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FDS-16e

May 12, 2016

# Feed Outlook

Tom Capehart

[tcapehart@ers.usda.gov](mailto:tcapehart@ers.usda.gov)

Edward Allen

[ewallen@ers.usda.gov](mailto:ewallen@ers.usda.gov)

## Increased Corn Plantings Imply Huge Ending Stocks and Declining Prices

The next release is  
June 14, 2016

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Approved by the  
World Agricultural  
Outlook Board.

Corn planting intentions indicate a 6-percent increase in area for 2016. Harvested area is projected at 85.9 million acres. The 2016 trend yield, at 168.0 bushels per acre, is slightly less than the estimated yield a year earlier. The area increase supports a record production of 14.4 billion bushels. Beginning stocks in 2016/17 are also large, at 1.8 billion, the largest in 10 years. Allowing for a small decline in corn imports, corn supplies in 2016/17 are projected to reach a record 16.3 billion bushels. Even with significant increases in domestic use and exports, 2016/17 corn ending stocks are projected at 2.2 billion. With large supplies and stocks prospects, the midpoint of the forecast corn farm price range is \$3.35 per bushel, down from \$3.60 forecast for 2015/16 and \$3.70 estimated for 2014/15.

Global 2016/17 coarse grain production is projected at 1.3 billion tons, up 3.2 percent from the previous year and nearly matching the 2014/15 record output. With policy reform and reduced corn price prospects, China's 2016/17 production is forecast down 3 percent, but this is more than offset by an expected increase for the EU and South Africa, recovering from drought in 2015/16, and Argentina, responding to policy changes with a sharp increase in corn area. Declining prices in 2016/17 are expected to encourage use, projected up 3.5 percent. Use is projected slightly larger than production, resulting in a small decline in global ending stocks, down 1 percent to 241.0 million tons. However, reduced stocks in China are mostly offset by increased U.S. stocks.

### Relevant *Feed Outlook* Special Articles and E-Outlooks

"Boutique Brews, Barley, and the Balance Sheet," pdf pages 18-23 of the January 2015 *Feed Outlook* report (<http://www.ers.usda.gov/publications/fds-feed-outlook/fds-15a.aspx>).

"World Corn Use Expands Despite High Prices in 2012/13," pdf pages 17-22 of the June 2013 *Feed Outlook* report (<http://www.ers.usda.gov/publications/fds-feed-outlook/fds-13f.aspx>).

"Animal Unit Calculations—First Projections for the 2013/14 Crop Year," pdf pages 25-30 of the May 2013 *Feed Outlook* report (<http://www.ers.usda.gov/publications/fds-feed-outlook/fds-13e.aspx>).

Weather Effects on Expected Corn and Soybean Yields, Westcott and Jewison, USDA-ERS, Feed Outlook No. (FDS-13G-01), July 2013, [www.ers.usda.gov/publications/fds-feed-outlook/fds-13g-01.aspx](http://www.ers.usda.gov/publications/fds-feed-outlook/fds-13g-01.aspx).

## Domestic Outlook

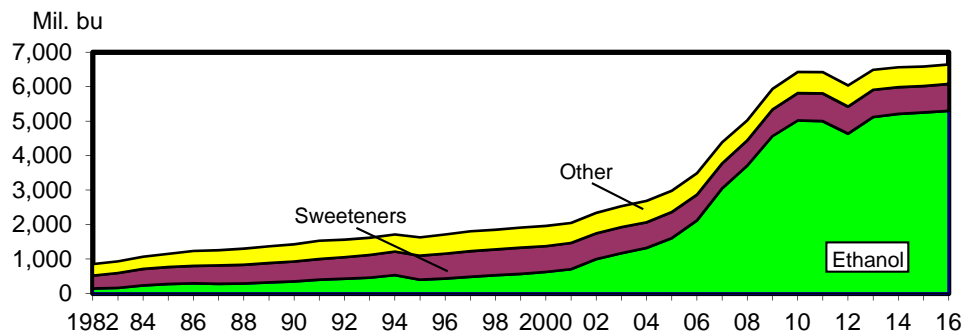
### Projected U.S. Corn Production Up 6 Percent

U.S. corn planted area for 2016/17 is expected at 93.6 million acres, 5.6 million over 2015/16, based on planting intentions published by USDA's National Agricultural Statistics Service (NASS) in the March 31 *Prospective Plantings* report. If realized, this will be the third-highest acreage on record. Based on the historical relationship with plantings, harvested acreage is projected at 85.9 million acres.

The 2016/17 yield projection is based on a weather-adjusted trend. At 168.0 bushels per acre, the projected yield is 0.4 bushels per acre below the 2015/16 estimate and 3.0 bushels per acre below the 2014/15 record of 171.0 bushels per acre. . Projected yield based on a weather adjusted trend model that assumes normal mid-May planting progress and summer weather<sup>1</sup>. The yield is not adjusted for this spring's rapid planting progress since summer weather plays a larger role in determining yields. Production for 2016/17 is projected at 14,430 million bushels, 829 million bushels above the 2015/16 estimate. If realized, production will set a record, exceeding the previous high of 2014/15 by 214 million bushels.

Figure 1

#### U.S. food, seed, and industrial use of corn



Note: Marketing years. Other includes starch, beverage alcohol, cereals and other products, and seed.

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

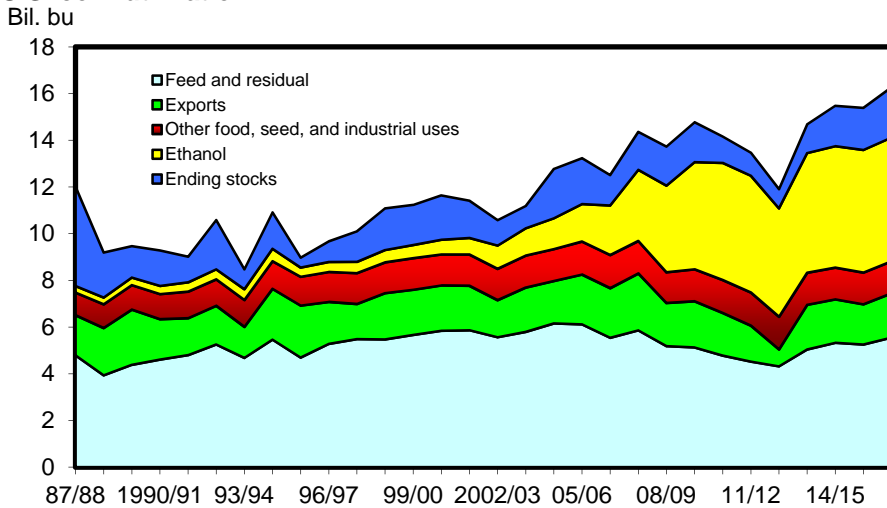
As of May 8, 2016, 64 percent of the corn crop had been planted in the 18 major corn-producing States included in the NASS *Crop Progress* survey. This share is down from 69 percent at this point last season but well ahead of the 5-year average of 50 percent. Seven of the 18 corn-producing States surveyed were up over 20 percent from their 5-year averages; however, plantings have been delayed in some parts of the Eastern Corn Belt (Indiana, Michigan, and Ohio) and in the Plains (Colorado, Nebraska, and South Dakota).

Likewise, corn emergence is also ahead of last year. In the 18 States surveyed by NASS, 27 percent of the crop had emerged as of May 8, compared with 23 percent for the 2015 crop at this point. Average emergence for 2011-15 was 17 percent at

<sup>1</sup> For an explanation of the yield trend model see Westcott and Jewison, *Weather Effects on Expected Corn and Soybean Yields*, USDA-ERS, Feed Outlook No. (FDS-13G-01), July 2013, [www.ers.usda.gov/publications/fds-feed-outlook/fds-13g-01.aspx](http://www.ers.usda.gov/publications/fds-feed-outlook/fds-13g-01.aspx).

this point. In Illinois, one of the largest corn-producing States, emergence was 46 percent, 12 percent higher than last year at this time and 19 percent ahead of the 5-year average.

Figure 2  
**U.S. corn utilization**



Note: Marketing years. 2015/16 is projected.  
Source: USDA, World Agricultural Outlook Board, WASDE.

### ***Corn Supply Projected Record High for 2016/17***

U.S. corn supplies, at 16,273 million bushels, are projected the highest ever and 885 million bushels higher than last year. Of the other supply components, beginning stocks are estimated at 1,802 million bushels, 71 million higher than last year, and imports are forecast at 40 million bushels, down 15 million.

### ***Corn Disappearance Also Projected at a Record for 2016/17***

Projected domestic use and exports for 2016/17 are up compared for 2015/16. At 14,120 million bushels, the total use projection breaks the 14-billion bushel barrier, surpassing the record-breaking season in 2014/15 and exceeding last year by 535 million bushels.

