	1,738.74
	Q3 Mar-May	117.97	94.42	58.56	1,388.64	38.50	55.27	28.15	1,781.52
	Q4 Jun-Aug	124.13	95.51	60.88	1,427.43	35.83	48.23	1.48	1,793.48
	MY Sep-Aug	459.22	371.35	235.74	5,604.83	149.00	206.70	29.64	7,056.48
2018/19	Q1 Sep-Nov	108.19	89.39	59.36	1,365.70	37.00	52.00	0.00	1,711.64
	Q2 Dec-Feb	100.09	85.61	55.75	1,308.55	38.00	52.00	0.00	1,640.00
	MY Sep-Aug	450.00	370.00	240.00	5,450.00	150.00	208.80	31.20	6,900.00
2019/20	MY Sep-Aug	445.00	370.00	240.00	5,500.00	151.00	214.00	30.00	6,950.00

1/ September-August. Latest data may be preliminary or projected.

Source: Calculated by USDA, Economic Research Service.

Date run: 5/13/2019

Table 6--Wholesale corn milling product and byproduct prices, 5/14/2019

Mkt year and month 1/	Corn meal, yellow, Chicago, IL (dollars per cwt)		Corn meal, yellow, New York, NY (dollars per cwt)		Corn starch, Midwest 3/ (dollars per cwt)		Dextrose, Midwest (cents per pound)		High-fructose corn syrup (42%), Midwest (cents per pound)
	2017/18	2018/19	2017/18	2018/19	2017/18	2018/19	2017/18	2018/19	2017/18
Sep	16.01	14.97	17.68	16.64	14.41	14.35	39.00	39.25	28.25
Oct	15.94	15.24	17.61	16.91	13.87	13.69	39.00	39.25	28.25
Nov	15.78	15.09	17.45	16.76	13.90	14.14	39.00	39.25	28.25
Dec	15.69	15.17	17.35	16.90	13.75	14.38	39.00	39.25	28.25
Jan	15.75	15.14	17.42	16.81	13.81	14.59	39.25	40.00	28.25
Feb	16.09	17.49	17.76	16.66	14.08	14.74	39.25	40.00	
Mar	16.13	14.51	17.80	16.18	14.53	14.95	39.25	40.00	
Apr	16.23	14.57	17.90	16.24	14.65	14.80	39.25	40.00	
May	16.41		18.08		14.44		39.25		
Jun	15.64		17.31		14.77		39.25		
Jul	15.28		16.95		14.20		39.25		
Aug	15.35		17.02		13.78		39.25		
Mkt year 2/	15.86		17.53		14.18		39.17		

1/ September-August. Latest month is preliminary.

2/ Simple average of monthly prices for the marketing year.

3/ Bulk-industrial, unmodified.

Source: Milling and Baking News, except for corn starch which is from private industry.

Date run: 5/13/2019

Table 7--U.S. feed grain imports by selected sources (1,000 metric tons) 1/, 5/14/2019

Import and country/region	----- 2016/17 -----		----- 2017/18 -----		2018/19	
	Mkt year	Jun-Mar	Mkt year	Jun-Mar	Jun-Mar	
Oats	Canada	1,507	1,352	1,483	1,262	1,187
	Sweden	27	5	41	41	27
	Finland	21	21	16	16	18
	All other	0	0	0	0	0
	Total 2/	1,556	1,379	1,540	1,319	1,232
Malting barley	Canada	102	85	87	70	54
	All other	17	17	1	1	0
	Total 2/	119	102	88	70	54
Other barley 3/	Canada	89	72	109	92	46
	All other	2	1	1	0	0
	Total 2/	90	73	110	93	46

1/ Grain only. Market year (June-May) and market year to date.

2/ Totals may not add due to rounding.

3/ Grain for purposes other than malting, such as feed and seed use.

Source: U.S. Department of Commerce, Bureau of the Census, Foreign Trade Statistics.

Date run: 5/13/2019

Table 8--U.S. feed grain exports by selected destinations (1,000 metric tons) 1/, 5/14/2019

Export and country/region		----- 2016/17 -----		----- 2017/18 -----		2018/19
		Mkt year	Sep-Mar	Mkt year	Sep-Mar	Sep-Mar
Corn	Mexico	13,932	7,378	15,724	7,891	9,736
	Japan	13,557	7,278	13,183	5,776	7,851
	South Korea	5,601	3,645	5,736	1,892	2,749
	Colombia	4,733	3,608	5,083	2,917	3,167
	Peru	2,989	1,708	3,238	1,869	1,904
	China (Taiwan)	2,962	1,882	2,464	623	1,438
	Saudi Arabia	2,163	1,484	1,495	655	605
	Guatemala	993	553	867	369	714
	Morocco	871	655	748	216	164
	European Union-27	843	203	1,904	575	33
	Costa Rica	819	431	853	435	527
	Dominican Republic	807	497	639	135	483
	China (Mainland)	807	32	306	40	6
	Canada	704	455	1,663	823	1,360
	Sub-Saharan Africa	605	481	137	1	18
	El Salvador	593	333	457	174	374
	Chile	543	543	15	0.573	15
	Honduras	506	275	621	291	297
	Panama	504	327	502	288	280
	Venezuela	419	188	435	285	150
	Indonesia	351	315	147	73	9
	Cuba	337	221	117	59	58
	Nicaragua	329	171	280	119	182
Malaysia	327	315	68	30	37	
Egypt	323	211	1,332	153	530	
All other countries	1,652	1,084	3,921	891	861	
Total 2/	58,270	34,277	61,935	26,581	33,548	
Sorghum	China (Mainland)	4,740	3,071	4,210	3,725	0.238
	Mexico	585	343	93	57	250
	Sub-Saharan Africa	467	361	363	94	206
	Japan	224	86	357	72	136
	All other countries	25	20	188	13	564
	Total 2/	6,041	3,881	5,211	3,961	1,157
		----- 2016/17 -----		----- 2017/18 -----		2018/19
		Mkt year	Jun-Mar	Mkt year	Jun-Mar	Jun-Mar
Barley	Canada	63	48	69	64	37
	Japan	23	15	31	29	40
	China (Taiwan)	4	4	5	3	8
	Mexico	2	2	0.542	0.542	0.335
	All other countries	3	3	6	5	5
	Total 2/	95	71	111	101	89

1/ Grain only. Market year (September-August for corn and sorghum, June-May for barley) and market year to date.

2/ Totals may not add due to rounding.

Source: U.S. Department of Commerce, Bureau of the Census, Foreign Trade Statistics.

Date run: 5/13/2019