

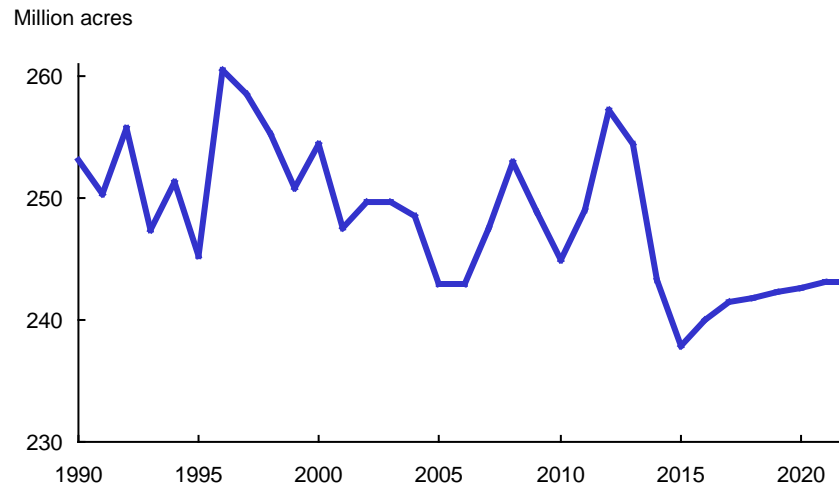
## U.S. Crops

In the short term, the U.S. crops sector responds to continuing high prices for most crops in 2012/13. Planted area for the 8 major field crops in 2013 is projected at more than 254 million acres. While that is down from the large acreage planted in 2012 when favorable spring weather combined with strong economic incentives, 2013 plantings would be the second largest acreage since 2000. As U.S. and global supplies rebound and prices decline for most crops, U.S. planted acreage for these crops is projected to fall over the next several years in response to lower producer returns.

Over the longer run, steady global economic growth provides a foundation for continuing strong crop demand. Corn-based ethanol production in the United States is projected to rebound from 2012's decline, although the pace of further expansion slows considerably. Nonetheless, the combination of world economic growth, a depreciating dollar, and continued expansion of global biofuels production supports longer run gains in world consumption and trade of crops. Prices are projected to fall from recent record highs but remain above pre-2007 levels for many crops. Following the near-term decline in prices and planted acreage, strong demand and rising prices provide economic incentives for increases in plantings beyond 2015.

Acreage enrolled in the Conservation Reserve Program (CRP) is projected to decline below 28 million acres in 2013-14 before rising back to close to 32 million acres by the end of projection period. The projections reflect provisions of the Food, Conservation, and Energy Act of 2008 (the 2008 Farm Act), which is assumed to be extended through the projection period.

**U.S. planted area: Eight major crops 1/**



1/ The eight major crops are corn, sorghum, barley, oats, wheat, rice, upland cotton, and soybeans.

## Weather-adjusted Trend Yields for Corn and Soybeans

Long-term trends in crop yields reflect improvements in yield-enhancing technology, such as new hybrids, as well as improvement in production practices, such as better pest and nutrient management and precision planting, that in turn support greater per-acre plant populations. However, several years of poor weather during the U.S. growing season for corn and soybeans have resulted in below-trend yield outcomes for the last 2-3 years. Thus, assessing the effects of weather on recent yields is important for determining underlying trend yields for these crops. Weather-adjusted yield models were developed for corn and soybeans to provide this information. Results summarized here are based on data available in January 2013. Earlier versions of these models, based on data available in November 2012, were used for the weather-adjusted, U.S. corn and soybean trend yield projections in this report.

### Corn yield model

The corn model is for national yields and is estimated over the past 25 years (1988-2012), thereby including both the 1988 and the 2012 droughts. In addition to a trend variable, the model uses as explanatory variables mid-May planting progress, July weather (precipitation and average temperature), and a June precipitation shortfall measure in selected years. Including those variables helps explain previous yield variations and deviations from trend.

Corn plantings by mid-May are important for yield potential because that allows more of the critical stages of crop development, particularly pollination, to occur earlier, before the most severe heat of the summer. Earlier pollination is also generally associated with less plant stress from moisture shortages. Most of the corn crop develops in July, so weather in that month is included in the model. Finally, while weather in June is important for development of the corn crop (and June typically has lower temperatures and more rain than July), effects of June weather are typically small relative to July weather effects. However, extreme weather deviations from normal in June can have larger impacts, as seen in 2012 and in 1988. To represent that effect, the model uses a measure of the precipitation shortfall from average in years when June precipitation is in the lowest 10 percent tail of its statistical distribution. The mid-May planting progress variable is based on weekly data from USDA's National Agricultural Statistics Service (NASS) and is prorated to May 15 from adjacent weeks' results for years that the statistic was not reported for that date. The weather data is from the National Oceanic and Atmospheric Administration. The planting progress and weather data used are for eight key corn-producing States (Iowa, Illinois, Indiana, Ohio, Missouri, Minnesota, South Dakota, and Nebraska). Those eight States typically rank in the top 10 of corn-producing States and accounted for an average of 76 percent of U.S. corn production over the estimation period. An aggregate measure for the eight States for each of those variables is constructed using harvested corn acres to weight State-specific data.

The effects of mid-May planting progress and July temperatures on corn yield are each linear in the model—for those variables, each unit of change has a constant effect on yield. Similarly, the June precipitation shortfall variable is linear for the years it is nonzero. The effect of July precipitation, however, is nonlinear in the model because the response of corn yields to different amounts of precipitation above and below average is asymmetric. That is, reductions in corn yields when rainfall is below average are larger than gains in corn yields when rainfall is above average. The model uses a squared term for July precipitation to represent that asymmetric effect. The estimated regression equation (shown on the following page) explains over 96 percent of the variation in national corn yields in the estimation period (more than 91 percent of the variation around the equation's trend).

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### Weather-adjusted Trend Yields for Corn and Soybeans (*Continued*)

U.S. corn yield equation, using trend and 8-State weighted averages for mid-May planting progress and June and July weather\*

	Intercept	Trend	Mid-May planting progress	July temperature	July precipitation	July precipitation squared	June precipitation shortfall**
Coefficient	228.5	1.952	0.289	-2.283	13.793	-1.522	-9.537
Standard error of coefficient		0.129	0.056	0.443	4.730	0.473	1.667
t-statistic		15.1	5.2	-5.2	2.9	-3.2	-5.7
R-squared		0.964					
Standard error		4.2					
Estimation period		1988-2012					

\* All 8-State aggregates are weighted by harvested corn acres. Eight States are Iowa, Illinois, Nebraska, Minnesota, Indiana, South Dakota, Ohio, and Missouri. Those States were ranked 1-6, 8, and 10 in the United States in terms of 2011 corn production, accounting for 76 percent of the national total.

\*\* June precipitation shortfall equals average precipitation minus actual precipitation when the actual is in the lowest 10 percent tail of its statistical distribution.

### Soybean yield model

A similar approach was used to develop a weather-adjusted trend yield model for soybeans. The model was estimated over the same 25-year period (1988-2012) as for corn. The soybean equation differs, however, by not including a planting progress variable and by using an average of July and August weather variables rather than just July weather. Those differences reflect a wider window for reproduction for soybeans than for corn. Nonetheless, a similar variable for June precipitation shortfall is included to reflect the potential importance of extreme weather situations in that month. Also, the weather variables included are weighted averages for seven States (Iowa, Illinois, Indiana, Ohio, Missouri, Minnesota, and Nebraska), using harvested soybean acres to weight State-specific observations. Those were the top seven soybean producing States over the estimation period, accounting for about 70 percent of U.S. soybean production during those years.

U.S. soybean yield equation using trend and 7-State weighted averages for June, July, and August weather\*

	Intercept	Trend	July-August temperature	July-August average monthly precipitation	July-August average monthly precipitation squared	June precipitation shortfall**
Coefficient	60.1	0.447	-0.514	5.083	-0.619	-1.279
Standard error of coefficient		0.061	0.237	4.447	0.512	0.723
t-statistic		7.3	-2.2	1.1	-1.2	-1.8
R-squared		0.800				
Standard error		2.1				
Estimation period		1988-2012				

\* All 7-State aggregates are weighted by harvested soybean acres. Seven States are Iowa, Illinois, Minnesota, Nebraska, Indiana, Ohio, and Missouri. Those States were ranked 1-7 in the United States in terms of 2011 soybean production, accounting for 67 percent of the national total.

\*\* June precipitation shortfall equals average precipitation minus actual precipitation when the actual is in the lowest 10 percent tail of its statistical distribution.

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### **Weather-adjusted Trend Yields for Corn and Soybeans (Continued)**

Similar to the model for corn, the effects of July-August temperatures and the June precipitation shortfall variable are linear in the soybean yield model, and the July-August precipitation effect is nonlinear. The estimated regression equation explains 80 percent of the variation in national soybean yields in the estimation period (50 percent of the variation around the equation's trend). Overall, the model's weather variables have lower statistical significance in explaining soybean yields than in the corn yield model, likely reflecting the longer reproductive period for soybeans which makes the timing of favorable weather less critical than for corn.

