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Outlook

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Feed Year in Review 2010/11 (Domestic): Feed Grain Prices Strengthen as Supplies Shrink

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Abstract

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This report is a summary of the U.S. feed grain market for the 2010/11 marketing year, where corn and sorghum data refer to September 2010-August 2011 and barley and oat data refer to June 2010-May 2011. The crops discussed were planted in spring 2010 and sold in fall 2011.

U.S. feed grains--corn, sorghum, barley, and oats--set record food, seed, and industrial utilization, largely due to increased ethanol production, keeping feed grain prices strong and resulting in tight ending stocks year to year. The 2010/11 season average farm price for these four feed grains was \$203.52 per metric ton, compared with \$140.92 per ton in 2009/10. The 2010/11 season average farm price for corn was estimated at \$5.18 per bushel, compared with \$3.55 per bushel the previous season. Feed grain ending stocks were the lowest since 1996/97. Grain sorghum prices strengthened as lower planted area reduced supplies. A smaller 2010 barley crop shrank supplies and ending stocks. Despite less domestic supplies, the 2010/11 barley farm price slipped \$0.80 per bushel, reflecting abundant foreign supplies. The season average farm price for oats gained \$0.50 per bushel in spite of large supplies in Canada. The oats crop was the smallest to date. Hay production increased slightly as a result of larger harvested acreage. Hay prices rose with those for feed grains and on lower December 1, 2010 stocks.

Keywords: corn, grain sorghum, barley, oats, hay, ethanol, and corn sweeteners, U.S. Department of Agriculture, USDA, Economic Research Service, ERS.

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Feed Situation and Outlook

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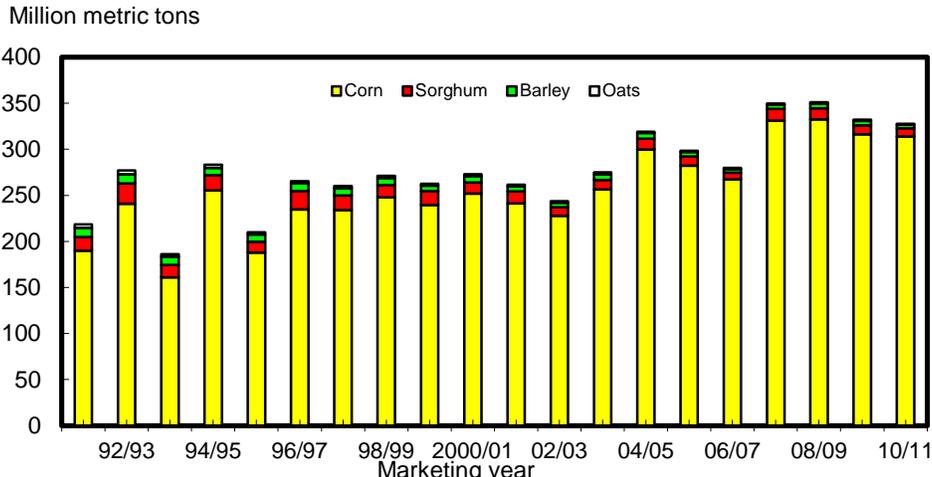
Feed Grain Supply and Use

Feed Grain Use Edges Down, even as Ethanol Use Advances in 2010/11

Total feed grain disappearance for 2010/11 was 348.3 million metric tons, down from 349.7 million in 2009/10. Feed and residual use for 2010/11 was 127.7 million tons down by 9.0 million. Food, seed, and industrial (FSI) use in 2010/11 gained, reaching 170.0 million tons, up from 158.3 million tons mostly due to increased ethanol production but also augmented by high fructose corn syrup (HFCS), starch, and glucose and dextrose output. Feed grain exports were 50.6 million tons, down from 54.7 million a year earlier, as high prices and tight supplies reduced U.S. market share. Lower feed and residual use and exports combined with strong FSI use and diminished supplies left ending stocks sharply lower at 32.3 million tons, compared with 48.1 million the previous year.

Total U.S. feed grain supplies in 2010/11 were 380.5 million metric tons, 17.3 million lower than the previous season. Production was lower for each of the four feed grains. Corn accounted for 16.4 million tons of the decline, followed by sorghum, barley, and oats at less than 1 million tons each. Beginning stocks advanced nearly 1.1 million tons from the previous year as increases in corn and barley outweighed declines in sorghum and oats. Feed grain carryin for 2010/11 increased with higher corn production in 2009/10. Feed grain imports for 2010/11 were 2.4 million tons, up slightly from 2.2 million in 2009/10.

Figure 1
U.S. feed grain production

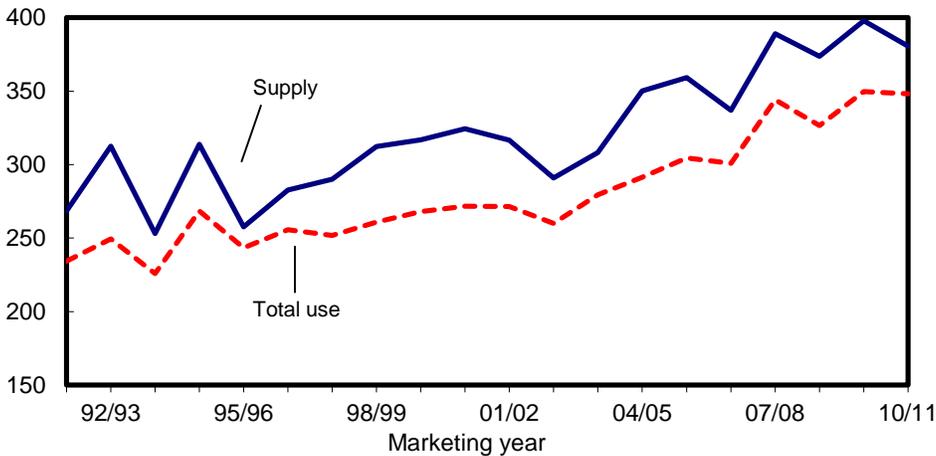


Source: USDA, National Agricultural Statistics Service, *Crop Production*.