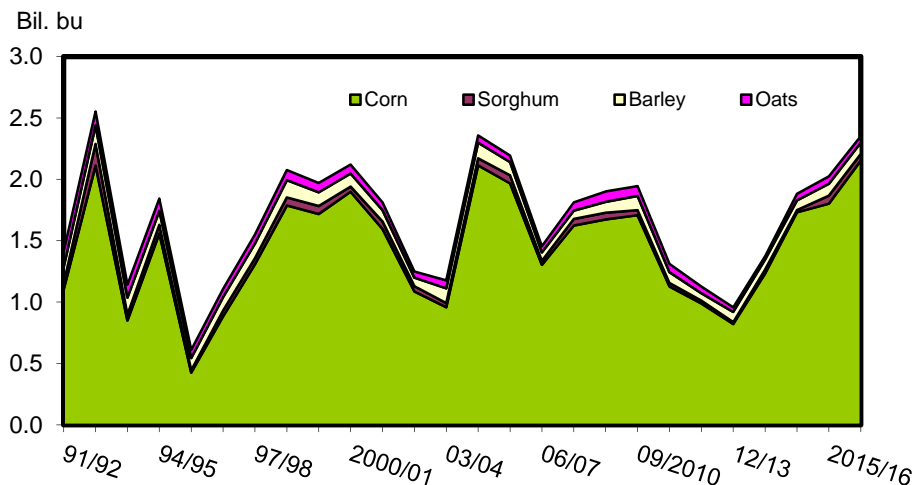
U.S. feed and residual use for 2016/17 is projected at 5,550 million bushels, 300 million higher than in 2015/16. Low prices encourage livestock feeding, and the large size of the crop expands the residual component. The recent NASS *Cattle on Feed* report has cattle feeding inventories up 1 percent and marketings of fed cattle up 7 percent over a year ago. Both broiler- and egg-type chick hatchings were up from a year ago, by 4 and 2 percent, respectively.

Food, seed, and industrial (FSI) use is projected at 6,670 million bushels for 2016/17, 60 million bushels more than the previous year. The major FSI component, corn for ethanol, is projected at 5,300 million bushels, 50 million bushels higher than the 2015/16 forecast. Within FSI use, high fructose corn syrup (HFCS) is projected at 470 million bushels, unchanged from 2015/16. Glucose and dextrose are projected 10 million bushels higher than last year at 310 million bushels, in part due to greater industrial applications. Starch is projected steady at 220 million bushels. Projected beverage and manufacturing use is raised

incrementally and cereals and other products use is steady. Use of corn for seed (planted in 2016/17 for the 2017/18 crop) is projected at 22.9 million bushels, less than 1 million below 2015/16.

For 2015/16, FSI use is reduced 11 million bushels to 6,610 million, with lower projections for starch and for beverage and manufacturing use. For 2014/15, very small revisions were made for HFCS, glucose and dextrose, and starch, resulting in a negligible change in total FSI use.

**Figure 3**  
**U.S. feed grain ending stocks**



Sources: USDA, Economic Research Service, *Feed Grains Database* and USDA, World Agricultural Outlook Board, *WASDE*.

### ***Corn Price Projected Lower This Year on Higher 2016/17 Supply Prospects***

The marketing year average corn farm price for 2016/17 is projected at \$3.05 to \$3.65 per bushel. At the midpoint of \$3.35 per bushel, this is down 25 cents from the projected midpoint of \$3.60 for 2015/16. Larger supplies and projected stocks reduce price prospects in 2016/17. The 2015/16 farm price range is increased 10 cents on the low end of the range to \$3.50 to \$3.70 per bushel.

### ***Projected Sorghum Production Plunges in 2016/17***

A 15-percent decrease in U.S. sorghum planted area, as reported in NASS's *Prospective Plantings* report, supports a year-to-year decrease in total U.S. sorghum harvested area of 1.6 million acres in 2016/17 compared with area in 2015/16. Sorghum production is anticipated to reach 407 million bushels, down 190 million from the 2015/16 estimate. The 2016/17 sorghum yield is projected at 65.0 bushels per acre, well below the 2015/16 record of 76.0 bushels for 2015/16. The 2016/17 yield projection is based on the average yield for 1990-2015, excluding years that are more than one standard deviation from the mean for the period.

Sorghum plantings are down for 2016/17 due to a decline in the price of sorghum relative to corn. In 2014/15, the sorghum price was 109 percent of the corn price but declined to 90 percent in 2015/16, leading producers to shift to other crops.

Total U.S. sorghum supply in 2016/17 is projected at 473 million bushels, a 24-percent decline from that in 2015/16.

Projected domestic use for 2016/17 is split evenly between feed and residual and FSI uses, with each set at 100 million bushels. Exports, at 220 million bushels, are expected lower by 95 million bushels from 2015/16 on expectations of lower shipments to China.

There are no balance sheet changes for sorghum in 2015/16.

The projected price for 2016/17 is set at \$2.85 per bushel on the low end of the range and \$3.45 per bushel on the high end, for a midpoint of \$3.15 per bushel. This is 10 cents per bushel below the 2015/16 forecast midpoint price of \$3.25 per bushel, which was increased 5 cents from the April forecast.

According to the most recent NASS report, sorghum planting progress is ahead of last year's pace in Texas. For the week ending May 8, 2016, Texas growers had planted 70 percent of the 2016 acreage; this compares to the previous week's 57 percent; planting progress of 64 percent at this time last year; and the 5-year average of 70 percent. Nationwide sorghum growers had planted 30 percent of their crop as of May 8, in line with last year at this time and just below the 5-year average of 31 percent.

### ***Barley Supplies Nearly Unchanged in 2016/17***

In March, U.S. barley growers indicate intention to reduce plantings by 12 percent, after increasing plantings by 17 percent the previous year. Reduced planted area, and resultant harvested area, combine with yields based on the 1990-2015 trend to return a production projection of 193 million bushels. If realized, the 2016/17 barley crop will be 21 million bushels smaller than the 2015/16 crop. Imports in 2016/17 are expected to match those of the previous year at 20 million bushels. Reduced production is mostly offset by increased beginning stocks, with projected barley supplies of 310 million bushels, down only 1 percent from the previous year.

Projected domestic use is virtually unchanged from 2015/16. Feed and residual use is projected at 50 million bushels. FSI use is projected down less than 1,000 bushels from the slightly revised 2015/16 projection of 153 million. Use of barley and malt products reflects expectations for nearly steady use for beer and for food uses. Exports are projected at 15 million bushels, 2 million above the revised 2015/16 forecast of 13 million.

Barley ending stocks are projected to be 92 million bushels, 5 million below last year's revised forecast of 97 million.

Prices received by farmers for barley in 2016/17 are expected to average \$4.30 to \$5.10 per bushel, for a midpoint of \$4.70. This is down 80 cents per bushel from the \$5.50 forecast for 2015/16. The lower outlook for 2016/17 mostly reflects lower expected contract prices for malting barley and declines in feed grains prices generally.

## ***Oats Production Prospects Plunge***

Planting intentions indicate an 11-percent drop in oats seedings for 2016/17. Based on a 5-year average harvested-to-planted ratio, harvested area is projected 19 percent below that for 2015/16. The projected yield, based on the 1990-2015 trend, is down 6 percent from the 2015/16 estimate. Production is projected down 22 million bushels to 68 million. Oat supplies for 2016/17 are projected 10 million bushels lower on the year at 223 million bushels. Lower production more than offsets a 5-million-bushel increase year-to-year in projected imports and a 6-million-bushel increase in beginning stocks.

Domestic oats disappearance for 2016/17 is projected at 168 million bushels, 2 percent below last year's revised forecast. Expected at 90 million, feed and residual use is 5 million bushels below the 2015/16 forecast. With exports projected at 2 million bushels, total 2016/17 disappearance is expected at 170 million bushels, 4 million below last year.

Ending stocks for 2016/17 are projected at 53 million bushels, 7 million below those expected for 2015/16.

The season-average oats price is also forecast lower for 2016/17. An expected year-to-year decline in corn and other grain prices puts downward pressure on the oats price outlook, projected at \$1.70 to \$2.10 per bushel. At a midpoint of \$1.90 per bushel, the projected price is well below the \$2.15 per bushel forecast for 2015/16.

## ***Feed and Residual Use Projected Higher for 2016/17***

On a September-August basis, 2016/17 U.S. feed and residual use for the four feed grains plus wheat is projected to total 151.9 million tons, 9.2 million above the 142.69 million projected this month for 2015/16. Corn is estimated to account for 93 percent of feed and residual use in 2016/17, about the same as in 2015/16. The first projected index of grain-consuming animal units (GCAU) for 2016/17 is 95.21 million units, higher than the adjusted 93.67 million units for 2015/16. Feed and residual per GCAU is estimated at 1.60 million tons, compared with 1.52 million for 2015/16. Feed and residual use is supported by forecast higher beef, pork, and poultry production.