#### **Implications for 2013 yields and beyond**

Assuming that corn planting progress by the middle of May 2013 is at the average over the past 10 years of 80 percent, that June weather is not extremely dry, and that average weather occurs in July, the model suggests a 2013 corn yield of about 164.3 bushels an acre. However, a weighted average of corn yield estimates for alternative levels of July precipitation (assumed to have a statistically normal distribution) results in a lower mean expected corn yield for 2013 of 163.6 bushels per acre. That reduction reflects the asymmetric response of corn yields to different amounts of rainfall above and below the average. That mean expectation accounts for variation in July precipitation within one standard deviation of its average, covering 68 percent of its statistical distribution. For longer term projections, the adjusted corn yield of 163.6 bushels per acre becomes the 2013 starting point and would be incremented each subsequent year by the 1.95 trend coefficient estimate.<sup>1</sup>

Similarly, with average July-August weather and June weather that is not extremely dry, the soybean model suggests a 2013 yield of 44.6 bushels an acre. The weighted average of soybean yield estimates for alternative levels of July-August precipitation results in a lower mean expected soybean yield for 2013 of 44.5 bushels per acre. That reduction reflects the asymmetric response of soybean yields to different amounts of rainfall in July-August precipitation. The adjustment for soybeans is relatively smaller than the similar adjustment for corn, suggesting less soybean yield variability due to weather than for corn. From the adjusted soybean yield for 2013, longer term projections would be incremented each subsequent year by the 0.45 trend coefficient estimate.<sup>1</sup>

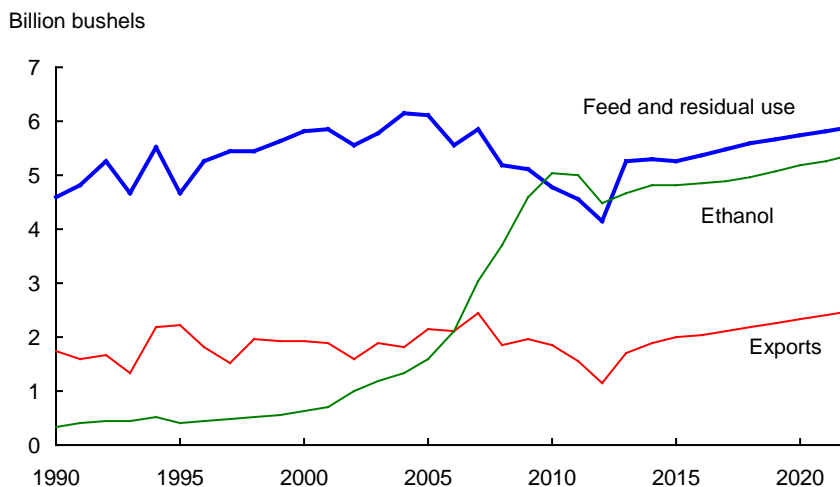
#### **Adjusting for Developments During the 2013 Growing Season**

As the planting and growing seasons for corn and soybeans progress, the yield models can be used to make revisions to the 2013 yield expectations as actual data for mid-May corn planting progress and July and August weather become available. Additionally, the models provide a framework for assessing yield reductions should June weather be extremely dry, such as in 2012 and 1988.

USDA's first survey-based estimates of corn and soybean yields for 2013 will be released by NASS in the August *Crop Production* report.

<sup>1</sup> The long-term corn and soybean yield projections in this report are based on earlier versions of the models presented here that were estimated using data available in November 2012. Those earlier estimations implied 2013 yields for both corn and soybeans that are 0.1 bushels per acre lower than those discussed in this box. Trend coefficients were similar for both estimations.

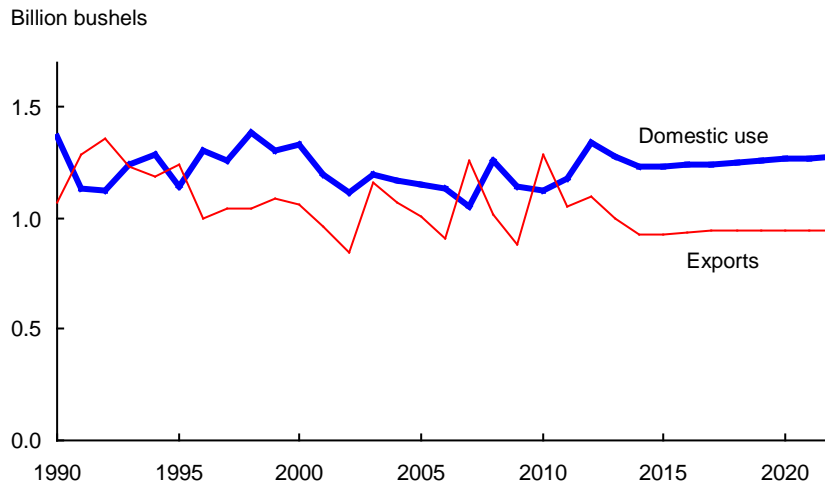
### U.S. corn: Feed and residual use, ethanol, and exports



Lower supplies and higher prices resulting from weather-reduced 2012 U.S. corn production have led to lower domestic use and exports. Corn acreage is projected to remain high in the near term, with normal yields leading to an increase in production and a recovery of corn use. Although corn-based ethanol production is projected to slow significantly, its continued high levels combine with gains in exports and feed use to keep corn use high. Following several years of adjusting markets, increasing producer returns lead to gradually rising corn acreage in a range of 88 million to 92 million acres after 2015. For other feed grains, after near-term adjustments, planted area falls back from recent highs over the rest of the projection period.

- U.S. ethanol production is based almost entirely on corn as the feedstock. Projected increases in corn-based ethanol over the next 10 years are much smaller than occurred in 2005-2010. This projection reflects declining overall gasoline consumption in the United States (which is mostly a 10-percent ethanol blend (E10)), infrastructural and other constraints on growth in the E15 (15-percent ethanol blend) market, and the small size of the E85 (85-percent ethanol blend) market. Nonetheless, a strong presence for ethanol in the sector continues, with about 35 percent of total corn use expected to go to ethanol production during the projection period.
- Feed and residual use of corn initially rises from low 2012/13 levels mostly because of the projected increase in corn production (which affects the “residual” component). Following this near-term adjustment, lower corn prices and increasing meat production underlie gains in feed and residual corn use. Also supporting gains in feed use of corn is a slowdown in the growth of production of distillers grains, a coproduct of dry mill ethanol production, as the corn-based ethanol expansion moderates.
- Food and industrial use of corn (other than for ethanol production) is projected to rise over the next decade. Use of corn for high fructose corn syrup is supported by growing exports to Mexico as domestic use slows. Slower increases for glucose and dextrose use reflect consumer dietary concerns and changes in tastes and preferences. Other food uses of corn are also projected to rise more slowly than the increase in population. Starch use of corn, such as in the production of drywall, responds to economic growth and industrial demand, rising faster than population throughout the projection period.
- U.S. corn exports increase sharply from 2012/13 weather-reduced levels and then rise at a slower pace during the rest of the projection period in response to strong global demand for feed grains to support growth in meat production. Export gains are particularly strong to China, which account for about 40 percent of the projected overall growth in global corn imports. The United States remains the world’s largest corn exporter, accounting for an average of about 45 percent of global corn trade over the projection period. However, this trade share is lower than the 1970-2000 average above 70 percent, largely due to the use of corn for ethanol production in the United States.

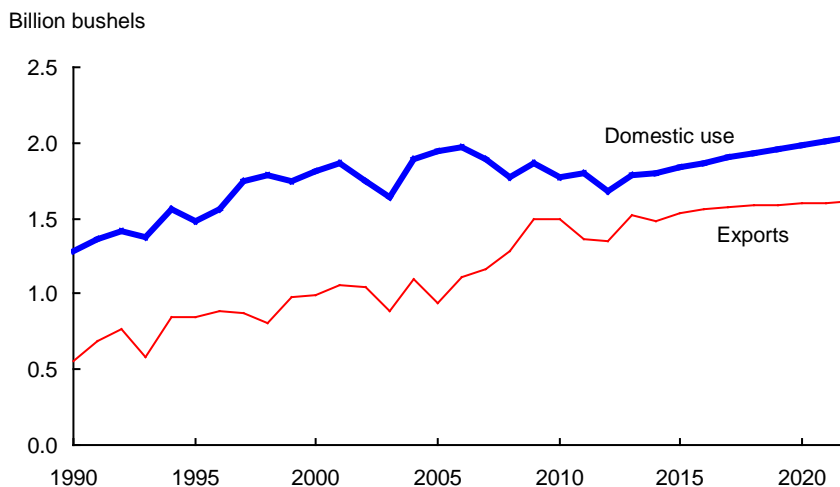
### U.S. wheat: Domestic use and exports



Strong wheat prices and expected net returns boost wheat plantings for 2013. However, with relatively weak overall demand growth projected for wheat, producer returns initially fall and then rise less than returns for other crops in subsequent years. This leads to a decline in wheat plantings to 50 million acres by the end of the projection period, continuing a long-term general downward trend since the early 1980s.

- Domestic demand for wheat reflects a relatively mature market. Food use of wheat is projected to show moderate gains, generally in line with U.S. population increases.
- Feed use of wheat, a lower value market for the crop, declines in the early years of the projections from the high volume in 2012/13. Wheat feed use remains steady through the rest of the projection period as prices relative to corn allow a moderate level of wheat in feed rations.
- U.S. wheat exports fall to under 950 million bushels annually for most of the projection period. U.S. wheat trade faces competition from the Black Sea region, whose wheat exports rise from 22 percent in 2013/14 to 30 percent of global trade over the next decade. EU wheat exports grow from a global market share of 14 percent to 15 percent by 2022/23. For the same time period, the U.S. market share declines from 19 percent to 16 percent.

### U.S. soybeans: Domestic use and exports

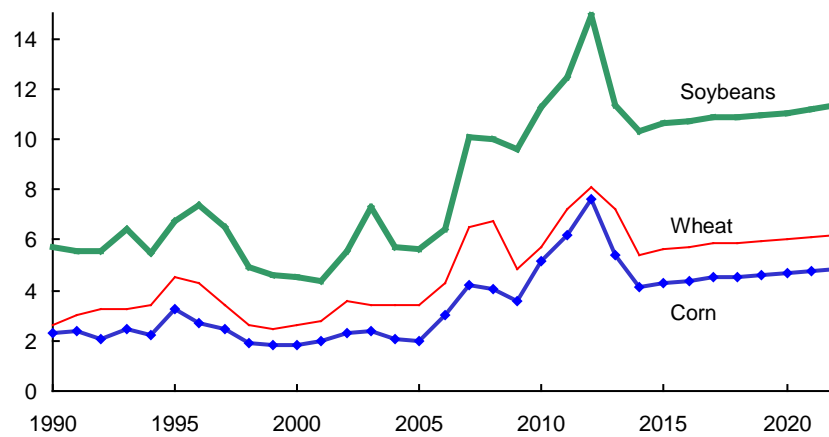


U.S. soybean plantings decline from high levels of 2012 during the initial years of the projections, as prices and producer returns fall. Over the rest of the projection period, growth in both domestic use and export demand lead to increases in prices and returns. Soybean plantings increase somewhat before remaining steady toward the end of the projections.