Figure 2

U.S. feed grain supply and use

Million metric tons

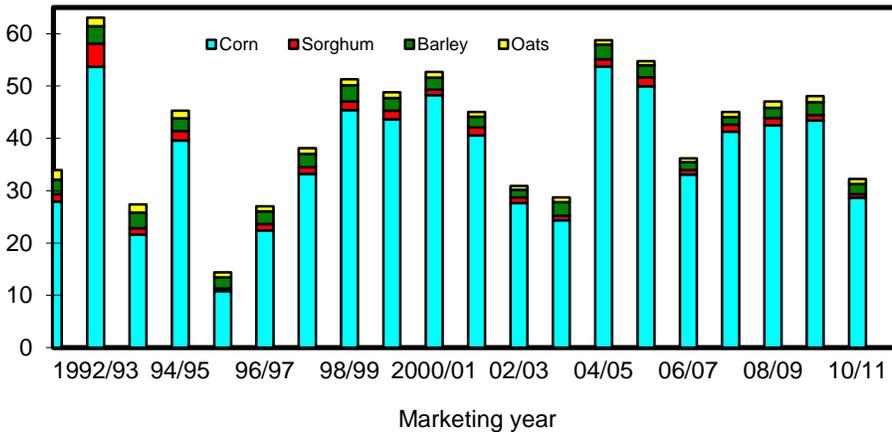


Source: USDA, World Agricultural Outlook Board, WASDE.

Figure 3

U.S. ending stocks of feed grains

Million metric tons



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

Corn Production Declined from Previous Season's Record High

U.S. corn production for 2010/11 was 12,447 million bushels, down from 13,092 million in 2009/10. The year-to-year decrease stems from lower average yields which slipped to 152.8 bushels per acre after a record 164.7 bushels the previous year. Planted corn acreage was 88.2 million acres, the second largest crop since 1946, only behind 2007, with 93.5 million acres. About 8 percent of planted acreage was not harvested for grain, similar to the previous season. More than 83 percent of the corn area not harvested for grain was harvested for silage, similar to the 5-year average. Harvested acreage was 81.4 million acres, compared with 79.5 million in 2009/10. Beginning corn stocks in 2010/11 were 1,708 million bushels, up 34

million bushels from the previous year. Total U.S. corn supply was 14,182 million bushels, down 591 million bushels from 2009/10 as a result of lower production.

At 152.8 bushels per acre, the national average 2010/11 corn yield was 12-bushels-per-acre lower than the previous year and about half a bushel below the previous 5-year average. Most of the yield decline reflected less than ideal soil conditions and above-normal temperatures during the latter part of summer across much of the Corn Belt, central Great Plains, Ohio Valley, and Mid-Atlantic States. The 2010 growing season was characterized by unusually high night time temperatures, which limited plant recovery from daytime stress. Still, objective yield data indicated the second highest number of ears per acre for the combined objective yield States (Illinois, Indiana, Iowa, Kansas, Minnesota, Missouri, Nebraska, Ohio, South Dakota, and Wisconsin), only behind the record forest in 2009/10. Record high ear counts were recorded in Iowa, Ohio, and Wisconsin. Yields were up from the previous year in the southern Great Plains, Mississippi Delta, and Southeast, reflecting improved weather and favorable harvesting conditions. Yields were also up in the Great Lakes and Upper Mississippi Valley, with record high yields achieved in Michigan, Minnesota, North Dakota, and Wisconsin.

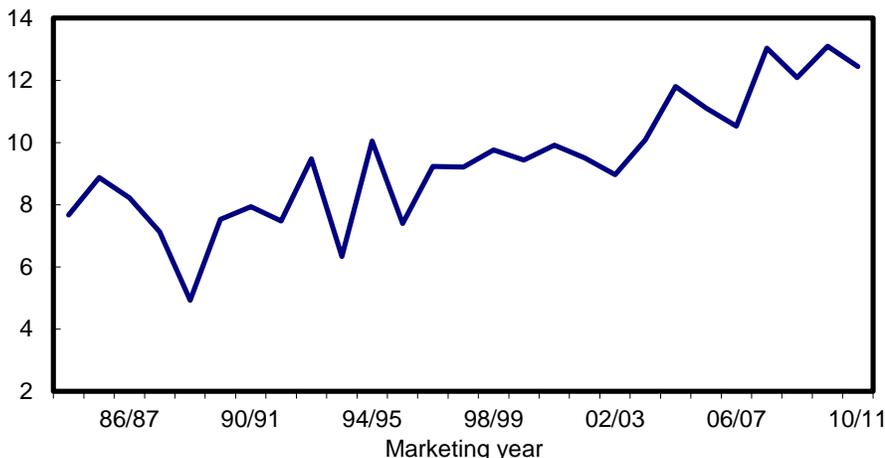
Planting got off to a rapid start in 2010 due to favorable conditions across much of the major corn-producing region. By April 25, half of the Nation's corn acreage had been planted, the earliest date on record, which put 2010 planting progress 30 percent ahead of the 2009 pace and 28 percent ahead of the 5-year average pace for this time of the year. Planting progress was over 40 percent ahead of the 5-year average at this point in time in Illinois, Indiana, Iowa, and Minnesota. The end of April brought widespread frost to parts of the Midwest, but damage was minimal since only a small amount of the crop had emerged.

Favorable planting conditions carried over into the first part of May, with 81 percent of the intended corn acreage planted as of May 9, representing the third quickest planting pace on record, behind only 2004 and 2000, respectively. However, below-average temperatures and wet weather dominated much of the Midwest and portions of the Plains during the middle part of May, impacting planting of the remaining acreage and threatening emerged plants. Producers continued to battle wet field conditions during late May but were able to plant an additional 10 percent during the final 2 weeks of the month, bringing the overall total to 97 percent and pushing slightly ahead of the 5-year average pace of 96 percent.