## ***Hay Stocks Report Indicates Steady 2016 Supplies***

The May 10 NASS *Crop Production* report indicates that U.S. hay stocks on farms on May 1, 2016, totaled 25.1 million tons, a 3-percent increase over the 2015 figure of 24.5 million. With December 1, 2016, stocks reported at 95.0 million tons, the implied December-May disappearance is 69.9 million, down from a disappearance of 67.5 million indicated for the same period in 2014/15. For 2016, producers intend to harvest 54.3 million acres of all types of hay, down just 132,000 from the area harvested in 2015. Prices for the 2015/16 marketing year are \$151 per ton for all hay, down from the 2014/15 price of \$172 per ton, a reflection of the low price of alternative feeds.

### *World Coarse Grain Production Projected Up for 2016/17*

Global coarse grain production in 2016/17 is projected up 3.2 percent from the previous year, but down 0.4 percent from record production in 2014/15. Forecast harvested area in 2016/17 is up slightly, with increases in some countries more than offsetting declines in others. Relatively low prevailing coarse grain prices in most areas is a disincentive to expand area, but expected net returns, especially for corn compared to other crops, has supported expansion. Moreover, in some places, like the EU and Sub-Saharan Africa, a return to normal growing conditions is expected to increase the harvested-to-planted ratio, more than offsetting a decline in plantings in countries such as China that are seeding less coarse grain area in response to reduced prices and less government support.

The May initial assessment of world coarse grain supply and demand in 2016/17 is highly tentative. For many countries, coarse grain yields are projected at trend levels, with spring planting ongoing in the Northern Hemisphere and later for the Southern Hemisphere. 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 are better defined, with excellent conditions across parts of the Middle East and the EU but drought in parts of North Africa. A shift in area to corn and away from lower yielding coarse grains also supports average global coarse grain yields. The large increase in U.S. corn area, with almost double global average yields, supports yield prospects.

The average world coarse grain yield in 2016/17 is projected to reach a record 4.04 tons per hectare, up 2.8 percent from the previous year and 0.3 percent above the previous record in 2014/15. A return to trend yields in the EU and South Africa supports prospects.

The expected record U.S. corn crop underpins 2016/17 world production growth, but foreign coarse grain production is also forecast higher, up 2.8 percent year-to-year to 916.4 million tons but still down 1.1 percent from the record in 2014/15. Foreign corn production is forecast up 21.2 million tons to 644.5 million, while barley is down 5.7 million to 137.5 million, sorghum is up 7.2 million to 53.7 million, millet is increased 1.5 million to 30.7 million, oats is up 0.1 million to 21.0 million, mixed grain is up 0.2 million to 16.4 million, and rye is increased 0.7 million to 12.6 million.

### *China To Let Market Forces Determine Corn Prices*

Since 2002, China has effectively supported expansion of corn area and production, especially after 2008, with State purchases at a minimum price, with a portion of Government stocks auctioned off later in the year. In 2015/16, intervention purchases were restricted to the surplus corn provinces of the Northeast, but still maintained prices in China well above world traded prices. Large costly Government corn stocks continued to grow in 2015/16. For 2016/17 China has announced that intervention purchases will cease, even in the Northeast, and that direct payments will be made to producers, as has been previously implemented for crops such as soybeans. Some State-owned enterprises may be instructed to purchase corn from producers if prices become low and alternative

buyers are not available. Details of subsidy payments to producers or the terms of purchases by State enterprises have not been clarified. China's corn producers' prices are expected to fall significantly in 2016/17, but there is great uncertainty about how sharply prices will decline. Corn planting is progressing despite the price uncertainty, with about half the crop planted by early to mid-May. Corn harvested area in 2016/17 is projected down 5.6 percent to 36.0 million hectares. Much of the area moved out of corn production is expected to have below-average yield potential. With a normal mix of favorable and unfavorable weather, China's average corn yield in 2016/17 is projected up 2.8 percent from the previous year to a record 6.1 tons per hectare. Corn production is expected to drop 6.6 million tons to 218.0 million. However, some producers are expected to shift corn area to sorghum, millet, and barley, boosting production prospects year-to-year for those crops by a total of 0.5 million tons. China's total coarse grain production is projected down 6.1 million tons to 225.7 million.

**The EU** is projected to produce 157.7 million tons of coarse grains in 2016/17, up 6.5 million. Winter barley is reported in excellent condition across much of Europe. Summer planted coarse grains, especially corn, suffered from drought and scorching heat in 2015/16, so both harvested area and yields are expected to rebound even with a small reduction in planted area expected. EU 2016/17 barley production is forecast to reach 60.7 million tons, by far the world's largest, accounting for 43 percent of global output. While EU barley area in 2016/17 is up slightly, projected yields are below the previous year's record because growing conditions during the remainder of May and June will be critical for yields of EU winter barley.

**Sub-Saharan Africa** is forecast to produce 104.0 million tons of coarse grains in 2016/17, up 12.0 percent from the previous year's crop that suffered from El Nino related droughts in several critical countries. However, the projected production is 4.0 percent below the 2014/15 record. Dramatic year-to-year increases are forecast for South Africa's corn, expected to rebound 6.5 million tons to 13.0 million; for Sudan's sorghum, up 3.1 million tons to 5.5 million; and for Ethiopia's corn, up 1.3 million tons to 6.3 million.

**Brazil** is projected to produce 84.6 million tons of coarse grain in 2016/17, up 1.2 million. Most of the corn harvested for 2016/17 will not be planted until the 2017 calendar year, so projections are exceptionally tentative. After the record-large U.S. corn crop is harvested, corn prices are expected to be low, so Brazil's second-crop corn area is expected to decline enough to offset any increase in first-crop plantings. Total corn harvested area is projected down 1.3 percent, but yield is forecast up 2.5 percent based on expected average rains for the second crop in Mato Grosso, better than for the 2015/16 crop but not as good as for 2014/15.

**Argentina** will expand corn area (up 25 percent) and production (up 26 percent) dramatically in 2016/17 because of policy changes implemented by a more pro-business government in December 2015. Quantitative controls on corn exports were abolished, corn export taxes were cut while export taxes on soybeans and products were only trimmed, and the exchange rate regime changed making foreign currency accessible and the rate attractive for exporting. The relative profitability of corn soared, especially compared to that of soybeans. After the policy changes, a surge in late corn plantings occurred for the 2015/16 crop, but it was too late to plant corn in many areas. Agronomic practices and the environment favor rotating corn and soybeans in Argentina, but previous policy



avored the profitability of soybeans, and many producers planted continuous soybeans, resulting in 2015/16 soybeans area of 19.7 million hectares, with only 3.4 million in corn. For 2016/17, many producers will want to plant corn in rotation with soybeans both for the benefits to the soil and pest management, but also because corn is expected to be more profitable. With trend yields, corn production is projected up 7.0 million tons to a record 34.0 million.

Increased corn area is expected to limit Argentina's sorghum area to a small increase for 2016/17, despite more favorable policies and producer prices. A return to trend sorghum yields boosts projected 2016/17 production 0.3 million tons to 3.9 million. For barley, policy changes favor wheat, and 2016/17 barley area is forecast down 13 percent. Moreover, trend yields imply a decline from the previous year's record. Barley production is forecast down 0.8 million tons to 3.4 million. Despite the decline in barley, Argentina's 2016/17 coarse grain production is expected up 6.5 million tons to a record 41.9 million.

**India** is expected to produce 41.7 million tons of coarse grain in 2016/17, an increase of 3.4 million. Monsoon rains are expected to be more abundant than the previous year, supporting a small expansion in area harvested and a rebound in coarse grain yields, up 5 percent from a year ago but 7 percent below the 2014/15 record. Corn and millet area are expected to expand, but sorghum area contracts modestly, as sorghum sometimes gets planted when irrigation supplies are not sufficient for other crops.

**Russia** is projected to produce 39.4 million tons of coarse grain in 2016/17, up 1.9 million. Corn area is forecast up 9 percent as expected returns are better than those for most other crops in the southern regions. Projected yields are not expected to match those of the previous year, and are 4 percent below the 2013/14 record, but still support a record crop of 14.0 million, up 0.8 million from those of a year earlier. Russia's barley harvested area is projected up slightly, but a return to trend yields boosts production 0.7 million tons to 17.8 million. Russia's rye and millet production are expected to expand, but the oats crop is forecast down slightly.

**Ukraine's** 2016/17 coarse grain production is expected up 1.5 million tons to 34.9 million. Dryness in fall 2015 contributed to a decline in winter wheat area, facilitating an expected expansion of spring-planted crops, including corn. The exchange rate encourages planting crops for export despite relatively low U.S. dollar denominated corn prices. Ukraine's corn area is forecast up 2.8 percent, and a return to trend yields implies an increase of 8.4 percent. Corn production is projected up 2.7 million tons to 26.0 million. However, expected barley production is down 1.0 million tons to 7.8 million. The dry fall in 2015 contributed to a significant drop in winter barley area, and the modest increase in spring-planted barley will not compensate. Moreover, a return to trend yields implies a modest decline from the previous year. Rye, sorghum, and millet production are expected to decline in 2016/17.