- Lower U.S. livestock production since the 2008 peak and increased availability of distillers grains and canola meal have lowered demand for soybean meal as a livestock feed in recent years, thereby generally reducing domestic soybean crush. As increases in meat production resume, soybean crush is projected to follow.
- Strong global demand for soybeans, particularly in China, boosts soybean trade over the projection period—China accounts for almost 90 percent of the increase in world soybean imports. Even though U.S. soybean exports are projected to rise, competition from South America leads to a reduction in the U.S. share of global soybean trade from 39 percent in 2013/14 to about 30 percent by 2022/23.
- U.S. exports of soybean oil and soybean meal also face strong competition from South America. Argentina, in particular, is a competitive exporter of soybean products because its graduated export taxes favor exports of soybean products over soybeans. Strong growth in biodiesel production in Argentina, however, limits the country's soybean oil export growth, allowing the U.S. global trade market share to increase. However, Argentina is projected to account for more than half of global trade of soybean meal and captures most of the gain in global soybean meal trade over the next decade.
- Soybean oil used to produce methyl esters (biodiesel) in the United States grows to 6.3 billion pounds by the end of the projection period, representing about 29 percent of total use of U.S. soybean oil and supporting the production of over 800 million gallons of biodiesel. This growth is spurred by the mandate of 1.28 billion gallons of biomass-based diesel use starting in 2013 and by demand for biodiesel to meet a portion of the Renewable Fuel Standard's advanced biofuel mandate. Corn oil coproducts from ethanol plants (including corn oil extracted from distillers grains), other first-use vegetable oils, animal fats, and recycled vegetable oils are also used as feedstocks to produce biodiesel. Growth in the food use of soybean oil slows as projected imports expand for other vegetable oils.

### U.S. farm-level prices: Corn, wheat, and soybeans

Dollars per bushel

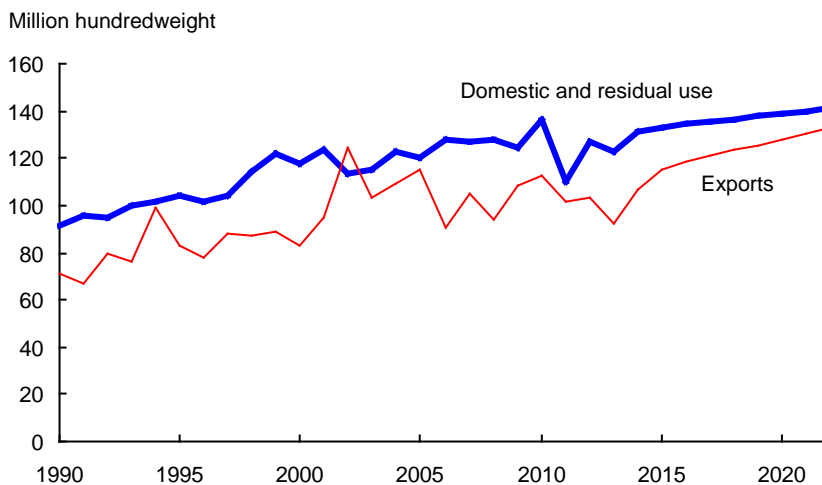


Weather has been an important factor affecting global wheat, corn and, and soybean production over the past several years, leading to increases in grain and oilseed prices since 2009/10. Market responses to these high prices are projected to reduce prices over the next couple of years. Nonetheless, U.S. prices for corn, wheat, and soybeans are projected to remain historically high, above pre-2007 levels. The continuing influence of several long-term factors—including global growth in population and per capita income, a depreciating U.S. dollar, increasing costs for crude petroleum, and rising biofuel production—underlies these price projections.

- After declining from their current high levels, corn prices are projected to begin increasing again by 2015/16 due to growth in feed use, exports, and demand for corn by ethanol producers.
- Strengthening demand for soybeans and soybean products holds soybean prices high throughout the projection period. Similar to the price projections for corn, after near-term market adjustments reduce soybean prices from recent highs, prices for soybeans rise moderately after 2014/15 through the rest of the projection period.
- Wheat prices also decline through 2014/15 reflecting near-term market adjustments. Subsequent projected price increases for wheat are more moderate than those for corn, reflecting relatively smaller gains in use.



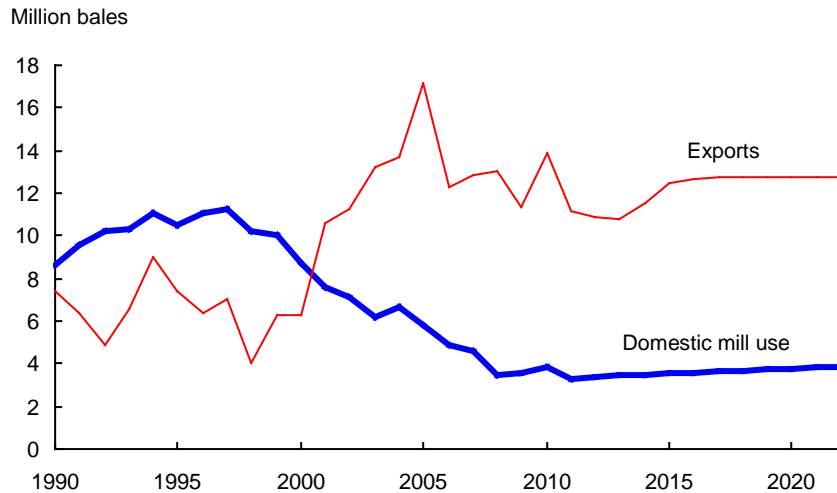
### U.S. rice: Domestic and residual use and exports



Competition from other crops is projected to keep U.S. acreage planted to all rice from increasing in 2013. While a small area increase is projected for medium- and short-grain rice, long-grain rice plantings fall. With lower relative prices for competing crops in subsequent years, rice area rises through the rest of the projection period.

- Domestic use of rice is projected to grow slightly faster than population growth. Moderate expansion in U.S. food use of rice is projected to continue over the next decade. U.S. rice imports are projected to expand over the next decade, but at a slower rate than in the past. Asian aromatic varieties, classified as long-grain rice, are expected to continue to account for the bulk of U.S. purchases
- U.S. rice exports are projected to rebound from a low level in 2013/14 and then increase over the next decade. Continued growth of U.S. rough-rice exports to Latin America (nearly all long-grain rice) is projected to account for most of the overall expansion of U.S. rice exports. Overall, the U.S. market share of global rice trade holds near 9 percent over most of the projection period.
- After near-term market adjustments, prices for rice are projected to rise after 2014/15. Long-run gains in producer returns after 2014 support rising U.S. rice acreage.

### U.S. upland cotton: Domestic mill use and exports

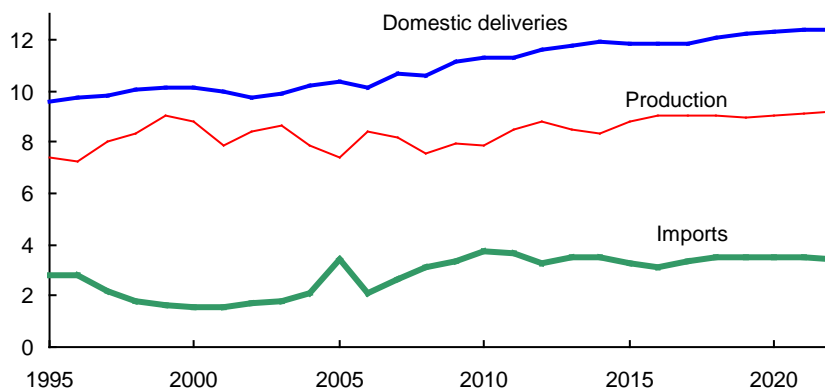


Lower cotton prices following the runup of 2010/11-2011/12 initially lead to a reduction in upland cotton plantings in 2013 as competing crops have higher expected returns. As prices and returns for competing crops decline over the next several years, cotton plantings rise through 2015. However, with cotton yields and cotton prices rising only moderately in subsequent years, producer returns hold stable and decline relative to those of other crops, so upland cotton plantings decline over the rest of the projection period. U.S. mill use of upland cotton is projected to rise moderately in the projections while cotton exports initially rise before leveling off after 2016/17.

- A decline in U.S. mill use of cotton since the late 1990s reflected a gradual, long-term movement of spinning capacity to developing countries. Continued increases in U.S. imports of apparel from Asia will reduce domestic apparel production and lower the apparel industry's demand for fabric and yarn produced in the United States. However, U.S. mill use is projected to grow somewhat over the next decade in response to rising demand for U.S. textile product exports, mainly to other countries in the Western Hemisphere. Nonetheless, even with this growth, however, domestic mill use is projected to represent about 23 percent of total use at the end of the projection period, down from more than 60 percent in the late 1990s.
- U.S. upland cotton exports are projected to rise over the initial years of the projections from low levels of 2011/12-2013/14, before leveling off after 2016/17. While the U.S. share of global cotton trade initially rises, this share declines later in the projection period. Nonetheless, with a global trade share projected at 32 percent in 2022/23, the United States remains the world's largest exporter of cotton.