Figure 4

U.S. Corn Production

Billion bu



Source: USDA, National Agricultural Statistics Service, *Quick Stats*.

Above-average temperatures and adequate soil moisture levels in late June and early July pushed silking progress ahead of the normal pace in many parts of the country. By July 4, 19 percent of the Nation’s corn crop was at or beyond the silking stage, 11 percent ahead of the previous year’s pace and 7 percent ahead of the 5-year average.

As of August 1, 71 percent of the corn acreage was rated in good-to-excellent condition in the 18 major producing States, up 3 percentage points from the previous year. Regionally, conditions were better than the previous year in the central and southern Great Plains, upper Great Lakes, and upper Mississippi Valley, where moderate temperatures and adequate soil moisture provided favorable growing conditions. Crop conditions were worse than the previous year in the Corn Belt States of Iowa and South Dakota mainly due to excessive soil moisture. Conditions were also worse in the Tennessee Valley and Mid-Atlantic regions due to above-normal temperatures and dry conditions.

Condition ratings declined during August throughout much of the central and western Corn Belt, as well as the Tennessee Valley, mainly due to above-normal temperatures and less than ideal soil conditions. The above-normal temperatures early in August promoted rapid phenological development. By September 5, virtually all of the country’s corn acreage was at or beyond the dough stage, with 86 percent dented or beyond, 15 percent ahead of the 5-year average. Harvest was underway in 11 of the 18 major estimating States at this time.

Harvesting activities were in full swing throughout October. Virtually the entire crop had reached the mature stage by October 10, 26 percent ahead of 2009 and 9 percentage points ahead of the 5-year average. As of October 31, 91 percent of the corn acreage was harvested, 67 percent ahead of last year and 30 percent ahead of the 5-year average. Harvest was ahead of the normal pace in all 18 major producing States, where Illinois, Indiana, and Kansas all showed less than 5 percent of the

crop remaining in the field. Harvest was complete in Kentucky, North Carolina, and Tennessee by month's end.

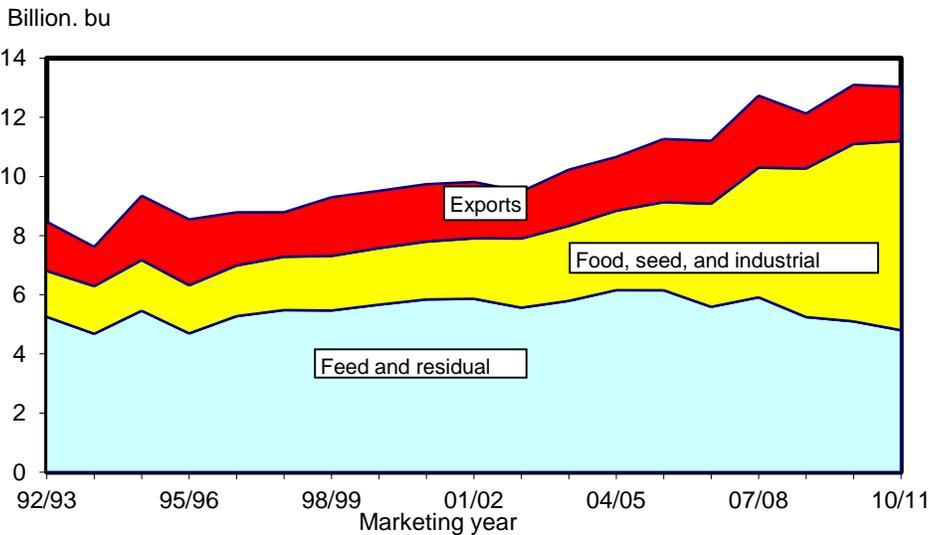
Corn silage production was 107 million tons in 2010/11, down 1 percent from 2009. The U.S. silage yield came in at 19.3 tons per acre, tying the previous year's record. Acreage harvested for silage is estimated at 5.57 million acres, down 1 percent from a year earlier.

Corn Utilization Steady in 2010/11

Total corn utilization in 2010/11 was 13,055 million bushels, just short of the prior season's 13,066-million-bushel use. This year-to-year decrease stems from reduced exports and feed and residual use, which were offset partially by an increase in FSI use.

FSI use reached a record 6,426 million bushels, up from 5,961 million in 2009/10. HFCS production advanced 2 percent from the previous year to 521 million bushels. Corn used for glucose and dextrose came in at 272 million bushels, up from 257 million the previous year. Corn used for starch production reached 258 million bushels, improving 3 percent from 2009/10. Nonfuel FSI gains largely are attributed to the recovering U.S. economy. Corn use for ethanol production advanced because of strong ethanol exports and higher mandates for domestic ethanol consumption.

Figure 5
U.S. corn disappearance by type of use

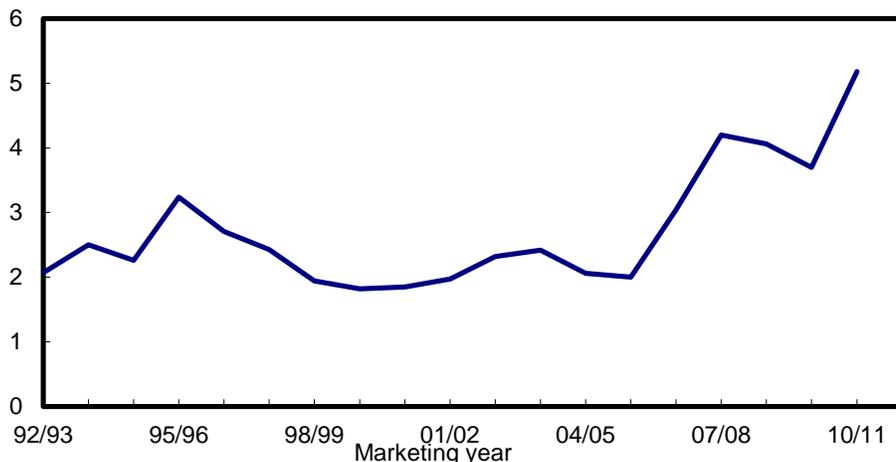


Source: USDA, World Agricultural Outlook Board, WASDE.