**Southeast Asia** is projected to produce 33.4 million tons of coarse grain in 2016/17, an increase of 1.4 million. The El Nino reduced rainfall for much of the region in 2015/16. A return to normal rains is expected for 2016/17, supporting an outlook for trend corn yields. Indonesia's Government continues to provide incentives to increase corn production, and the private sector is contributing to some expansion in the planting of higher yielding varieties. Modest increases in

area and yield boost projected corn production 0.2 million tons to a record 9.6 million. The Philippines was most directly affected by El Nino in 2015/16, and the yield rebound there is stronger. With a small increase in area, corn production is projected up 0.5 million tons to a record 8.0 million. Vietnam's corn area is forecast stable, but production is expected up 0.3 million tons to 6.3 million. For Thailand, small increases are projected for both area and yield, boosting production 0.2 million tons to 4.9 million. Smaller increases in corn production are expected for Cambodia, Burma, and Laos.

**Mexico's** 2016/17 coarse grain production is forecast up 0.7 million tons to 31.2 million. An increase in sorghum area is mostly offset by a reduction for corn. Sorghum area is increasing because producers have had some success at managing the sugarcane aphid problem. However, the sustained low prices of corn are expected to discourage small-holder production. With trend corn yields for 2016/17 about the same as estimated yields for the previous year, corn production is projected down 0.5 million tons to 23.5 million. Sorghum yields are expected to increase, boosting production 1.2 million tons to 6.9 million.

**Canada** is projected to produce 26.1 million tons of coarse grain in 2016/17, up 0.4 million. Planting intentions reported by Statistics Canada indicate increased area for barley, corn, rye, and mixed grain but a decline for oats. A return to trend yields implies a significant drop for corn, down from the previous year's record, and a small decline for barley, but small increases for the others. The area shifts tend to drive production prospects with barley up 0.3 million tons, corn up 0.2 million, rye up 0.1 million, and mixed grain up slightly, with the oats reduction partly offsetting.

**The Middle East** is forecast to produce 20.6 million tons of coarse grain in 2016/17, down 2.9 million. Turkey's barley area is expected to be unchanged from a year earlier, but satellite imagery confirms that dryness has hurt yield prospects in the central Anatolian Plateau. Reduced yields are projected to drop production 2.0 million tons to 5.4 million. Corn area and yield are forecast down from the previous year's record crop, trimming production 0.7 million tons to 5.5 million. Winter growing conditions were favorable in Iraq and Iran, with Iran projected to match the previous year's good crop and Iraq expected to boost winter barley production slightly. Syria's production prospects continue to decline. Satellite imagery indicates very little planting of crops in those parts of Syria and Iraq controlled by ISIS.

**Australia's 2016/17** coarse grain production is projected down 0.2 million tons to 12.4 million. Area is forecast lower for oats and barley, trimming production prospects and more than offsetting an increase in sorghum yields and production.

**North Africa's** 2016/17 coarse grain crop is projected at 10.1 million tons, down 2.5 million and the lowest in 9 years. Winter drought has devastated Morocco, and hurt western Algeria, but rains were favorable in Tunisia and eastern Algeria. Morocco's barley crop is forecast down 2.5 million tons to just 1.0 million. Production in Egypt is mostly irrigated corn, with stable production prospects at 6.0 million tons.

**Serbia's** corn crop is expected to rebound from summer drought a year ago, boosting corn production 1.0 million tons to 7.0 million and coarse grain production to 7.5 million.

## ***World 2015/16 Coarse Grain Production Reduced This Month***

Global coarse grain production in 2015/16 is forecast at 1,258.2 million tons, down 3.2 million this month. While harvests in the Northern Hemisphere were generally complete months ago, important Southern Hemisphere crops are still growing. Brazil's 2015/16 second-crop corn is going through key reproductive and filling stages with extensive dryness hurting yield prospects in parts of Mato Grosso, most of Goias, and other smaller producing States of the Northeast. To the south in Parana, rainfall has been favorable. Forecast corn harvested area is trimmed 0.2 million hectares to 16.0 million, and average yield is reduced 2.4 percent. Corn production is cut 3.0 million tons to 81.0 million. Sorghum is also grown in Brazil as a second crop following soybeans, and the same dryness reduces sorghum production prospects 0.2 million tons to 1.9 million.

In Argentina, torrential rains during April 2016 have caused extensive flooding, especially in Entre Rios and Santa Fe. Corn harvesting has been disrupted, with some low-lying fields lost and some yield damage. Corn production for 2015/16 is cut 1.0 million tons to 27.0 million, and sorghum is trimmed 0.1 million to 3.6 million. The flooding extended into Uruguay, with a small reduction to sorghum and corn crops. India's sorghum area is revised lower for several years based on reports from the USDA's Foreign Agricultural Service (FAS) post. Sorghum 2015/16 production is cut 0.5 million tons to 5.1 million.

EU 2015/16 coarse grain production is increased 0.5 million tons to 151.2, mostly due to higher reported corn production. Iran's 2015/16 barley crop is raised 0.5 million tons to 3.8 million, and North Korea's corn is boosted 0.3 million tons to 2.2 million, based on Food and Agriculture Organization of the United Nations reports confirmed by satellite imagery. China's sorghum and barley production are each raised 0.1 million tons based on an FAS post report. Other changes to 2015/16 coarse grain production are smaller.

## ***Massive 2016/17 Beginning Stocks Contribute to Record Supplies***

Beginning coarse grain stocks for 2016/17 were forecast in previous months as ending stocks for 2015/16. These forecast stocks are reduced 0.6 million tons this month but remain record large at 244.5 million. Most of this month's decline is for U.S. stocks, but coarse grain stocks are also reduced for Ukraine, down 0.7 million to 2.0 million with increased 2015/16 corn exports, barley domestic use, and barley exports; Brazil, down 0.6 million tons to 6.3 million, mostly due to reduced production prospects; Serbia, reduced 0.3 million tons to 0.5 million because of increased reported corn feed use; and India, trimmed 0.2 million tons to 1.7 million with reduced sorghum production. Smaller reductions are made for several other countries.

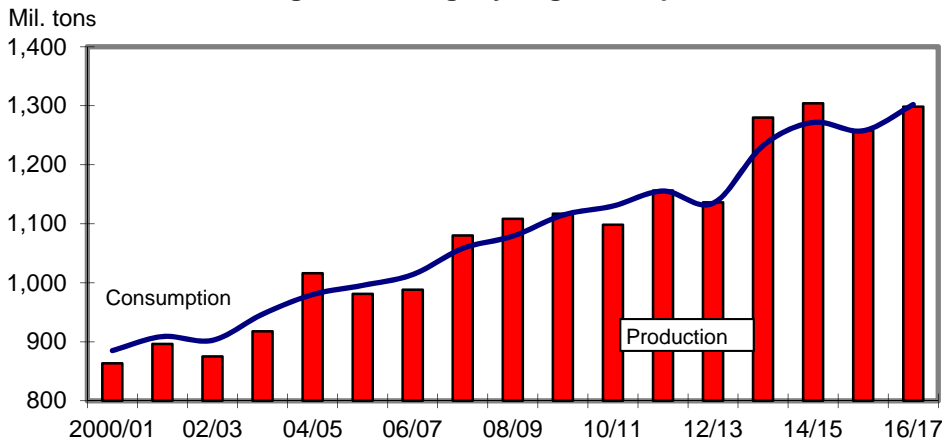
Largely offsetting the declines in forecast 2016/17 beginning coarse grain stocks are increases for the EU, up 1.6 million tons to 16.1 million, with reduced barley domestic use accounting for an increase in barley stocks of 1.0 million and most of the rest coming from increased corn production; Vietnam, up 0.3 million tons to 1.9 million, with corn imports outpacing increased residual disappearance; Indonesia, Iran, and Pakistan, each up 0.2 million tons; and several other countries with smaller increases.

Record-large 2016/17 world beginning stocks of coarse grain combine with near-record production to boost coarse grain supplies to 1,543.2 million tons, 1.8 percent larger than the previous record supply estimated for 2014/15. These large global supplies are being produced and maintained despite prices at levels in U.S. dollars that do not provide much profit margin for most producers.

**Global Coarse Grain Use To Resume Growth in 2016/17**

World coarse grain total use in 2016/17 is projected up 3.5 percent to a record 1,302.1 million tons. This follows a 1.1-percent decline in coarse grain use in 2015/16 caused mostly by reductions for the EU. Europe’s summer drought hurt corn production in 2015/16, and wheat crops were record or near-record large. Wheat feed use replaced some coarse grain in feed rations. Lower projected wheat production in 2016/17 should boost coarse grain feeding. EU coarse grain feed use is projected up 2.8 million tons.