### U.S. sugar: Domestic production, use, and imports

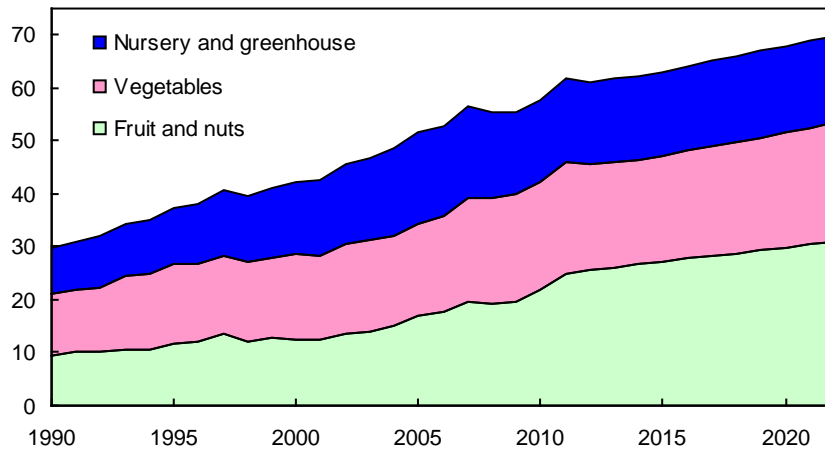
Million short tons



- Moderate growth is projected for U.S. beet and cane sugar production over the next decade. Beet sugar production levels in the first two years of the projections are low, at an annual average of 4.752 million short tons, raw value (STRV) due to lower sugarbeet prices relative to prices for alternative crops. Beet sugar production in 2022/23 is projected at 5.319 million STRV, about 4.20 percent higher than in 2012/13. Cane sugar production in 2022/23 is projected at 3.864 million STRV, about 3.87 percent higher than in 2012/13.
- Over the projection period, sweetener availability (the sum of refined sugar, sugar in net imported products, and high fructose corn syrup (HFCS)) is 119 pounds per capita. There is only limited substitution between sugar and HFCS as a function of relative prices. Sugar deliveries for human use average 11.854 million STRV over the projection period, with annual growth of about 0.7 percent a year.
- Beet sugar production averages 345,000 STRV below its average share of the Overall Allotment Quantity (OAQ) under the sugar marketing allotment program. In no year does beet sugar production exceed its OAQ share. Cane sugar production averages 839,000 STRV below its average OAQ share. Production levels in all cane sugar producing States remain below their OAQ shares.
- Sugar imports from Mexico rose sharply starting in 2008 when duty-free sweetener trade between the United States and Mexico began, and are projected to average 1.516 million STRV over the next decade, representing about 12.8 percent of U.S. domestic sugar consumption. Two conditions in Mexico underlie this projection. First, beverage and food manufacturers in Mexico continue to expand the substitution of lower cost HFCS (except for the first two years of the projection period) for domestic sugar. Second, remunerative prices in Mexico favor modest expansion of sugarcane area and increased sugar production. It is assumed that Mexico will not import sugar from third nations to replenish low sugar supplies caused by large exports to the U.S. market.
- Tariff-rate quota (TRQ) sugar imports from U.S. commitments made to the World Trade Organization (WTO) and to several Free Trade Agreements (FTAs) average 1.444 million STRV. It is assumed that TRQ import levels are not increased during any year from initially established levels consistent with WTO and FTA minimum access commitments.
- There are no sugar loan forfeitures and there are no Commodity Credit Corporation (CCC) purchases of sugar for ethanol in the projections because projected raw cane and refined beet sugar prices remain above the minimum prices to avoid forfeiture.

## Value of U.S. horticultural production

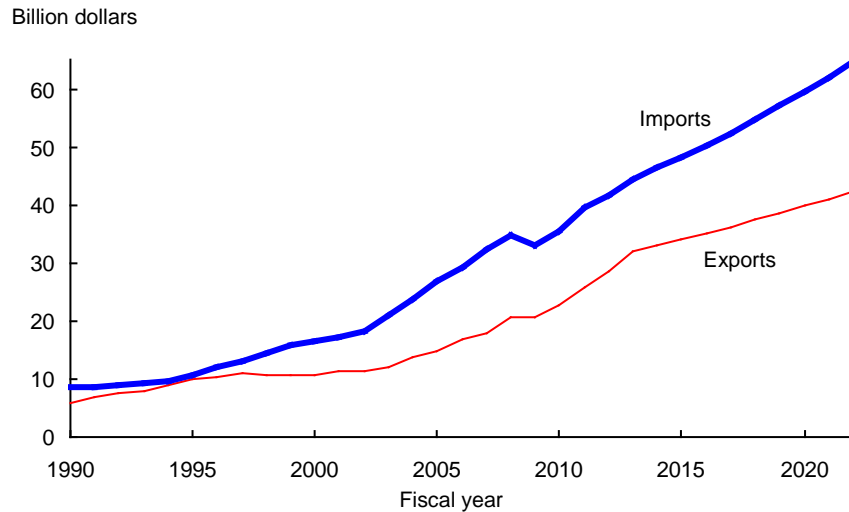
Billion dollars



Farm sales of horticultural crops are projected to grow by 1.4 percent annually over the next decade, reaching \$71 billion in calendar year 2022, up from \$62 billion in 2012.

- The value of farm production of fruit and tree nuts is projected to grow at an annual rate of 2 percent over the next decade, largely due to sales growth of tree nuts and noncitrus fruits. Fruit and tree nuts are projected to rank first among horticultural crops in terms of farm sales value with a share of 44 percent. Farm sales value of vegetables and pulses is projected to grow 1.2 percent per year, led by fresh-market vegetables, while farm sales of greenhouse and nursery crops are projected to increase at an annual rate of 0.5 percent.
- The volume of U.S. farm production of horticultural crops is projected to rise by 0.4 percent annually. Vegetables lead this growth at an annual rate of 0.5 percent, reaching 131 billion pounds in 2022 as fresh-market production averages 1.6-percent growth. Fruit and nut production expands by 0.1 percent per year to 71 billion pounds in 2022 as noncitrus production growth more than offsets citrus production decline.
- Producer prices for vegetables are projected to rise at 0.7 percent per year due to strong fresh-market vegetable production. Producer prices for fresh fruits rise by 1.8 percent per year due to slower production growth than for vegetables and due to higher citrus prices as citrus production declines.
- U.S. per capita use of fruits and tree nuts increases from 287 pounds in 2012 to 295 pounds by 2022, an annual average growth rate of 0.3 percent. Per capita use of vegetables initially drops in 2013 due to a smaller potato crop then levels off to an average 406 pounds. The total supply of fruits, nuts, and vegetables over the next decade, both domestic and imported, is projected to grow at an average rate of 1.1 percent per year.

### Value of U.S. horticultural trade



The U.S. trade deficit in horticultural crops and products is projected to expand from \$12.4 billion in fiscal year 2012 to \$22.1 billion in fiscal year 2022.

- Imports increasingly supplement domestic production of horticultural crops and products. By 2022, imports are projected to supply 52 percent of domestic fruit and nut use and 24 percent of vegetable use, in terms of farm weight. In 2012, these shares were 44 percent and 19 percent, respectively.
- The export market becomes more important for U.S. horticultural producers. In 2022, exports are projected to be the destination for 27 percent of U.S. fruit and nut production, up from 23 percent in 2012, while 21 percent of vegetable production will be sold in foreign markets, up from 16 percent in 2012.
- The value of U.S. horticultural imports is projected to increase by 4.5 percent annually over the next decade, compared with 8.0 percent on average during the past decade, reaching \$64.5 billion in fiscal year 2022 (fiscal 2022 covers October 2021-September 2022). Fruit and nut imports account for \$21.3 billion, while vegetable imports account for \$15.8 billion.
- Exports of U.S. horticultural products are projected to reach \$42.4 billion in fiscal year 2022. Of this amount, fruit and nuts contribute \$20.8 billion, and vegetables contribute \$8.2 billion.

Table 17. Acreage for major field crops and Conservation Reserve Program (CRP) assumptions, long-term projections

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<i>Million acres</i>												
Planted acreage, eight major crops												
Corn	91.9	96.9	96.0	90.0	86.0	88.0	89.0	90.0	90.5	91.0	91.5	92.0
Sorghum	5.5	6.2	7.0	6.2	6.0	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Barley	2.6	3.6	3.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Oats	2.5	2.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Wheat	54.4	55.7	57.5	54.0	51.0	51.0	51.0	50.5	50.5	50.5	50.5	50.0
Rice	2.7	2.7	2.7	3.1	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Upland cotton	14.4	12.1	9.3	10.5	11.3	11.0	10.9	10.8	10.8	10.7	10.7	10.6
Soybeans	75.0	77.2	76.0	74.0	75.0	75.5	76.0	76.0	76.0	76.0	76.0	76.0
Total	249.0	257.2	254.4	243.3	237.9	240.0	241.4	241.8	242.3	242.7	243.2	243.1
Harvested acreage, eight major crops												
Corn	84.0	87.7	88.3	82.3	78.3	80.3	81.3	82.3	82.8	83.3	83.8	84.3
Sorghum	3.9	5.0	6.0	5.3	5.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Barley	2.2	3.2	3.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Oats	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Wheat	45.7	49.0	48.5	46.2	43.7	43.7	43.7	43.2	43.2	43.2	43.2	42.8
Rice	2.6	2.7	2.6	3.1	3.1	3.1	3.1	3.1	3.2	3.2	3.2	3.2
Upland cotton	9.2	10.2	7.9	9.2	9.9	9.7	9.6	9.5	9.5	9.4	9.4	9.3
Soybeans	73.8	75.7	75.1	73.1	74.1	74.6	75.1	75.1	75.1	75.1	75.1	75.1
Total	222.3	234.5	232.4	222.8	217.9	220.0	221.4	221.8	222.4	222.8	223.3	223.3
CRP acreage assumptions, crop allocation based on historical plantings <sup>1</sup>												
Corn	5.4	5.1	4.8	4.8	4.9	5.1	5.3	5.4	5.5	5.5	5.5	5.5
Sorghum	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8	0.8
Barley	0.6	0.6	0.5	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
Oats	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Wheat	8.0	7.6	7.1	7.1	7.3	7.5	7.8	8.0	8.2	8.2	8.2	8.2
Cotton	1.2	1.1	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2
Soybeans	4.5	4.3	4.0	4.0	4.1	4.3	4.4	4.5	4.6	4.6	4.6	4.6
Subtotal	20.8	19.7	18.3	18.5	19.0	19.6	20.4	20.8	21.2	21.3	21.3	21.3
Other	10.4	9.8	9.2	9.3	9.5	9.8	10.2	10.4	10.6	10.7	10.6	10.6
Total CRP	31.1	29.5	27.5	27.8	28.5	29.4	30.5	31.2	31.8	32.0	31.9	31.9
Total planted plus CRP	280.1	286.7	281.9	271.1	266.4	269.4	271.9	272.9	274.1	274.7	275.2	275.1

1/ CRP crop allocations are based on 2010 planted acreage by State (NASS).