Figure 6

Season-average corn prices received by U.S. farmers

Dollars per bushel



Source: USDA, World Agricultural Outlook Board, WASDE.

Record ethanol production was the major factor behind the year-to-year increase in FSI use. Corn use for ethanol was estimated at 5,019 million bushels for 2010/11, up 9 percent or 428 million bushels from the previous year. According to the Renewable Fuels Association (RFA) data for the corn marketing year as of August 2011, the U.S. ethanol industry consisted of 209 refineries with a combined annual production capacity of 14,745 million gallons, where about 500 million gallons was idle. Following the U.S. financial crisis and recession that began in 2008, many bankrupt ethanol producers were bought out by larger, more financially stable operators at favorable prices, enabling them to operate profitably.

Feed and residual use of corn was reported at 4,795 million bushels in 2010/11, down from 5,125 million a year earlier due to high prices, lower livestock inventories, and increased use of distillers' grains as a feed substitute. Corn exports in 2010/11 were reported at 1,835 million bushels, down from 1,980 million bushels in 2009/10 and a sharp drop below the record 2,437 million bushels set in 2007/08. Reduced global demand for U.S. corn due to high prices, robust global supplies, and increased global supplies of feed-quality wheat lowered U.S. corn exports.

Robust Corn Prices throughout 2010/11

The benchmark Central Illinois cash corn price averaged \$6.33 per bushel for the 2010/11 marketing year, up sharply from \$3.45 per bushel for the previous marketing year and a record high, to date. The Central Illinois cash price was higher than that received by farmers during the year, indicating that producers who did forward contract, did so at prices below prevailing cash market bids.

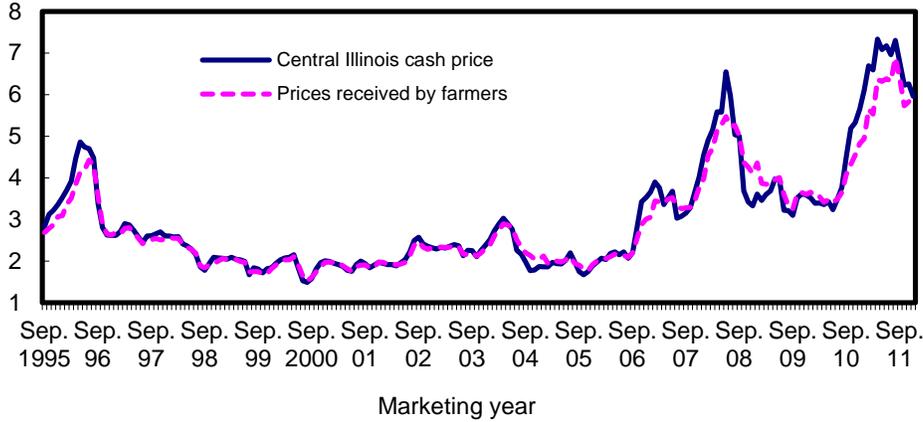
The season-average price received by producers was \$5.18 per bushel, compared with \$3.55 the year before. First quarter prices (September-November 2010) averaged \$4.30 per bushel. Prices advanced to \$5.07 per bushel during the second quarter. Adverse weather effects during the second part of the growing season

caused prices to surge, reaching an average of \$6.00 per bushel during the third quarter and \$6.51 during the final quarter just before harvest.

Figure 7

U.S. corn: Central Illinois cash and average farm price, monthly

Dollars per bushel



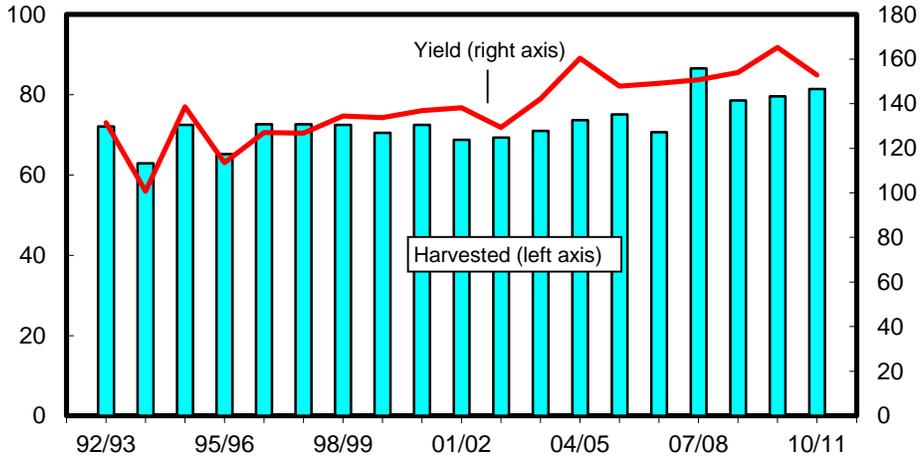
Sources: USDA, Agricultural Marketing Service, *Weekly Grain Market News Summary*, and USDA, Economic Research Service, *Feed Grains Database*.