**Figure 4**  
**World 2016/17 coarse grain use slightly larger than production**



Sources: USDA, Foreign Agricultural Service, *Production, Supply & Distribution (PS&D)* and *Grain: World Markets and Trade (Grain Circular)*.

In most countries, feed and residual use of coarse grains is driven by feeding animals for meat, milk, and egg production. With grain and protein feeds priced lower than the highs reached 4 or 5 years ago, meat production is profitable in most places and is increasing. Residual disappearance tends to increase with bigger crops and larger supplies. With record coarse grain supplies in 2016/17, residual disappearance is expected to increase.

The largest increase in coarse grain feed and residual is projected for the United States, up 7.1 million tons to 146.4 million. China is the largest feeder of coarse grain, but feed and residual use is forecast up only 3.8 million tons to 170.9 million. While China’s Government, saddled with huge corn stocks, is trying to boost corn use, the reductions in sow and pig numbers limit increases in feeding. Vietnam, with large corn imports, is expected to increase corn feed and residual 0.5 million tons to 11.0 million. Vietnam’s feed and residual disappearance includes any nonreported exports shipped to neighboring countries, and such exports may continue to be significant.

Mexico is projected to increase 2016/17 coarse grain feed and residual 1.5 million tons to 26.8 million, growth supported by demand for meat and eggs. Brazil is expected to continue to be the world's leading meat exporter, with meat exports compensating for sluggish domestic demand. Brazil's coarse grain feed and residual in 2016/17 is forecast up 1.1 million tons to 52.2 million. Growing demand for chicken and eggs supports a 0.8-million-ton increase in India feed and residual. Saudi Arabia's coarse grain use is forecast up 0.8 million tons to 13.2 million, with most of the growth in barley fed to sheep, camels, and dairy, as well as some increase for corn, mostly for poultry. Argentina's coarse grain feed and residual is projected up 0.6 million tons to 9.8 million, with bigger crops and economic policies that support expanding meat production and exports. Egypt's poultry production supports a 0.6-million-ton increase in projected feed and residual use. Most other countries are expected to increase feed and residual by less than 0.5 million tons, with a few expected to have small reductions. Turkey is expected to experience a 0.8-million-ton drop in coarse grain feed and residual, as production drops, trade policy limits imports, and poultry output stumbles.

World coarse grain disappearance is also affected by trade. In most years, the sum of all countries' local marketing year exports exceeds imports and partly reflects exports to countries not included in the database. The excess of exports over imports boosts global use. The normal pattern is expected in 2016/17, supporting use. However, this is in contrast to 2015/16, when Northern Hemisphere imports of 2014/15 Southern Hemisphere exports boosted global imports higher than exports. The shift in trade from imports larger than exports in 2015/16 to exports larger than imports in 2016/17 contributes to the growth in world coarse grain use.

### ***World Food, Seed, and Industrial Use To Grow 2 Percent***

Global coarse grain food, seed, and industrial (FSI) use is projected up 8.7 million tons to 510.0 million in 2016/17. Many of the world's poor consume coarse grain as a staple food, with consumption depending on local production. Improved crops in Sub-Saharan Africa are expected to boost FSI 3.0 million tons to 90.2 million. India's coarse grain FSI is projected up 0.7 million tons to 25.5 million, also supported by increased production.

China is providing subsidies to corn processors to help liquidate excessive Government-owned stocks. China's 2016/17 coarse grain FSI is forecast up 2.9 million tons to 75.3 million. Argentina is expected to increase ethanol production from corn to meet mandated blending and support exports, boosting FSI 0.5 million tons to 5.7 million. Many countries are expected to have small increases in FSI due to modest growth in demand for starch, high-fructose corn syrup (HFCS), and other products made from corn or other coarse grain. However, the low price of petroleum limits the expansion of corn used for energy. EU coarse grain FSI is projected slightly lower in 2016/17, the third straight year of decline.

### ***World Ending Stocks Projected a Bit Lower***

Global coarse grain use in 2016/17 is projected larger than production, resulting in forecast ending stocks declining 3.5 million tons to 241.0 million. The largest decline is projected for barley, cut 2.0 million tons, with corn reduced 0.8 million, and sorghum trimmed 0.5 million. Moderately low prices make stocks easy to acquire and finance, but large supplies limit any urgency to hold inventory.

The shifts in what countries are expected to hold stocks is more dramatic than the small reduction in large global stocks. A record U.S. corn crop is expected to increase ending stocks 19 percent. China's coarse grain stocks are projected down 8.3 million tons to 102.5 million, as policy reforms aimed at reducing burdensome Government-owned corn stocks begin to have some success. However, at the end of 2016/17, China is expected to still hold 43 percent of world coarse grain stocks and 49 percent of global corn stocks.

Morocco, with drought-damaged crops, is expected to cut barley stocks 0.7 million tons, leaving coarse grain stocks at only 0.6 million. Coarse grain ending stocks for Sub-Saharan Africa in 2016/17 are forecast up 1.0 million tons to 8.7 million, representing some increased food security. However, EU 2016/17 coarse grain ending stocks are projected down 1.5 million tons to 14.6 million. EU corn stocks are projected down 1.0 million, and barley is reduced 0.3 million.

### ***World 2016/17 Corn Trade To About Match the Previous Year's Record***

Global corn trade in October-September 2016/17 is projected at 133.8 million tons, nearly the same as the 133.9 million forecast for 2015/16. For many importers, attractive corn prices and expanding meat production combine to support a small-to-modest increase in corn imports. The largest of these include Mexico, up 1.5 million tons to 13.5 million; Turkey, up 0.6 million to 1.5 million; Egypt, up 0.5 million to 8.8 million; Iran, up 0.5 million to 5.5 million; and South Korea, up 0.5 million to 10.5 million.

However, those increases are offset by a few countries with significantly reduced import prospects. The EU is expected to be the world's largest corn importer in 2015/16 at 15.0 million tons, but with rebounding corn production in 2016/17, corn imports are projected down 2.0 million. China, expected to implement policies that use Government stocks and limit imports, is forecast to cut corn imports 1.0 million tons to 1.0 million. Vietnam's corn import prospects are cut 0.9 million tons to 6.0 million.

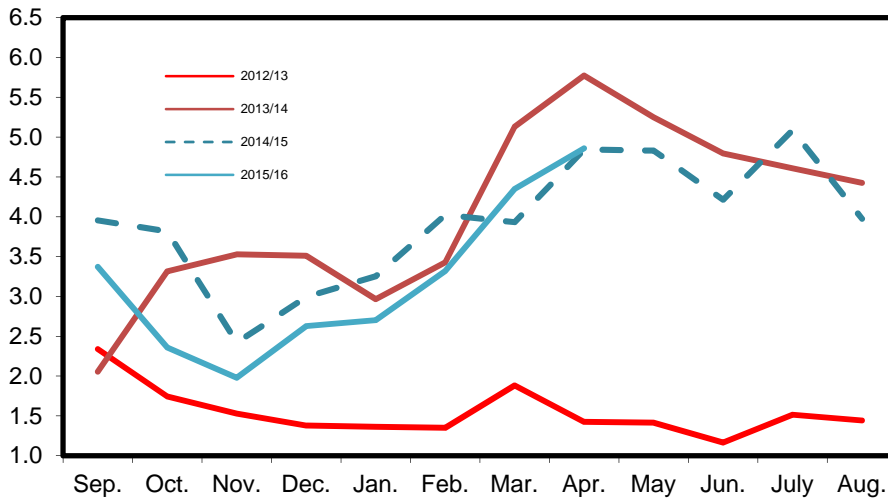
### ***U.S. 2016/17 Corn Export Prospects Increase as Brazil Stumbles***

U.S. corn export prospects for 2016/17 are supported by an expected record crop being planted as heat and dryness cuts Brazil's 2015/16 second-crop corn prospects. After three record corn crops in the previous 4 years, Brazil's 2015/16 corn production is expected to decline significantly (more than 2.0 million tons) for the first time in 8 years. The reduced crop will limit Brazil's exports from July 2016 through February 2017, a period that includes the first half of the 2016/17 October-September trade year. For that trade year, Brazil's exports are projected down 11.5 million tons to 25.0 million. While down sharply, the projected exports maintain Brazil as the world's second-largest corn exporter. Most competing exporters are expected to expand market share as Brazil declines to less than a 20-percent share of world trade.

Figure 5

**U.S. corn exports**

Mil. metric tons



Source: USDC, U.S. Census Bureau, April 2016, *Grain Inspections*.

The United States, with huge corn supplies, is expected to increase corn exports 5.5 million tons to 49.0 million in 2016/17. The U.S. share of world trade is projected to reach 37 percent, up from 33 percent forecast for the previous year. The 2016/17 increase in U.S. exports is limited by larger exports and ample supplies in most other significant corn exporters.