Table 18. U.S. corn long-term projections

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (million acres):												
Planted acres	91.9	96.9	96.0	90.0	86.0	88.0	89.0	90.0	90.5	91.0	91.5	92.0
Harvested acres	84.0	87.7	88.3	82.3	78.3	80.3	81.3	82.3	82.8	83.3	83.8	84.3
Yield:												
Bushels/harvested acre	147.2	122.3	163.5	165.4	167.4	169.3	171.3	173.2	175.1	177.1	179.0	181.0
Supply and use (million bushels):												
Beginning stocks	1,128	988	647	2,067	2,232	1,817	1,672	1,617	1,627	1,617	1,592	1,547
Production	12,358	10,725	14,435	13,610	13,105	13,595	13,925	14,255	14,500	14,750	15,000	15,260
Imports	29	100	25	25	25	25	25	25	25	25	25	25
Supply	13,515	11,814	15,107	15,702	15,362	15,437	15,622	15,897	16,152	16,392	16,617	16,832
Feed & residual	4,547	4,150	5,250	5,300	5,250	5,375	5,475	5,575	5,650	5,725	5,800	5,875
Food, seed, & industrial	6,437	5,867	6,090	6,270	6,295	6,340	6,405	6,495	6,610	6,725	6,845	6,960
Ethanol and by-products	5,011	4,500	4,675	4,825	4,825	4,850	4,900	4,975	5,075	5,175	5,275	5,375
Domestic use	10,984	10,017	11,340	11,570	11,545	11,715	11,880	12,070	12,260	12,450	12,645	12,835
Exports	1,543	1,150	1,700	1,900	2,000	2,050	2,125	2,200	2,275	2,350	2,425	2,500
Total use	12,527	11,167	13,040	13,470	13,545	13,765	14,005	14,270	14,535	14,800	15,070	15,335
Ending stocks	988	647	2,067	2,232	1,817	1,672	1,617	1,627	1,617	1,592	1,547	1,497
Stocks/use ratio, percent	7.9	5.8	15.9	16.6	13.4	12.1	11.5	11.4	11.1	10.8	10.3	9.8
Price (dollars per bushel):												
Farm price	6.22	7.60	5.40	4.10	4.30	4.40	4.50	4.55	4.60	4.65	4.75	4.85
Variable costs of production (dollars):												
Per acre	335	348	349	349	349	352	358	364	371	377	384	390
Returns over variable costs (dollars per acre):												
Net returns	580	582	534	329	371	393	413	424	435	446	466	487

Note: Marketing year beginning September 1 for corn.

Table 19. U.S. sorghum long-term projections

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (million acres):												
Planted acres	5.5	6.2	7.0	6.2	6.0	5.8	5.8	5.8	5.8	5.8	5.8	5.8
Harvested acres	3.9	5.0	6.0	5.3	5.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Yield:												
Bushels/harvested acre	54.6	51.1	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3	65.3
Supply and use (million bushels):												
Beginning stocks	27	23	24	56	52	52	49	46	43	40	42	44
Production	214	256	392	346	340	327	327	327	327	327	327	327
Imports	0	0	0	0	0	0	0	0	0	0	0	0
Supply	242	279	416	402	392	379	376	373	370	367	369	371
Feed & residual	71	75	80	80	75	70	70	70	70	65	65	65
Food, seed, & industrial	85	80	90	90	90	90	90	90	90	90	90	90
Domestic use	156	155	170	170	165	160	160	160	160	155	155	155
Exports	63	100	190	180	175	170	170	170	170	170	170	170
Total use	219	255	360	350	340	330	330	330	330	325	325	325
Ending stocks	23	24	56	52	52	49	46	43	40	42	44	46
Stocks/use ratio, percent	10.5	9.4	15.6	14.9	15.3	14.8	13.9	13.0	12.1	12.9	13.5	14.2
Price (dollars per bushel):												
Farm price	5.99	7.20	5.05	3.85	4.00	4.10	4.20	4.25	4.30	4.35	4.45	4.55
Variable costs of production (dollars):												
Per acre	167	170	171	171	171	174	177	180	184	188	191	195
Returns over variable costs (dollars per acre):												
Net returns	160	197	159	81	90	94	97	97	97	96	99	102

Note: Marketing year beginning September 1 for sorghum.



Table 20. U.S. barley long-term projections

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (million acres):												
Planted acres	2.6	3.6	3.4	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Harvested acres	2.2	3.2	3.0	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Yield:												
Bushels/harvested acre	69.6	67.9	68.9	69.5	70.1	70.7	71.3	71.9	72.5	73.1	73.7	74.3
Supply and use (million bushels):												
Beginning stocks	89	60	80	87	83	80	79	79	81	80	80	82
Production	156	220	207	181	182	184	185	187	189	190	192	193
Imports	16	20	20	20	20	20	20	20	20	20	20	20
Supply	261	300	307	288	285	284	284	286	290	290	292	295
Feed & residual	38	55	55	40	40	40	40	40	45	45	45	50
Food, seed, & industrial	155	155	155	155	155	155	155	155	155	155	155	155
Domestic use	193	210	210	195	195	195	195	195	200	200	200	205
Exports	9	10	10	10	10	10	10	10	10	10	10	10
Total use	201	220	220	205	205	205	205	205	210	210	210	215
Ending stocks	60	80	87	83	80	79	79	81	80	80	82	80
Stocks/use ratio, percent	29.9	36.4	39.5	40.5	39.0	38.5	38.5	39.5	38.1	38.1	39.0	37.2
Price (dollars per bushel):												
Farm price	5.35	6.45	5.50	4.15	4.30	4.40	4.45	4.50	4.55	4.60	4.70	4.75
Variable costs of production (dollars):												
Per acre	164	169	169	169	170	172	175	178	182	185	189	193
Returns over variable costs (dollars per acre):												
Net returns	208	269	210	119	132	139	143	145	148	151	158	160

Note: Marketing year beginning June 1 for barley.

Table 21. U.S. oats long-term projections

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (million acres):												
Planted acres	2.5	2.8	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Harvested acres	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Yield:												
Bushels/harvested acre	57.1	61.3	65.8	66.2	66.6	67.0	67.5	67.9	68.3	68.7	69.1	69.5
Supply and use (million bushels):												
Beginning stocks	68	55	50	51	52	53	54	56	57	58	60	57
Production	54	64	66	66	67	67	68	68	68	69	69	70
Imports	94	95	100	100	100	100	100	100	100	100	100	100
Supply	215	214	216	217	219	220	222	224	225	227	229	227
Feed & residual	82	85	85	85	85	85	85	85	85	85	90	90
Food, seed, & industrial	76	76	77	77	78	78	78	79	79	79	79	79
Domestic use	158	161	162	162	163	163	163	164	164	164	169	169
Exports	2	3	3	3	3	3	3	3	3	3	3	3
Total use	160	164	165	165	166	166	166	167	167	167	172	172
Ending stocks	55	50	51	52	53	54	56	57	58	60	57	55
Stocks/use ratio, percent	34.4	30.5	30.9	31.5	31.9	32.5	33.7	34.1	34.7	35.9	33.1	32.0
Price (dollars per bushel):												
Farm price	3.49	3.80	2.80	2.25	2.40	2.45	2.50	2.55	2.60	2.65	2.70	2.75
Variable costs of production (dollars):												
Per acre	114	116	116	116	117	118	120	123	125	128	130	133
Returns over variable costs (dollars per acre):												
Net returns	86	116	68	33	43	46	49	51	52	54	56	58

Note: Marketing year beginning June 1 for oats.

Table 22. U.S. wheat long-term projections

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (million acres):												
Planted acres	54.4	55.7	57.5	54.0	51.0	51.0	51.0	50.5	50.5	50.5	50.5	50.0
Harvested acres	45.7	49.0	48.5	46.2	43.7	43.7	43.7	43.2	43.2	43.2	43.2	42.8
Yield:												
Bushels/harvested acre	43.7	46.3	45.2	45.6	45.9	46.3	46.7	47.1	47.4	47.8	48.2	48.6
Supply and use (million bushels):												
Beginning stocks	862	743	704	733	804	778	765	761	745	737	737	745
Production	1,999	2,269	2,190	2,105	2,005	2,025	2,040	2,035	2,050	2,065	2,080	2,080
Imports	112	130	120	125	130	135	140	140	140	140	140	140
Supply	2,974	3,142	3,014	2,963	2,939	2,938	2,945	2,936	2,935	2,942	2,957	2,965
Food	941	950	958	965	972	979	986	993	1,000	1,007	1,014	1,021
Seed	76	73	73	69	69	69	68	68	68	68	68	68
Feed & residual	164	315	250	200	190	190	190	190	190	190	190	190
Domestic use	1,182	1,338	1,281	1,234	1,231	1,238	1,244	1,251	1,258	1,265	1,272	1,279
Exports	1,050	1,100	1,000	925	930	935	940	940	940	940	940	940
Total use	2,231	2,438	2,281	2,159	2,161	2,173	2,184	2,191	2,198	2,205	2,212	2,219
Ending stocks	743	704	733	804	778	765	761	745	737	737	745	746
Stocks/use ratio, percent	33.3	28.9	32.1	37.2	36.0	35.2	34.8	34.0	33.5	33.4	33.7	33.6
Price (dollars per bushel):												
Farm price	7.24	8.10	7.20	5.40	5.65	5.75	5.85	5.90	5.95	6.00	6.10	6.20
Variable costs of production (dollars):												
Per acre	123	126	127	127	127	129	131	133	136	139	141	144
Returns over variable costs (dollars per acre):												
Net returns	194	249	199	120	132	138	142	145	146	148	153	157

Note: Marketing year beginning June 1 for wheat.