Figure 8

U.S. corn harvested acres and yields

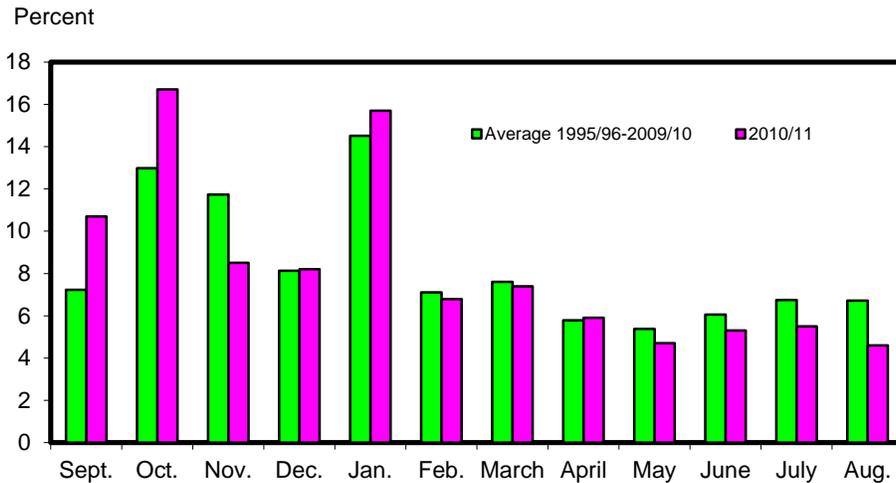
Million acres

Bushels per acre



Source: USDA, National Agricultural Statistics Service, *Quick Stats*.

Figure 9
Percent of U.S. corn marketed, by month

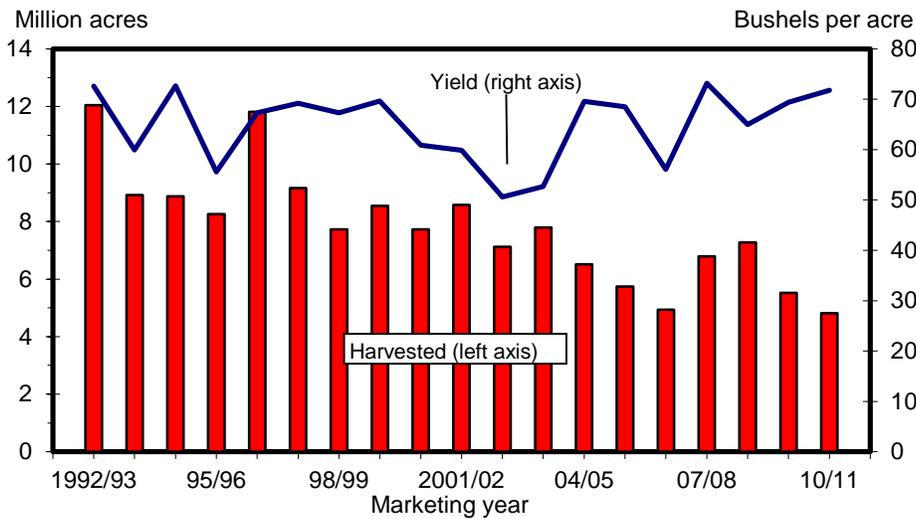


Source: USDA, National Agricultural Statistics Service, *Agricultural Prices*.

Sorghum Acreage Slips in 2010/11

Sorghum plantings declined by 19 percent to 5.4 million acres in 2010/11, the lowest planted area on record, compared with 6.6 million acres in 2009/10. Sorghum acreage peaked at 26.9 million acres in 1957 but exceeded 10 million acres only six times since 1990. Area harvested for grain slipped 13 percent to 4.8 million acres and the lowest harvested area since 1939. Average grain yield (71.8 bushels per acre) is up 2.4 bushels from last year. Record low planted acreages were reported in Mississippi, Missouri, and Texas, while record high grain yields were set in Arizona, New Mexico, and Texas. Grain production in 2010 was estimated at 346 million bushels, 10 percent below 2009. Kansas led the Nation in area planted for all purposes, as well as area harvested for grain and grain production. Planted acreage decreased in 9 of the 14 estimating States, with reductions of 13 and 30 percent in Kansas and Texas, respectively, the two largest sorghum-producing States. Carryin of 41 million bushels, plus production and negligible imports, resulted in supplies of 387 million bushels.

Figure 10
U.S. sorghum harvested acres and yields



Source: USDA, National Agricultural Statistics Service, *Quick Stats*.

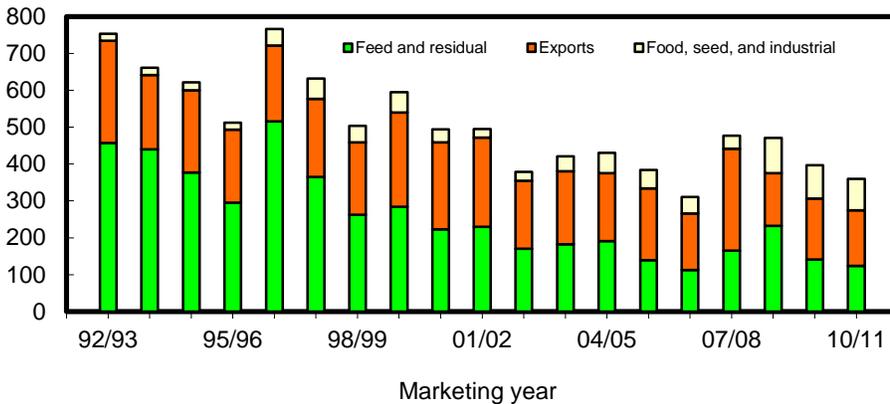
By the end of April, planting was underway in all major estimating States except Nebraska and South Dakota. Wet fields in portions of Kansas and Texas slowed fieldwork during May, leaving progress slightly behind normal. Crop maturation continued at a near-normal pace throughout the summer, with harvest underway in limited areas by early July. By November 21, producers had harvested 95 percent of the 2010/11 sorghum crop, 22 percent ahead of last year and 8 percent ahead of the 5-year average.

Sorghum silage production was 3.4 million tons, down 7 percent from 2009. Area cut for silage was 273,000 acres, up 7 percent from the previous year. Yields averaged 12.5 tons per acre, down 2.0 tons per acre from 2009. Texas continued to harvest most of the U.S. sorghum silage production.