Argentina, with expanding corn area and production, is forecast to increase 2016/17 exports 2.5 million tons to 22.5 million. The EU, with rebounding corn production, is expected to increase exports 1.6 million tons to 3.0 million. Ukraine, with a more modest increase in production but a very competitive currency, is projected to increase corn exports 1.0 million tons to 17.0 million. South Africa, recovering from drought, is projected to export 1.3 million tons of corn, up 0.6 million. Serbia's corn exports are expected to increase 0.5 million tons to 2.2 million. Smaller increases are forecast for Russia and Canada.

***U.S. 2015/16 Corn Exports Up On Recent Sales and Shipments***

U.S. 2015/16 corn exports are raised 1.5 million tons this month to 43.5 million (up 75 million bushels to 1,725 million bushels for the June-May local marketing year). The pace of sales and shipments has been very strong in recent weeks as drought in Brazil and harvest delays in Argentina boosted their export prices. U.S. corn export prices have become the lowest export quote for several weeks. For the week ending April 21, 2016, net corn export sales reached 2.2 million tons for the week. At the end of April, outstanding export sales reached 13.3 million tons, slightly ahead of a year ago. Corn export inspections for April were 4.9 million, up from 4.6 million a year earlier. This is a sharp contrast to the pace of exports for the first half of 2015/16, with Census exports of 17.3 million tons for October 2015 to March 2016, down from 20.4 million a year ago. U.S. corn supplies are abundant, but as Argentina's corn crop and then Brazil's second-crop corn get harvested, the South American export quotes are expected to become more competitive.

Brazil's October-September 2015/16 export prospects are cut 1.0 million tons to a still record 36.5 million. Drought has hurt production prospects, several months of

strong exports have depleted supplies, poultry producers are bidding up internal corn prices, and corn imports are flowing in from neighboring countries. Forecast 2015/16 corn imports are raised 0.5 million tons this month to 1.0 million.

Argentina in April had torrential rains and flooding that interrupted corn harvests, delayed the loading of ships, and reduced production. Corn export prospects for 2015/16 are cut 0.5 million tons to 20.0 million. However, Ukraine's export prospects are boosted 0.3 million tons to 16.0 million based on the strong pace of shipments. Other changes to forecast 2015/16 corn exports based on the recent pace of sales and shipments are small and mostly offsetting.

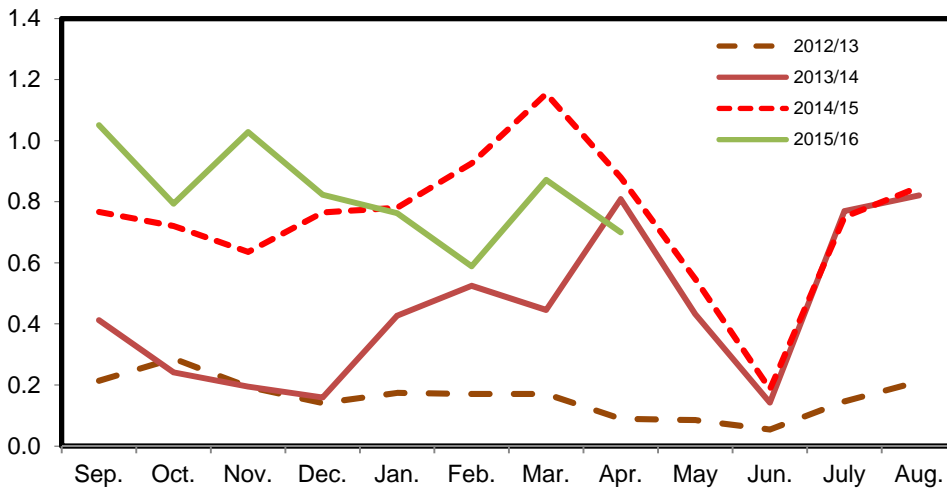
Corn imports for 2015/16 are raised for Vietnam, up 1.9 million tons to 6.9 million, based on the strong pace of sales and shipments, especially from South America. However, the pace of documented sales and shipments to China are slow, dropping projected imports 0.5 million tons to 2.0 million. Other changes to 2015/16 corn imports are small but include an increase of 150,000 tons for U.S. imports, boosting the trade year total to 1.4 million tons (the September-August local marketing year is raised 5 million bushels to 55 million bushels). U.S. imports include organic corn from Europe; routine corn seed shipments; shipments to Puerto Rico, where Jones Act restrictions can make U.S. corn more expensive than corn from other sources; trade between Ontario and Michigan for food processing; and occasional imports into the Carolinas, where rail rates and prices in the Eastern Corn Belt sometimes make imports competitive.

### ***World Sorghum Trade To Decline in 2016/17, U.S. Exports To Drop***

Global sorghum trade in 2016/17 is projected to drop 1.7 million tons to 8.1 million. Reduced demand from China and lower U.S. production combine to cut trade prospects. U.S. exports are projected down 1.9 million tons to 5.5 million (down 95 million bushels to 220 million bushels for the local marketing year). Exports as a percent of production are expected about steady at 54 percent, but sorghum export prices are not expected to maintain a premium to corn as was the case in late 2014/15 and early 2015/16. The uncertainty about future corn prices in China makes forecasting U.S. sorghum exports and China's imports difficult. If China's corn prices drop enough, the price incentive to import sorghum could disappear. However, corn prices in Southern China are expected to remain at a sufficient premium to world corn prices, and China's customs officials, while inspecting sorghum carefully, have not blocked customs clearance. These conditions would support China's sorghum imports in 2016/17 at 5.0 million tons, a large import by historical standards, but less than half the 2014/15 level. Trade among other importers and exporters of sorghum are projected little changed in 2016/17, with Argentina's exports up slightly to 1.2 million tons due to increased production.



Figure 6  
**U.S. sorghum exports**  
 Mil. metric tons



Source: USDC, U.S. Census Bureau, Apr. 2016 *Grain Inspections*.

### ***Global Barley Trade To Decline Modestly in 2016/17***

World barley trade in October-September 2016/17 is projected to reach 26.4 million tons, down 1.1 million. China's imports of feed barley are projected lower due to reduced corn prices in China, with total barley imports of 6.0 million tons, down 1.5 million from the previous year. Iran, with a large barley crop and abundant low-quality wheat supplies, is expected to cut barley imports 0.8 million tons to 1.1 million. These declines and a few smaller reductions for countries with large supplies are partly offset by increased barley imports for Saudi Arabia, up 0.5 million tons to 9.5 million, and small increases for several other importers.

Global 2016/17 trade for oats and rye is projected slightly higher. U.S. oats imports for the October-September 2016/17 trade year are up 0.1 million tons to 1.6 million, and Canada's exports are up by the same amount. For the June-May local marketing year, U.S. oats imports are up 5 million bushels to 95 million.

## Contacts and Links

### Contact Information

Thomas Capehart (domestic), (202)-694-5313, [tcapohart@ers.usda.gov](mailto:tcapohart@ers.usda.gov)  
Edward Allen (international), (202)-694-5288, [ewallen@ers.usda.gov](mailto:ewallen@ers.usda.gov)  
Verna Daniels (Web publishing), (202)-694-5301, [yblake@ers.usda.gov](mailto:yblake@ers.usda.gov)

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**Feed Monthly Tables**, (<http://www.ers.usda.gov/publications/fds-feed-outlook/>)  
**Feed Chart Gallery**, (<http://www.ers.usda.gov/data-products/chart-gallery.aspx>)

### Data

Feed Grains Database (<http://ers.usda.gov/data-products/feed-grains-database.aspx>) is a queryable database that contains monthly, quarterly, and annual data on prices, supply, and use of corn and other feed grains. This includes data published in the monthly Feed Outlook and the annual Feed Yearbook reports.