Table 23. U.S. soybeans and products long-term projections

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
<b>Soybeans</b>												
Area (million acres):												
Planted	75.0	77.2	76.0	74.0	75.0	75.5	76.0	76.0	76.0	76.0	76.0	76.0
Harvested	73.8	75.7	75.1	73.1	74.1	74.6	75.1	75.1	75.1	75.1	75.1	75.1
Yield: bushels/harvested acre	41.9	39.3	44.4	44.9	45.3	45.8	46.2	46.6	47.1	47.5	48.0	48.4
Supply (million bushels)												
Beginning stocks, September 1	215	169	140	185	197	204	205	215	219	222	226	223
Production	3,094	2,971	3,335	3,280	3,360	3,415	3,470	3,505	3,535	3,570	3,600	3,635
Imports	16	20	15	15	15	15	15	15	15	15	15	15
Total supply	3,325	3,160	3,490	3,480	3,572	3,634	3,690	3,735	3,769	3,807	3,841	3,873
Disposition (million bushels)												
Crush	1,703	1,560	1,655	1,665	1,700	1,730	1,760	1,785	1,815	1,840	1,870	1,895
Seed and residual	91	115	135	137	138	139	140	141	141	142	142	143
Exports	1,362	1,345	1,515	1,480	1,530	1,560	1,575	1,590	1,590	1,600	1,605	1,610
Total disposition	3,155	3,021	3,305	3,282	3,368	3,429	3,475	3,516	3,546	3,582	3,617	3,648
Carryover stocks, August 31												
Total ending stocks	169	140	185	197	204	205	215	219	222	226	223	226
Stocks/use ratio, percent	5.4	4.6	5.6	6.0	6.1	6.0	6.2	6.2	6.3	6.3	6.2	6.2
Price (dollars per bushel)												
Soybean price, farm	12.50	14.90	11.35	10.35	10.65	10.75	10.85	10.90	10.95	11.05	11.20	11.35
Variable costs of production (dollars):												
Per acre	139	145	147	148	149	150	152	155	157	159	162	164
Returns over variable costs (dollars per acre):												
Net returns	385	440	357	317	333	342	349	353	359	365	376	385
<b>Soybean oil (million pounds)</b>												
Beginning stocks, October 1	2,425	2,540	1,520	1,555	1,530	1,555	1,630	1,700	1,710	1,770	1,820	1,915
Production	19,740	17,830	18,935	19,065	19,480	19,845	20,205	20,510	20,875	21,180	21,540	21,850
Imports	149	350	200	160	170	180	190	200	210	220	230	240
Total supply	22,314	20,720	20,655	20,780	21,180	21,580	22,025	22,410	22,795	23,170	23,590	24,005
Domestic disappearance	18,310	18,000	17,900	18,150	18,425	18,650	18,825	19,000	19,125	19,250	19,325	19,400
Biodiesel <sup>1</sup>	4,900	4,900	5,000	5,250	5,500	5,700	5,850	6,000	6,100	6,200	6,250	6,300
Food, feed, and other industrial	13,410	13,100	12,900	12,900	12,925	12,950	12,975	13,000	13,025	13,050	13,075	13,100
Exports	1,464	1,200	1,200	1,100	1,200	1,300	1,500	1,700	1,900	2,100	2,350	2,600
Total demand	19,774	19,200	19,100	19,250	19,625	19,950	20,325	20,700	21,025	21,350	21,675	22,000
Ending stocks, September 30	2,540	1,520	1,555	1,530	1,555	1,630	1,700	1,710	1,770	1,820	1,915	2,005
Soybean oil price (dollars per lb)	0.519	0.530	0.510	0.510	0.510	0.515	0.518	0.520	0.525	0.530	0.535	0.540
<b>Soybean meal (thousand short tons)</b>												
Beginning stocks, October 1	350	300	300	300	300	300	300	300	300	300	300	300
Production	41,025	37,150	39,335	39,535	40,385	41,085	41,760	42,435	43,060	43,710	44,360	45,010
Imports	216	250	165	165	165	165	165	165	165	165	165	165
Total supply	41,591	37,700	39,800	40,000	40,850	41,550	42,225	42,900	43,525	44,175	44,825	45,475
Domestic disappearance	31,550	29,500	29,750	30,200	30,750	31,250	31,725	32,200	32,675	33,175	33,675	34,175
Exports	9,741	7,900	9,750	9,500	9,800	10,000	10,200	10,400	10,550	10,700	10,850	11,000
Total demand	41,291	37,400	39,500	39,700	40,550	41,250	41,925	42,600	43,225	43,875	44,525	45,175
Ending stocks, September 30	300	300	300	300	300	300	300	300	300	300	300	300
Soybean meal price (dollars per ton)	393.53	470.00	315.00	260.00	262.00	265.00	269.00	270.50	271.50	274.00	278.50	283.00
<b>Crushing yields (pounds per bushel)</b>												
Soybean oil	11.59	11.43	11.44	11.45	11.46	11.47	11.48	11.49	11.50	11.51	11.52	11.53
Soybean meal	48.18	47.64	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
Crush margin (dollars per bushel)	3.00	2.35	1.97	1.66	1.42	1.45	1.48	1.50	1.54	1.56	1.58	1.60

Note: Marketing year beginning September 1 for soybeans; October 1 for soybean oil and soybean meal.

1/ History based on data reported by the U.S. Department of Energy, Energy Information Administration.

Table 24a. U.S. rice long-term projections, total rice, rough basis

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (thousand acres):												
Planted	2,689	2,699	2,650	3,090	3,125	3,150	3,165	3,180	3,195	3,205	3,210	3,215
Harvested	2,618	2,677	2,621	3,056	3,091	3,116	3,130	3,145	3,160	3,170	3,175	3,180
Yield:												
Pounds/harvested acre	7,067	7,417	7,318	7,320	7,389	7,462	7,530	7,603	7,674	7,741	7,805	7,871
Supply and use (million hundredweight):												
Beginning stocks	48.5	41.1	30.1	27.5	34.3	35.9	37.2	37.7	38.6	40.0	41.1	41.4
Production	185.0	198.5	191.8	223.7	228.4	232.5	235.7	239.1	242.5	245.4	247.8	250.3
Imports	19.4	20.5	20.6	20.7	21.0	21.3	21.5	21.8	22.1	22.4	22.7	23.4
Total supply	252.8	260.1	242.5	271.9	283.7	289.7	294.4	298.6	303.3	307.8	311.6	315.0
Domestic use and residual	110.2	127.0	123.0	131.1	132.7	134.3	135.4	136.5	137.6	138.8	140.0	141.2
Exports	101.6	103.0	92.0	106.5	115.1	118.2	121.3	123.5	125.7	127.9	130.2	132.5
Total use	211.8	230.0	215.0	237.6	247.8	252.5	256.7	260.0	263.3	266.7	270.2	273.7
Ending stocks	41.1	30.1	27.5	34.3	35.9	37.2	37.7	38.6	40.0	41.1	41.4	41.0
Stocks/use ratio, percent	19.4	13.1	12.8	14.4	14.5	14.7	14.7	14.9	15.2	15.4	15.3	15.0
Price (dollars per hundredweight):												
Average farm price	14.30	15.00	15.20	14.80	15.10	15.30	15.60	15.80	16.10	16.30	16.60	16.90
Variable costs of production (dollars):												
Per acre	546	562	566	568	571	577	587	597	608	619	630	642
Returns over variable costs (dollars per acre):												
Net returns	465	551	546	516	545	564	588	604	627	643	665	689

Note: Marketing year beginning August 1 for rice.

Table 24b. U.S. rice long-term projections, long-grain rice, rough basis

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (thousand acres):												
Planted	1,794	1,989	1,900	2,325	2,350	2,370	2,380	2,390	2,400	2,405	2,410	2,415
Harvested	1,740	1,973	1,877	2,297	2,322	2,342	2,351	2,361	2,371	2,376	2,381	2,386
Yield:												
Pounds/harvested acre	6,691	7,088	7,015	7,056	7,138	7,221	7,300	7,379	7,459	7,533	7,608	7,683
Supply and use (million hundredweight):												
Beginning stocks	35.6	24.3	15.1	13.8	20.9	22.3	23.2	23.4	23.8	24.6	25.1	25.3
Production	116.4	139.8	131.7	162.1	165.7	169.1	171.6	174.2	176.9	179.0	181.1	183.3
Imports	16.9	18.0	18.0	18.0	18.2	18.4	18.5	18.7	18.9	19.1	19.3	19.5
Total supply	169.0	182.1	164.8	193.9	204.8	209.7	213.4	216.3	219.6	222.7	225.5	228.1
Domestic use & residual	77.9	95.0	91.0	99.0	100.5	102.0	103.0	104.0	105.0	106.1	107.2	108.3
Exports	66.8	72.0	60.0	74.0	82.0	84.5	87.0	88.5	90.0	91.5	93.0	94.5
Total use	144.8	167.0	151.0	173.0	182.5	186.5	190.0	192.5	195.0	197.6	200.2	202.8
Ending stocks	24.3	15.1	13.8	20.9	22.3	23.2	23.4	23.8	24.6	25.1	25.3	25.3
Stocks/use ratio, percent	16.8	9.0	9.1	12.1	12.2	12.5	12.3	12.4	12.6	12.7	12.7	12.5
Price (dollars per hundredweight):												
Average farm price	13.40	14.20	14.70	14.00	14.20	14.50	14.70	15.00	15.20	15.50	15.70	16.00

Note: Marketing year beginning August 1 for rice.

Table 24c. U.S. rice long-term projections, medium- and short-grain rice, rough basis

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (thousand acres):												
Planted	895	710	750	765	775	780	785	790	795	800	800	800
Harvested	878	704	744	759	769	774	779	784	789	794	794	794
Yield:												
Pounds/harvested acre	7,812	8,339	8,075	8,114	8,153	8,194	8,234	8,275	8,316	8,357	8,399	8,440
Supply and use (million hundredweight):												
Beginning stocks	10.1	14.7	12.9	11.6	11.3	11.5	11.8	12.2	12.7	13.2	13.8	13.9
Production	68.6	58.7	60.1	61.6	62.7	63.4	64.1	64.9	65.6	66.4	66.7	67.0
Imports	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.4	3.5
Total supply	81.7	75.9	75.6	75.9	76.8	77.8	78.9	80.2	81.5	82.9	83.9	84.4
Domestic use & residual	32.2	32.0	32.0	32.1	32.2	32.3	32.4	32.5	32.6	32.7	32.8	32.9
Exports	34.8	31.0	32.0	32.5	33.1	33.7	34.3	35.0	35.7	36.4	37.2	38.0
Total use	67.0	63.0	64.0	64.6	65.3	66.0	66.7	67.5	68.3	69.1	70.0	70.9
Ending stocks	14.7	12.9	11.6	11.3	11.5	11.8	12.2	12.7	13.2	13.8	13.9	13.5
Stocks/use ratio, percent	21.9	20.5	18.1	17.5	17.6	17.9	18.3	18.8	19.3	20.0	19.9	19.0
Price (dollars per hundredweight):												
Average farm price	16.50	17.00	16.50	16.70	17.00	17.30	17.50	17.80	18.00	18.30	18.60	18.90

Note: Marketing year beginning August 1 for rice.