Sorghum Use Down in 2010/11

Total sorghum utilization for 2010/11 was reported at 359 million bushels, down from 396 million bushels in 2009/10. Feed and residual use came in at 123 million bushels in 2010/11, down from 141 million bushels the previous year. This decrease was driven by tight supplies, reduced livestock numbers, and weaker export demand from Mexico. Estimated FSI use in 2010/11 was reported at 85.0 million bushels, down from 90 million bushels in 2009/10. Ethanol is the primary FSI category for sorghum, as sorghum use for ethanol production was estimated at 23 percent of total utilization. Corn is the dominant starch source used in U.S. ethanol plants, but sorghum is the primary grain used in certain plants, particularly in the southern and central Plains. Many ethanol plants use a mix of both grains, depending on price and availability.

Figure 11
U.S. sorghum disappearance, by use
 Million bushels



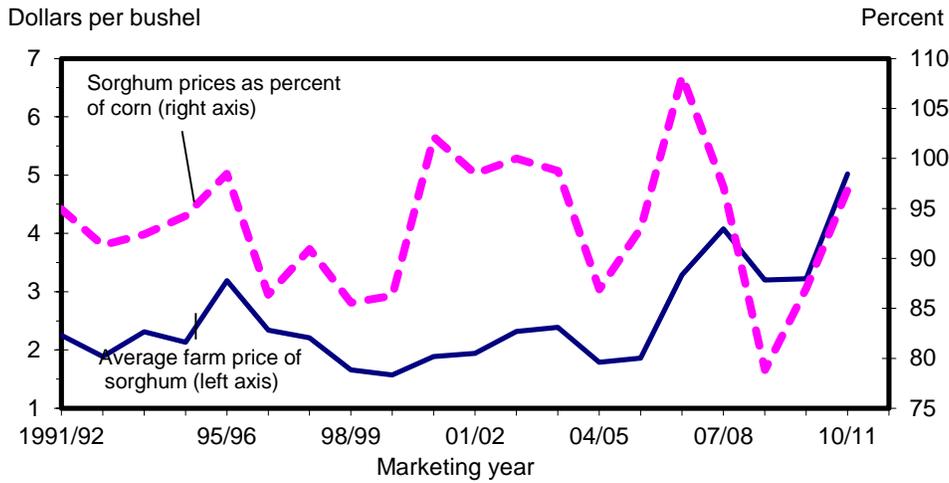
Source: USDA, World Agricultural Outlook Board, WASDE.

Sorghum exports were reported at 152 million bushels in 2010/11, down slightly from 166 million bushels the previous year, as the global grain deficit disappeared and weakened world demand for nongenetically modified feed grains. As a result of lower supplies, and despite lower utilization, ending stocks were reported at 27 million bushels for 2010/11—down significantly from 41 million bushels in 2009/10.

Sorghum Prices Higher in 2010/11

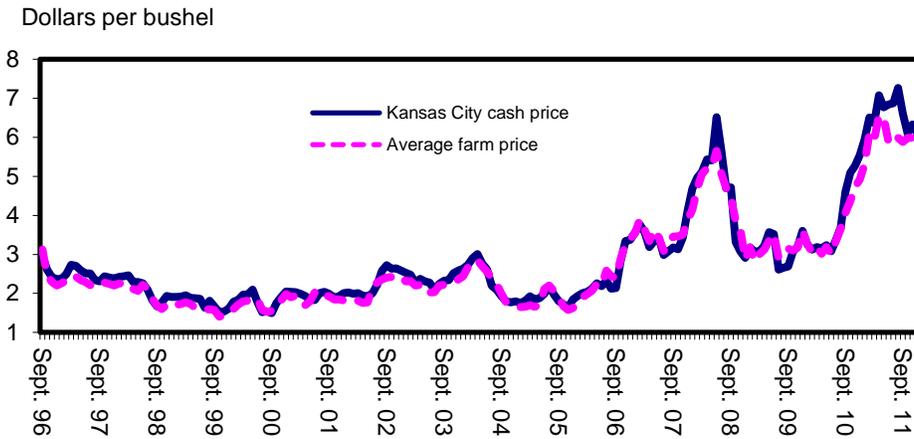
The season average sorghum farm price for 2010/11 was \$5.02 per bushel, compared with \$3.22 per bushel in 2009/10. Over time, sorghum prices typically average 92-93 percent of the corn price, but this is an unsteady relationship. Sorghum prices received by farmers averaged 97 percent of the corn price in 2010/11. Corn producers typically forward contract much of their production, locking in prices well ahead of harvest and delivery. Forward pricing opportunities are limited more for sorghum because there is no sorghum futures market. Sorghum producers sell most of their product after harvest on the cash market. For 2010/11, sorghum producers benefited from rising prices during the marketing year.

Figure 12
Sorghum prices received by U.S. farmers and share of corn price



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

Figure 13
U.S. sorghum: Kansas City cash and average farm price, monthly



Sources: USDA, Agricultural Marketing Service, *Weekly Grain Market News*, and USDA, Economic Research Service, *Feed Grains Database*.