### Related Websites

Feed Outlook (<http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1273> WASDE) (<http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1194>)  
Grain Circular (<http://www.fas.usda.gov/grain/Current/default.asp>)  
World Agricultural Production ([http://www.fas.usda.gov/wap\\_arc.asp](http://www.fas.usda.gov/wap_arc.asp))  
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Table 1--Feed grains: U.S. quarterly supply and disappearance (million bushels), 5/12/2016

Commodity, market year, and quarter 1/		Beginning stocks	Production	Imports	Total supply	Food, seed, and industrial use	Feed and residual use	Exports	Total disappearance	Ending stocks	Farm price 2/ (dollars per bushel)		
Corn	2013/14	Sep-Nov	821	13,829	15	14,665	1,550	2,312	350	4,212	10,453	4.66	
		Dec-Feb	10,453		7	10,459	1,602	1,459	390	3,451	7,008	4.40	
		Mar-May	7,008		9	7,017	1,664	865	636	3,165	3,852	4.63	
		Jun-Aug	3,852		6	3,858	1,677	404	544	2,626	1,232	4.06	
		Mkt yr	821	13,829	36	14,686	6,493	5,040	1,920	13,454	1,232	4.46	
	2014/15	Sep-Nov	1,232	14,216	5	15,452	1,615	2,225	401	4,241	11,211	3.57	
		Dec-Feb	11,211		6	11,217	1,622	1,441	404	3,467	7,750	3.80	
		Mar-May	7,750		10	7,760	1,655	1,116	536	3,307	4,453	3.75	
		Jun-Aug	4,453		11	4,464	1,668	541	523	2,733	1,731	3.69	
		Mkt yr	1,232	14,216	32	15,479	6,560	5,323	1,864	13,748	1,731	3.70	
	2015/16	Sep-Nov	1,731	13,601	13	15,345	1,630	2,173	303	4,107	11,238	3.65	
		Dec-Feb	11,238		18	11,256	1,647	1,460	340	3,448	7,808	3.64	
		Mkt yr	1,731	13,601	55	15,387	6,610	5,250	1,725	13,585	1,803	3.50-3.70	
	2016/17	Mkt yr	1,803	14,430	40	16,273	6,670	5,550	1,900	14,120	2,153	3.05-3.65	
	Sorghum	2013/14	Sep-Nov	15.15	392.33	0.01	407.49	45.00	97.71	33.39	176.10	231.39	4.28
			Dec-Feb	231.39		0.01	231.40	10.00	4.19	41.48	55.67	175.73	4.22
			Mar-May	175.73		0.01	175.74	12.01	2.58	68.72	83.32	92.42	4.68
			Jun-Aug	92.42		0.07	92.49	2.88	-11.92	67.51	58.46	34.03	4.11
			Mkt yr	15.15	392.33	0.09	407.57	69.89	92.56	211.10	373.54	34.03	4.28
		2014/15	Sep-Nov	34.03	432.58	0.21	466.82	10.60	149.98	83.64	244.23	222.59	3.63
Dec-Feb			222.59		0.12	222.71	1.80	3.70	97.36	102.86	119.86	4.17	
Mar-May			119.86		0.00	119.86	1.43	-17.49	101.63	85.57	34.29	4.41	
Jun-Aug			34.29		0.04	34.33	1.18	-55.56	70.30	15.92	18.41		
Mkt yr			34.03	432.58	0.38	466.98	15.01	80.64	352.93	448.57	18.41	4.03	
2015/16		Sep-Nov	18.41	596.75	3.60	618.76	22.00	161.41	113.14	296.54	322.22	3.49	
		Dec-Feb	322.22		0.98	323.20	47.05	-10.31	85.67	122.41	200.79	3.16	
		Mkt yr	18.41	596.75	5.00	620.16	125.00	115.00	315.00	555.00	65.16	3.15-3.35	
2016/17		Mkt yr	65.16	407.00	1.00	473.16	100.00	100.00	220.00	420.00	53.16	2.85-3.45	

Table 1--Feed grains: U.S. quarterly supply and disappearance, cont. (million bushels), 5/12/2016

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	2013/14	Jun-Aug	80	217	2	299	40	61	3	103	196	6.22	
		Sep-Nov	196		5	201	39	-11	3	31	169	5.98	
		Dec-Feb	169		4	173	37	10	4	52	122	6.03	
		Mar-May	122		8	129	37	6	4	47	82	5.93	
		Mkt yr	80	217	19	316	153	66	14	234	82	6.06	
	2014/15	Jun-Aug	82	182	7	271	39	48	4	91	180	5.69	
		Sep-Nov	180		4	184	38	-14	4	28	156	5.25	
		Dec-Feb	156		6	163	37	5	3	44	118	5.07	
		Mar-May	118		6	124	37	4	4	45	79	4.86	
		Mkt yr	82	182	24	287	151	43	14	209	79	5.30	
	2015/16	Jun-Aug	79	214	4	297	40	35	3	78	219	5.41	
		Sep-Nov	219		4	223	38	0	4	42	181	5.53	
		Dec-Feb	181		7	188	37	11	3	50	137	5.61	
		Mkt yr	79	214	20	313	153	50	13	216	97	5.50	
	2016/17	Mkt yr	97	193	20	310	153	50	15	218	92	4.30-5.10	
	Oats	2013/14	Jun-Aug	36	65	17	118	17	37	0	55	63	3.72
			Sep-Nov	63		28	91	18	25	1	43	48	3.56
			Dec-Feb	48		20	68	16	16	0	33	35	3.71
			Mar-May	35		32	67	22	20	0	43	25	4.03
			Mkt yr	36	65	97	198	73	98	2	173	25	3.75
2014/15		Jun-Aug	25	70	27	122	18	30	1	48	74	3.34	
		Sep-Nov	74		24	99	18	13	0	32	67	3.16	
		Dec-Feb	67		32	99	17	22	0	39	59	3.08	
		Mar-May	59		24	84	24	5	0	30	54	2.89	
		Mkt yr	25	70	107	202	77	70	2	149	54	3.21	
2015/16		Jun-Aug	54	90	19	162	18	50	0	68	94	2.23	
		Sep-Nov	94		26	120	18	19	1	37	83	2.09	
		Dec-Feb	83		25	108	17	15	0	33	75	2.07	
		Mkt yr	54	90	90	233	77	95	2	174	60	2.15	
2016/17		Mkt yr	60	68	95	223	78	90	2	170	53	1.70-2.10	

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: 5/11/2016

Table 2--Feed and residual use of wheat and coarse grains, 5/12/2016

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)
2014/15	Q1 Sep-Nov	56.5	3.8	-0.3	0.3	60.3	-2.5	57.8		
	Q2 Dec-Feb	36.6	0.1	0.1	0.4	37.2	0.2	37.4		
	Q3 Mar-May	28.3	-0.4	0.1	0.1	28.1	-1.3	26.8		
	Q4 Jun-Aug	13.8	-1.4	0.8	0.8	13.9	7.9	21.8		
	MY Sep-Aug	135.2	2.0	0.6	1.6	139.5	4.3	143.7	92.4	1.6
2015/16	Q1 Sep-Nov	55.2	4.1	0.0	0.3	59.7	-3.0	56.6		
	Q2 Dec-Feb	37.1	-0.3	0.2	0.3	37.4	-0.0	37.3		
	MY Sep-Aug	133.4	2.9	1.2	1.5	139.0	3.2	142.2	93.6	1.5
2016/17	MY Sep-Aug	141.0	2.5	1.1	1.6	146.2	5.7	151.9	95.8	1.6

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, 5/12/2016

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)		
	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16
Sep	4.78	3.16	3.55	5.27	4.14	4.22	9.84	7.91	8.08
Oct	4.20	3.09	3.67	5.13	4.15	4.36	9.31	8.52	8.23
Nov	4.10	3.45	3.62	5.06	4.54	4.22	8.86	9.04	7.89
Dec	4.13	3.75	3.62	5.06	4.55	4.17	9.34	9.85	
Jan	4.13	3.67	3.55	5.03	4.44	4.09	9.77	10.41	
Feb	4.33	3.65	3.56	5.32	4.41	4.06	10.16	10.70	
Mar	4.64	3.66	3.54	5.65	4.43	4.05	10.57		
Apr	4.98	3.59	3.61	5.65	4.38	4.17		9.97	
May	4.72	3.49		5.51	4.23			7.44	
Jun	4.37	3.52		5.14	4.24				
Jul	3.74	3.85		4.64	4.56				
Aug	3.59	3.51		4.48	4.14		8.41	8.09	
Mkt year	4.31	3.53		5.16	4.35		9.53	9.10	
	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)		
	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16
Jun	5.01	3.49	2.59	6.88	5.71		4.21	3.88	2.89
Jul	4.66	3.01	2.70	6.79	5.62		3.84	3.85	2.82
Aug	4.03	2.58	2.41	5.88	5.79		3.78	3.83	2.63
Sep	3.48	2.30	2.39	5.41	5.98	4.95	3.40	3.86	2.70
Oct	3.39	2.44	2.57	5.50	7.28	4.95	3.57	3.68	2.58
Nov	3.46	2.48	2.60	5.46	7.35		3.79	3.53	2.67
Dec	3.52	2.68	2.60	5.77	7.35		3.80	3.49	2.64
Jan	3.65	2.79	2.58	5.72	7.10		4.30	3.26	2.60
Feb	3.70	2.73	2.50	5.64	6.75		4.64	3.11	2.60
Mar	3.87	2.75	2.46	5.97			4.66	3.14	2.43
Apr	3.95	2.81	2.45	6.24	6.35		4.58	2.94	2.49
May	3.96	2.76		6.10	6.23		4.03	2.75	
Mkt year	3.89	2.74		5.95	6.50		4.05	3.44	