Table 25. U.S. upland cotton long-term projections

Item	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Area (million acres):												
Planted acres	14.4	12.1	9.3	10.5	11.3	11.0	10.9	10.8	10.8	10.7	10.7	10.6
Harvested acres	9.2	10.2	7.9	9.2	9.9	9.7	9.6	9.5	9.5	9.4	9.4	9.3
Yield:												
Pounds/harvested acre	772	790	800	805	810	815	820	825	830	835	840	845
Supply and use (thousand bales):												
Beginning stocks	2,572	3,081	5,624	4,644	5,064	5,734	5,954	5,974	5,844	5,764	5,634	5,554
Production	14,722	16,790	13,200	15,400	16,700	16,500	16,400	16,300	16,400	16,400	16,500	16,400
Imports	13	5	5	5	5	5	5	5	5	5	5	5
Supply	17,307	19,876	18,829	20,049	21,769	22,239	22,359	22,279	22,249	22,169	22,139	21,959
Domestic use	3,278	3,375	3,425	3,475	3,525	3,575	3,625	3,675	3,725	3,775	3,825	3,875
Exports	11,120	10,875	10,750	11,500	12,500	12,700	12,750	12,750	12,750	12,750	12,750	12,750
Total use	14,398	14,250	14,175	14,975	16,025	16,275	16,375	16,425	16,475	16,525	16,575	16,625
Ending stocks	3,081	5,624	4,644	5,064	5,734	5,954	5,974	5,844	5,764	5,634	5,554	5,324
Stocks/use ratio, percent	21.4	39.5	32.8	33.8	35.8	36.6	36.5	35.6	35.0	34.1	33.5	32.0
Price (dollars per pound):												
Farm price	0.883	0.680	0.680	0.685	0.690	0.695	0.700	0.705	0.710	0.715	0.720	0.725
Variable costs of production (dollars):												
Per acre	480	525	540	544	549	555	564	574	585	595	606	617
Returns over variable costs (dollars per acre):												
Net returns	366	184	157	155	161	164	165	165	165	164	165	165

Note: Marketing year beginning August 1 for upland cotton.

Table 26. U.S. sugar long-term projections

Item	Units	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
<b>Sugarbeets</b>													
Planted area	1,000 acres	1,233	1,244	1,137	1,097	1,169	1,209	1,201	1,177	1,160	1,152	1,152	1,155
Harvested area	1,000 acres	1,213	1,215	1,095	1,058	1,126	1,165	1,157	1,134	1,117	1,110	1,110	1,113
Yield	Tons/acre	23.8	29.3	26.3	26.5	26.6	26.7	26.8	26.9	27.0	27.1	27.2	27.3
Production	Mil. s. tons	28.8	35.6	28.9	28.0	30.0	31.1	31.0	30.5	30.2	30.1	30.2	30.4
<b>Sugarcane</b>													
Harvested area	1,000 acres	828	849	834	834	840	845	842	839	837	836	838	840
Yield	Tons/acre	33.7	35.7	35.8	35.9	36.0	36.2	36.4	36.6	36.8	36.9	37.1	37.3
Production	Mil. s. tons	27.9	30.4	29.9	29.9	30.3	30.6	30.6	30.7	30.8	30.9	31.1	31.3
<b>Supply:</b>													
Beginning stocks	1,000 s. tons	1,378	2,007	2,216	2,136	1,818	1,738	1,817	2,041	2,186	2,197	2,121	2,035
Production	1,000 s. tons	8,482	8,825	8,461	8,360	8,759	9,016	9,042	8,995	8,983	9,017	9,092	9,183
Beet sugar	1,000 s. tons	4,894	5,105	4,808	4,695	5,048	5,265	5,281	5,224	5,197	5,212	5,259	5,319
Cane sugar	1,000 s. tons	3,587	3,720	3,653	3,664	3,711	3,751	3,762	3,772	3,786	3,806	3,833	3,864
Total imports	1,000 s. tons	3,632	3,249	3,513	3,516	3,288	3,137	3,328	3,478	3,517	3,497	3,469	3,462
TRQ imports	1,000 s. tons	1,883	1,289	1,328	1,451	1,454	1,460	1,463	1,397	1,470	1,472	1,473	1,474
Imports from Mexico	1,000 s. tons	1,071	1,500	1,725	1,605	1,374	1,217	1,405	1,621	1,586	1,566	1,536	1,528
Other imports	1,000 s. tons	677	460	460	460	460	460	460	460	460	460	460	460
Total supply	1,000 s. tons	13,492	14,081	14,191	14,012	13,865	13,890	14,187	14,514	14,686	14,712	14,682	14,680
<b>Use:</b>													
Exports	1,000 s. tons	269	275	275	275	275	275	275	275	275	275	275	275
Domestic deliveries	1,000 s. tons	11,313	11,590	11,779	11,919	11,852	11,798	11,871	12,060	12,214	12,316	12,372	12,406
Miscellaneous	1,000 s. tons	-98	0	0	0	0	0	0	0	0	0	0	0
Total use	1,000 s. tons	11,485	11,865	12,054	12,194	12,127	12,073	12,146	12,335	12,489	12,591	12,647	12,681
CCC surplus disbursements <sup>1</sup>	1,000 s. tons	0	0	0	0	0	0	0	0	0	0	0	0
Ending stocks	1,000 s. tons	2,007	2,216	2,136	1,818	1,738	1,817	2,041	2,186	2,197	2,121	2,035	1,999
<b>Raw sugar price:</b>													
New York (No. 16)	Cents/lb.	27.93	22.12	24.05	29.76	33.05	28.64	25.83	24.71	24.92	26.19	27.96	28.43
Raw sugar loan rate	Cents/lb.	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75	18.75
Beet sugar loan rate	Cents/lb.	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09	24.09
<b>Grower prices:</b>													
Sugarbeets	Dol./ton	67.80	58.38	54.89	59.65	65.96	66.31	62.04	59.23	58.42	59.32	61.31	62.95
Sugarcane	Dol./ton	47.10	39.38	40.66	45.50	48.38	45.46	43.03	41.97	42.10	43.19	44.72	45.23

Note: Marketing year beginning October 1 for sugar.

<sup>1</sup>/CCC is the Commodity Credit Corporation, U.S. Department of Agriculture.



Table 27. Horticultural crops long-term supply and use projections, calendar years

Item	Unit	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Production area<sup>1</sup></b>													
Fruit, nuts, and vegetables	1,000 acres	9,788	10,770	10,611	10,624	10,643	10,664	10,694	10,726	10,759	10,794	10,831	10,869
Fruit and tree nuts	1,000 acres	4,037	4,017	4,012	4,008	4,005	3,995	3,987	3,978	3,970	3,962	3,955	3,947
Vegetables	1,000 acres	5,751	6,753	6,599	6,615	6,638	6,669	6,707	6,748	6,789	6,832	6,876	6,922
<b>Supply</b>													
<b>Production, farm weight</b>													
Fruit and nuts	Mil. lbs.	71,020	69,664	69,650	69,733	69,822	69,916	70,016	70,121	70,233	70,349	70,472	70,600
Citrus	Mil. lbs.	23,596	23,474	23,148	22,917	22,687	22,460	22,236	22,014	21,793	21,575	21,360	21,146
Noncitrus	Mil. lbs.	42,256	40,823	41,027	41,232	41,438	41,646	41,854	42,063	42,273	42,485	42,697	42,911
Tree nuts	Mil. lbs.	5,168	5,367	5,475	5,585	5,696	5,810	5,926	6,045	6,166	6,289	6,415	6,543
Vegetables <sup>2</sup>	Mil. lbs.	117,006	125,100	123,866	124,665	125,473	126,279	127,093	127,915	128,734	129,562	130,397	131,239
Fresh market	Mil. lbs.	41,305	41,399	45,614	45,914	46,218	46,516	46,818	47,123	47,422	47,725	48,030	48,338
Processing	Mil. lbs.	36,598	39,631	37,519	37,744	37,970	38,198	38,427	38,658	38,890	39,123	39,358	39,594
Potatoes	Mil. lbs.	36,016	39,149	36,017	36,198	36,379	36,560	36,743	36,927	37,112	37,297	37,484	37,671
Pulses	Mil. lbs.	3,088	4,921	4,716	4,810	4,906	5,004	5,104	5,206	5,311	5,417	5,525	5,636
Total fruit, nuts, vegetables	Mil. lbs.	188,026	194,764	193,516	194,399	195,295	196,195	197,109	198,036	198,967	199,911	200,869	201,839
<b>Imports, farm weight</b>													
Fruit, nuts, and vegetables	Mil. lbs.	62,646	64,966	66,906	68,929	71,014	73,162	75,376	77,658	80,009	82,432	84,929	87,502
Fruit and tree nuts	Mil. lbs.	39,871	41,235	42,392	43,581	44,804	46,061	47,353	48,682	50,048	51,452	52,896	54,380
Vegetables	Mil. lbs.	22,776	23,732	24,515	25,348	26,210	27,101	28,023	28,976	29,961	30,979	32,033	33,122
<b>Use</b>													
<b>Exports, farm weight</b>													
Fruit, nuts, and vegetables	Mil. lbs.	35,101	36,497	37,391	38,310	39,255	40,226	41,224	42,250	43,306	44,391	45,506	46,654
Fruit and tree nuts	Mil. lbs.	15,737	16,156	16,440	16,731	17,028	17,332	17,643	17,962	18,289	18,623	18,966	19,317
Vegetables	Mil. lbs.	19,364	20,341	20,951	21,580	22,227	22,894	23,581	24,288	25,017	25,767	26,540	27,337
<b>Domestic use<sup>3</sup></b>													
Fruit, nuts, and vegetables	Mil. lbs.	215,571	223,233	223,031	225,018	227,054	229,132	231,261	233,443	235,670	237,952	240,291	242,687
Fruit and tree nuts	Mil. lbs.	95,153	94,742	95,601	96,584	97,598	98,645	99,726	100,841	101,992	103,178	104,402	105,663
Vegetables	Mil. lbs.	120,418	128,491	127,429	128,434	129,456	130,487	131,535	132,602	133,679	134,774	135,889	137,024
<b>Farm sales value<sup>4</sup></b>													
Fruit and nuts	\$ Mil.	24,908	25,567	26,092	26,628	27,166	27,716	28,277	28,809	29,352	29,906	30,470	31,046
Citrus	\$ Mil.	3,241	3,443	3,495	3,547	3,591	3,636	3,682	3,719	3,756	3,793	3,831	3,870
Noncitrus	\$ Mil.	14,814	15,100	15,398	15,701	16,010	16,326	16,648	16,944	17,246	17,554	17,867	18,185
Tree nuts	\$ Mil.	6,853	7,024	7,200	7,380	7,564	7,753	7,947	8,146	8,350	8,558	8,772	8,992
Vegetables	\$ Mil.	21,165	19,872	19,778	19,693	20,337	20,357	20,683	21,002	21,326	21,655	22,002	22,356
Fresh market	\$ Mil.	14,425	12,270	12,448	12,629	12,809	12,992	13,178	13,367	13,558	13,752	13,949	14,149
Processing	\$ Mil.	1,880	1,948	1,974	2,001	2,027	2,054	2,081	2,109	2,137	2,166	2,195	2,224
Potatoes	\$ Mil.	3,759	3,571	3,588	3,624	3,679	3,734	3,790	3,847	3,904	3,963	4,022	4,083
Pulses	\$ Mil.	1,101	2,084	1,768	1,439	1,522	1,577	1,633	1,679	1,726	1,774	1,836	1,900
Nursery and greenhouse <sup>5</sup>	\$ Mil.	15,598	15,676	15,755	15,834	15,913	15,992	16,072	16,153	16,233	16,315	16,396	16,478
Other horticulture crops <sup>6</sup>	\$ Mil.	812	836	861	887	909	932	955	974	994	1,013	1,034	1,054
Total horticulture crops	\$ Mil.	62,483	61,951	62,486	63,041	64,025	64,997	65,987	66,938	67,905	68,888	69,903	70,935
<b>Producer prices<sup>7</sup></b>													
Fresh fruits	2008=100	95.8	96.8	98.9	100.7	102.6	104.6	106.5	108.3	110.1	111.9	113.8	115.6
Citrus	2008=100	102.0	110.1	113.4	116.3	118.9	121.5	124.3	126.8	129.4	132.0	134.7	137.4
Noncitrus	2008=100	93.1	95.1	96.5	98.0	99.4	100.8	102.3	103.6	104.9	106.3	107.6	109.0
Tree nuts	2008=100	130.0	138.3	138.9	139.6	140.3	141.0	141.7	142.4	143.1	143.8	144.5	145.2
Vegetables	2008=100	113.2	90.8	91.3	90.3	91.3	92.2	93.0	93.9	94.7	95.6	96.5	97.4
Fresh vegetables	2008=100	111.3	85.0	78.3	78.9	79.5	80.1	80.8	81.4	82.0	82.7	83.3	83.9
Potatoes (fresh)	2008=100	98.1	77.3	84.4	84.9	85.7	86.6	87.4	88.3	89.1	90.0	91.0	91.9
Pulses (dried)	2008=100	104.9	124.5	110.3	88.0	91.2	92.7	94.1	94.9	95.6	96.3	97.7	99.2
Fruit, nuts, and vegetables	2008=100	108.1	98.0	99.6	100.1	101.5	102.9	104.3	105.6	107.0	108.3	109.7	111.1