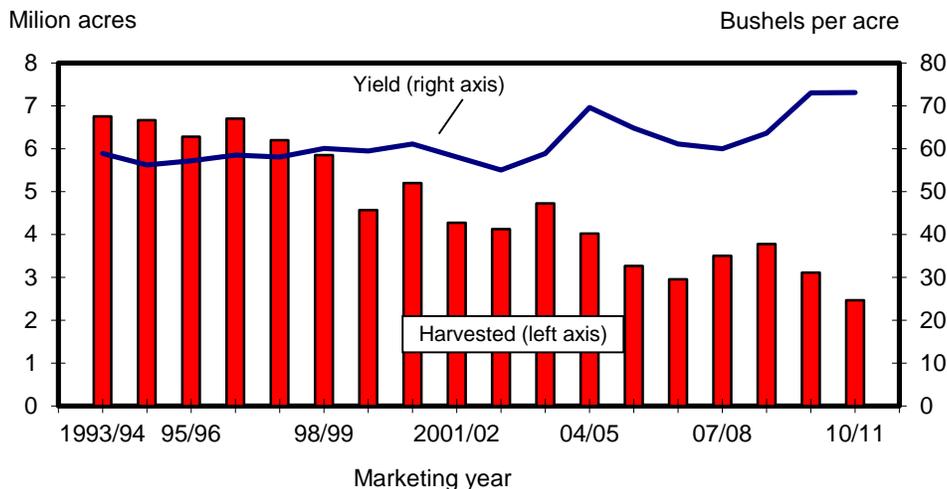
Barley Production Slips with Reduced Plantings

Barley production for 2010/11 was 180 million bushels, down 21 percent from 2009/10. Average yield per acre (73.1 bushels) was reported up 0.1 bushel from the previous year and was the highest on record since estimates began in 1866. Producers seeded 2.87 million acres in 2010/11, down 19 percent from 2009/10, and was the lowest planted acreage on record back to 1926. Harvested area (2.47 million acres) was down 21 percent from 2009 and was the lowest recorded level since 1882. Compared with last year, barley seedings decreased in the three largest barley-producing States--Idaho, Montana, and North Dakota. Producers in North Dakota seeded 720,000 acres and harvested 670,000 acres, down 40 and 41 percent, respectively, from the previous year. Seeded area in North Dakota established a record low for the State, while harvested area was the lowest since 1936. Michigan, Minnesota, and South Dakota producers also set new record lows for seeded acreage. A record low for harvested area was set in South Dakota and tied in Michigan. Conversely, record high yields were set in Arizona, Montana, and Utah.

Harvest was underway in most States by the end of July and had advanced to 91 percent complete by September 26, behind both last year and the 5-year average. As harvest surpassed the halfway point during the week ending August 22, 84 percent of the barley crop was reported in good-to-excellent condition, compared with 80 percent from the same time the previous year.

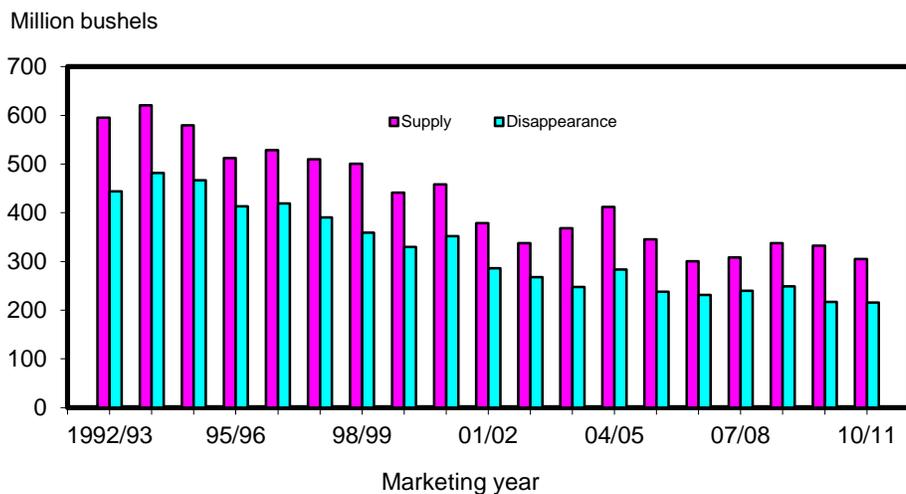
Beginning barley stocks in 2010/11 were reported at 116 million bushels, up 27 million. Imports were reported at 9.5 million bushels, or 7.1 million below the previous year, making total barley 2010/11 supply 305 million bushels, compared with 333 million in 2009/10.

Figure 14
U.S. barley harvested acres and yields



Source: USDA, National Agricultural Statistics Service, *Quick Stats*.

Figure 15
U.S. barley total supply and disappearance



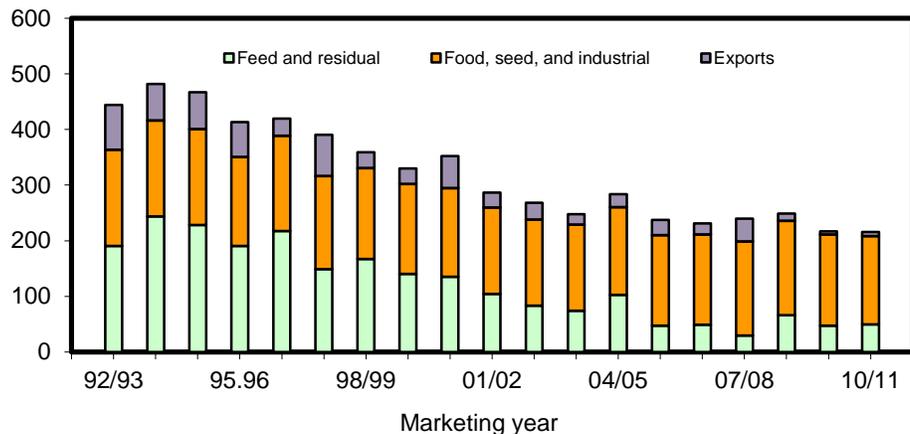
Source: USDA, World Agricultural Outlook Board, WASDE.

Barley Use Down in 2010/11

Barely use in 2010/11 totaled 216 million bushels, 2 million below the previous season's 217 million FSI use, the major component of disappearance slid from 164 to 159 million bushels. Most barley FSI use comes from barley for malting, which slipped by 4 percent in 2010/11. Feed and residual use increased by 2 million bushels to reach 50 million. Exports (7.6 million bushels) were down 1.9 million bushels from the previous season. Mexico, Canada, and Japan were the primary destinations for U.S. barley. Barley ending stocks were reported at 89 million bushels, compared with 116 million in 2009/10. Significantly lower production and imports, combined with fairly steady use, resulted in the decline in ending stocks.