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: 5/11/2016

Table 4--Selected feed and feed byproduct prices (dollars per ton), 5/12/2016

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		
	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16
Oct	443.63	381.50	327.97	355.00	346.88	292.50	157.50	90.13	96.00	601.25	549.38	509.38
Nov	451.13	441.40	308.60	345.00	313.13	291.88	158.38	105.13	109.63	631.25	581.88	477.50
Dec	498.31	431.74	289.78	401.88	334.38	265.00	168.00	143.30	113.13	638.13	613.50	482.25
Jan	479.54	380.03	279.57	378.34	313.75	248.75	165.00	135.25	109.63	625.00	632.50	452.50
Feb	509.25	370.39	273.61	388.75	302.50	238.13	167.50	117.25	102.38	668.13	631.25	457.50
Mar	497.82	357.83	276.23	401.25	310.50	216.50	177.63	107.20	87.00	744.38	613.00	445.50
Apr	514.01	336.61	303.81	405.50	288.13	207.50	166.60	83.13	73.25	784.00	575.63	434.00
May	519.38	320.23		416.88	274.38		157.00	72.25		761.25	549.38	
Jun	501.72	335.03		412.50	281.00		131.88	74.40		694.50	571.60	
Jul	450.79	375.48		359.50	299.38		113.70	91.25		574.00	560.00	
Aug	490.33	357.85		310.00	295.63		109.25	88.75		572.88	550.63	
Sep	525.72	333.63		360.63	293.50		98.70	95.50		587.50	525.00	
Mkt yr	490.13	368.48		377.93	304.43		147.59	100.29		656.86	579.48	
	Meat and bone meal, Central US			Distillers dried grains, Central Illinois, IL			Wheat middlings, Kansas City, MO			Alfalfa hay, weighted-average farm price 2/		
	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2013/14	2014/15	2015/16	2014/15	2015/16	
Oct	385.53	385.00	291.88	216.50	96.00	123.13	153.37	111.48	105.93	193.00	156.00	
Nov	410.95	383.79	266.25	217.13	113.13	132.63	138.69	106.87	106.53	182.00	150.00	
Dec	459.57	424.22	221.67	220.50	159.30	133.13	198.00	135.83	99.55	180.00	150.00	
Jan	456.88	382.49	200.13	200.00	186.50	132.50	151.62	140.93	104.16	170.00	147.00	
Feb	438.75	370.63	193.75	214.38	187.13	136.63	150.24	124.85	97.89	167.00	142.00	
Mar	501.25	376.00	261.00	245.00	189.50	134.50	156.62	1,118.55	68.64	169.00	144.00	
Apr	560.00	390.63	316.25	243.50	191.00	122.38	133.38	81.93	65.12	183.00		
May	516.25	368.75		222.75	178.50		131.07	64.25		192.00		
Jun	506.88	313.50		184.50	157.50		102.43	60.27		178.00		
Jul	489.83	333.75		148.00	153.50		70.36	77.96		169.00		
Aug	464.37	388.75		116.88	115.13		81.24	92.72		159.00		
Sep	435.00	344.00		123.00	139.30		106.62	112.67		157.00		
Mkt yr	468.77	371.79		196.01	155.54		131.14	185.69		196.00	163.00	

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](http://www.nass.usda.gov/Data_and_Statistics/Quick_Stats/index.asp).

Table 5--Corn: Food, seed, and industrial use (million bushels), 5/12/2016

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
2014/15	Q1 Sep-Nov	116.78	74.64	62.41	1,276.24	34.52	50.11	0.00	1,614.69
	Q2 Dec-Feb	110.32	71.95	59.76	1,293.93	36.18	49.95	0.00	1,622.10
	Q3 Mar-May	123.73	77.29	50.18	1,294.53	37.85	50.47	20.81	1,654.86
	Q4 Jun-Aug	128.08	75.96	43.19	1,335.39	33.64	50.68	1.47	1,668.40
	MY Sep-Aug	478.91	299.83	215.53	5,200.09	142.19	201.21	22.28	6,560.04
2015/16	Q1 Sep-Nov	110.81	71.45	62.30	1,300.20	34.89	50.62	0.00	1,630.27
	Q2 Dec-Feb	115.20	71.95	59.91	1,313.32	36.58	50.43	0.00	1,647.38
	MY Sep-Aug	470.00	300.00	220.00	5,250.00	143.00	203.10	23.68	6,609.78
2016/17	MY Sep-Aug	470.00	310.00	220.00	5,300.00	144.00	203.10	22.90	6,670.00

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

Source: Calculated by USDA, Economic Research Service.

Date run: 5/11/2016

Table 6--Wholesale corn milling product and byproduct prices, 5/12/2016

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)	
	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16	2014/15	2015/16
	Sep	17.32	17.80	18.99	19.47	14.14	14.20	34.50	37.00	21.25
Oct	17.44	17.96	19.11	19.63	13.30	14.29	34.50	37.00	21.25	23.25
Nov	18.44	17.53	20.14	19.20	12.91	14.95	34.50	37.00	21.25	23.25
Dec	18.89	17.50	20.56	19.17	13.90	14.80	34.50	37.00	21.25	23.25
Jan	18.94	17.42	20.61	19.09	14.11	14.62	37.00	39.00	23.25	26.75
Feb	18.71	17.44	20.39	19.11	13.93	14.35	37.00	39.00	23.25	26.75
Mar	18.51	17.13	20.06	18.92	13.90	14.71	37.00	39.00	23.25	26.75
Apr	17.90	17.70	19.57	19.37	14.08	14.71	37.00	39.00	23.25	26.75
May	17.62		19.29		14.50		37.00		23.25	
Jun	17.81		19.48		14.50		37.00		23.25	
Jul	18.40		20.07		14.41		37.00		23.25	
Aug	17.65		19.32		15.37		37.00		23.25	
Mkt year 2/	18.14		19.80		14.09		36.17		22.58	

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: 5/11/2016

Table 7--U.S. feed grain imports by selected sources (1,000 metric tons) 1/, 5/12/2016

Import and country/region	----- 2013/14 -----		----- 2014/15 -----		2015/16	
	Mkt year	Jun-Mar	Mkt year	Jun-Mar	Jun-Mar	
Oats	Canada	1,503	1,195	1,707	1,469	1,242
	Sweden	99	33	72	72	62
	Finland	66	39	62	62	27
	All other countries	6	3	12	12	0
	Total 2/	1,674	1,270	1,852	1,614	1,332
Malting barley	Canada	242	158	334	288	264
	All other countries			28	28	0
	Total 2/	242	158	362	316	264
Other barley 3/	Canada	162	122	147	122	101
	All other countries	4	2	4	3	3
	Total 2/	166	124	151	125	104

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: 5/11/2016

Table 8--U.S. feed grain exports by selected destinations (1,000 metric tons) 1/, 5/12/2016

Export and country/region		----- 2013/14 -----		----- 2014/15 -----		2015/16
		Mkt year	Sep-Mar	Mkt year	Sep-Mar	Sep-Mar
Corn	Japan	11,939	5,504	12,081	6,089	4,261
	Mexico	10,490	5,926	11,289	5,733	7,101
	South Korea	4,961	1,646	3,944	1,558	803
	Colombia	3,562	1,911	4,340	2,549	2,823
	China (Mainland)	2,732	2,638	612	222	197
	Egypt	2,644	685	1,235	642	189
	China (Taiwan)	1,780	801	1,850	837	425
	European Union-27	1,263	75	361	150	7
	Peru	1,246	922	2,555	1,634	1,203
	Venezuela	1,128	631	710	485	331
	Saudi Arabia	1,031	544	1,185	412	489
	Guatemala	753	431	852	418	468
	Dominican Republic	596	246	607	319	13
	Costa Rica	593	313	774	464	203
	Vietnam	509	190	8	8	
	Canada	479	231	1,489	888	592
	Israel	469	32	27	18	0.029
	El Salvador	409	221	542	294	348
	Honduras	375	163	428	224	256
	Panama	333	166	450	261	197
	Jamaica	283	133	287	185	158
	Morocco	202	51	298	271	32
	Cuba	137	82	26		25
Nicaragua	121	42	191	93	109	
Indonesia	116	52	47	46	95	
All other countries	631	291	1,170	603	377	
Total 2/	48,783	23,930	47,359	24,403	20,703	
Sorghum	China (Mainland)	4,263	1,601	8,371	5,356	4,916
	Sub-Saharan Africa	444	347	484	329	416
	Japan	293	205	72	43	58
	Mexico	251	219	21	13	337
	All other countries	112	35	17	12	196
	Total 2/	5,362	2,406	8,965	5,752	5,922
		----- 2013/14 -----		----- 2014/15 -----		2015/16
		Mkt year	Jun-Mar	Mkt year	Jun-Mar	Jun-Mar
Barley	Japan	169	119	90	73	4
	Mexico	93	77	100	93	141
	Libya	21	21			
	China (Taiwan)	11	10	32	31	6
	All other countries	17	13	90	75	76
	Total 2/	311	239	312	272	227

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: 5/11/2016