1/ Bearing acreage for fruit and nuts; harvested area for vegetables. Fruits include melons. 2/ Utilized production is used for potatoes. Pulses include edible dry beans and peas, lentils, and other peas. Excludes melons. 3/ In farm or fresh weight units. 4/ Production values are used for fruits and nuts, and for processing vegetables. Farm cash receipts are used for other vegetables and horticulture crops. 5/ Includes floral crops, greenhouse vegetables such as tomatoes, cucumbers, colored peppers, and fruit and vegetable transplants. 6/ Includes honey, maple syrup, mustard, hops, mint oils, taro, ginger root, and coffee from Hawaii. 7/ Producer price indexes for farm commodities from the U.S. Bureau of Labor Statistics. Prices for fresh fruits include melons.

Data sources: USDA, National Agricultural Statistics Service; Foreign Agricultural Service; Economic Research Service; U.S. Department of Labor, Bureau of Labor Statistics.

Table 28. Horticultural crops long-term export and import projections, fiscal years

Item	Unit	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
<b>Exports</b>													
<b>Fruit and nuts</b>													
Fresh fruits	\$ Mil.	4,392	4,842	5,392	5,541	5,694	5,851	6,013	6,178	6,349	6,524	6,704	6,889
Citrus	\$ Mil.	1,036	1,009	1,426	1,438	1,449	1,459	1,468	1,477	1,484	1,491	1,497	1,502
Noncitrus	\$ Mil.	3,356	3,833	3,966	4,103	4,245	4,392	4,544	4,702	4,865	5,033	5,207	5,388
Processed fruits	\$ Mil.	2,826	2,881	3,316	3,375	3,434	3,495	3,556	3,617	3,680	3,743	3,806	3,871
Fruit juices	\$ Mil.	1,327	1,291	1,324	1,357	1,391	1,426	1,462	1,499	1,537	1,576	1,616	1,656
Tree nuts	\$ Mil.	5,147	6,106	7,000	7,288	7,588	7,900	8,225	8,564	8,916	9,283	9,666	10,063
Total fruit and nuts	\$ Mil.	12,364	13,830	15,707	16,203	16,716	17,246	17,794	18,360	18,945	19,551	20,176	20,823
<b>Vegetables</b>													
Fresh	\$ Mil.	2,251	2,154	2,208	2,264	2,321	2,379	2,439	2,500	2,563	2,628	2,694	2,762
Processed <sup>1</sup>	\$ Mil.	3,483	3,959	4,084	4,213	4,346	4,484	4,625	4,771	4,922	5,077	5,237	5,403
Total vegetables	\$ Mil.	5,734	6,113	6,293	6,477	6,667	6,863	7,064	7,272	7,485	7,705	7,932	8,165
<b>Other horticulture</b>													
Nursery and greenhouse	\$ Mil.	353	358	363	368	373	378	383	389	394	399	405	411
Essential oils	\$ Mil.	1,478	1,582	1,647	1,716	1,787	1,860	1,937	2,018	2,101	2,188	2,278	2,373
Wine	\$ Mil.	1,264	1,321	1,373	1,426	1,482	1,539	1,599	1,661	1,726	1,793	1,862	1,935
Beer	\$ Mil.	349	349	360	370	382	393	405	418	430	443	457	471
Other <sup>2</sup>	\$ Mil.	4,368	5,091	6,257	6,450	6,648	6,853	7,063	7,280	7,504	7,735	7,973	8,218
Total horticulture	\$ Mil.	25,911	28,644	32,000	33,010	34,054	35,132	36,246	37,397	38,586	39,814	41,083	42,395
Fresh produce <sup>3</sup>	\$ Mil.	6,643	6,996	7,600	7,804	8,014	8,230	8,452	8,679	8,912	9,152	9,398	9,651
Processed produce <sup>3</sup>	\$ Mil.	6,309	6,840	7,400	7,588	7,781	7,978	8,181	8,389	8,602	8,820	9,044	9,274
<b>Imports</b>													
<b>Fruit and nuts</b>													
Fresh fruits	\$ Mil.	7,125	7,618	8,000	8,331	8,675	9,034	9,408	9,797	10,202	10,624	11,064	11,521
Citrus	\$ Mil.	525	516	604	627	651	677	703	730	759	788	819	850
Noncitrus	\$ Mil.	6,600	7,101	7,396	7,704	8,024	8,358	8,705	9,067	9,444	9,836	10,245	10,671
Processed fruits	\$ Mil.	4,263	4,358	4,500	4,703	4,916	5,138	5,370	5,613	5,866	6,131	6,408	6,698
Fruit juices	\$ Mil.	1,840	1,762	1,824	1,888	1,954	2,022	2,093	2,166	2,242	2,320	2,401	2,485
Tree nuts	\$ Mil.	1,714	1,801	2,000	2,100	2,206	2,316	2,433	2,555	2,683	2,818	2,959	3,107
Total fruit and nuts	\$ Mil.	13,102	13,777	14,500	15,135	15,797	16,489	17,211	17,965	18,752	19,573	20,431	21,327
<b>Vegetables</b>													
Fresh	\$ Mil.	5,722	5,831	6,200	6,480	6,772	7,077	7,396	7,730	8,078	8,442	8,823	9,221
Processed <sup>1</sup>	\$ Mil.	3,915	4,202	4,600	4,787	4,981	5,184	5,394	5,613	5,841	6,079	6,326	6,583
Total vegetables	\$ Mil.	9,637	10,033	10,800	11,266	11,753	12,261	12,790	13,343	13,920	14,521	15,149	15,804
<b>Other horticulture</b>													
Nursery and greenhouse	\$ Mil.	1,522	1,624	1,700	1,724	1,748	1,773	1,798	1,823	1,849	1,875	1,902	1,929
Essential oils	\$ Mil.	2,534	2,569	2,700	2,825	2,956	3,092	3,235	3,385	3,541	3,705	3,877	4,056
Wine	\$ Mil.	4,777	5,084	5,400	5,650	5,912	6,185	6,472	6,772	7,085	7,413	7,756	8,116
Beer	\$ Mil.	3,512	3,722	4,000	4,129	4,262	4,399	4,541	4,687	4,838	4,994	5,155	5,321
Other <sup>2</sup>	\$ Mil.	4,321	4,749	5,300	5,548	5,807	6,078	6,362	6,659	6,970	7,295	7,636	7,992
Total horticulture	\$ Mil.	39,405	41,557	44,400	46,276	48,234	50,277	52,409	54,633	56,955	59,377	61,906	64,544
Fresh produce <sup>3</sup>	\$ Mil.	12,848	13,448	14,200	14,810	15,447	16,111	16,804	17,527	18,281	19,067	19,887	20,742
Processed produce <sup>3</sup>	\$ Mil.	8,178	8,560	9,100	9,490	9,897	10,322	10,764	11,226	11,708	12,210	12,734	13,281

1/ Includes dry edible beans, peas, lentils, and potatoes. 2/ Includes hops, ginseng, sauces, condiments, mixed food, yeast, starches, and other products that contain horticulture ingredients. 3/ Includes fruits and vegetables only.

Exports are free alongside ship (FAS) value at U.S. port of exportation. Imports are customs value at U.S. port of entry.

Data source: U.S. Department of Commerce, Bureau of the Census.