Figure 16
U.S. barley disappearance by type of use

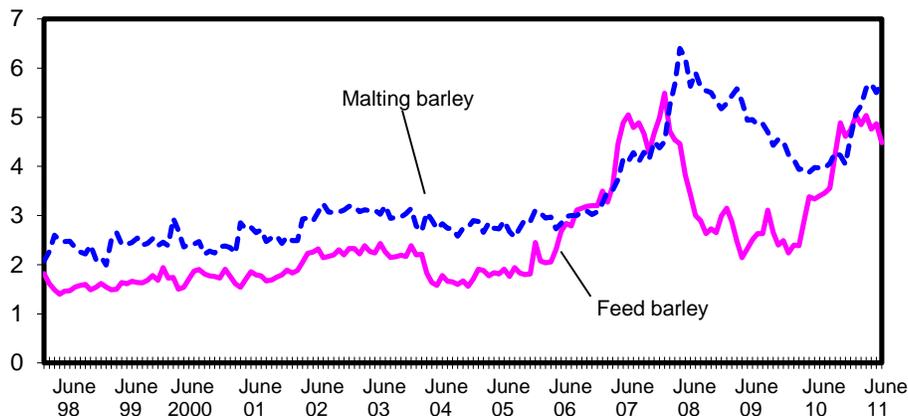
Million bushels



Source: USDA, World Agricultural Outlook Board, WASDE.

Figure 17
U.S. monthly barley prices received by U.S. farmers, monthly

Dollars per bushel



Source: USDA, National Agricultural Statistics Service, Quick Stats.

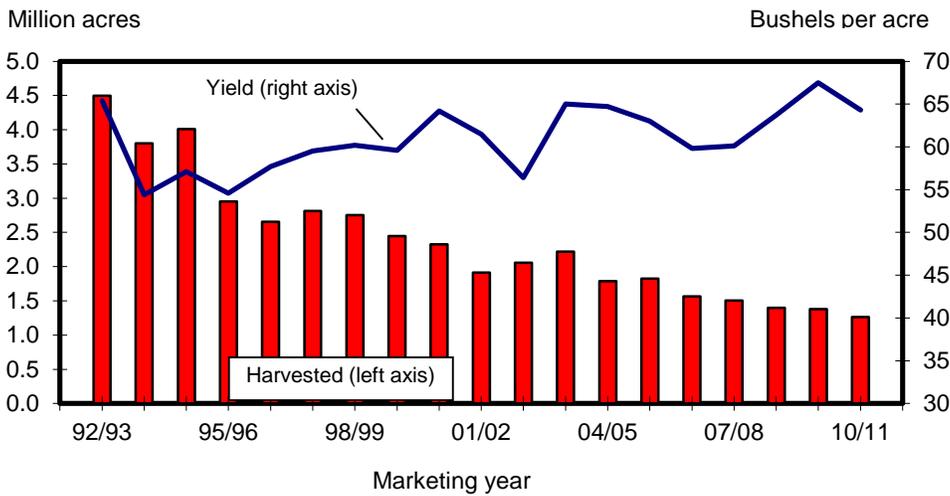
Record Low Oat Production in 2010/11

Oats production for 2010/11 a record low 81 million bushels, down 13 percent from 2009/10. Yields (64.3 bushels per acre) were down 3.2 bushels per acre from the previous year. Area planted to oats (3.14 million acres) was at its lowest since records have been kept in the 1860s, down 8 percent from 2009. The largest decline occurred in North Dakota, where planted area decreased 70,000 acres, a record low for that State. In total, record lows for planted acres were set in 12 States, many in the Midwest and north central regions. Harvested area was estimated at a record low 1.26 million acres, 8 percent below last year. The largest decline occurred in North

Dakota, where area harvested for grain decreased 60,000 acres from the previous year and also was a record low for that State. Record lows for harvested area also occurred in 12 States.

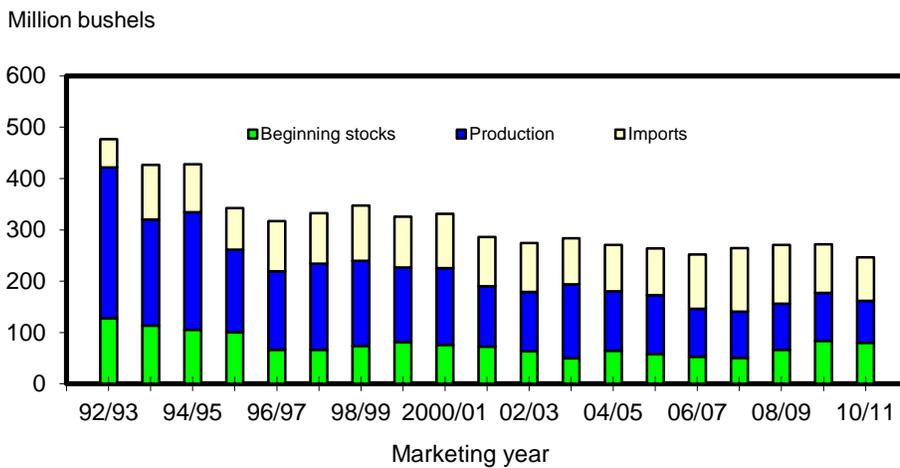
By August 1, 2010, 47 percent of the oat acreage was harvested, 3 percent ahead of the normal pace. Also at this time, harvest in Texas was nearly complete (97 percent) followed by Ohio (96 percent). In North Dakota, harvest had just begun (4 percent), or 13 percent behind the normal pace. By August 29, harvest was 96 percent complete in the nine major oat-producing States, 2 percent ahead of the 5-year average.

Figure 18
U.S. oats harvested acres and yields



Source: USDA, National Agricultural Statistics Service, *Quick Stats*.

Figure 19
U.S. oats supply



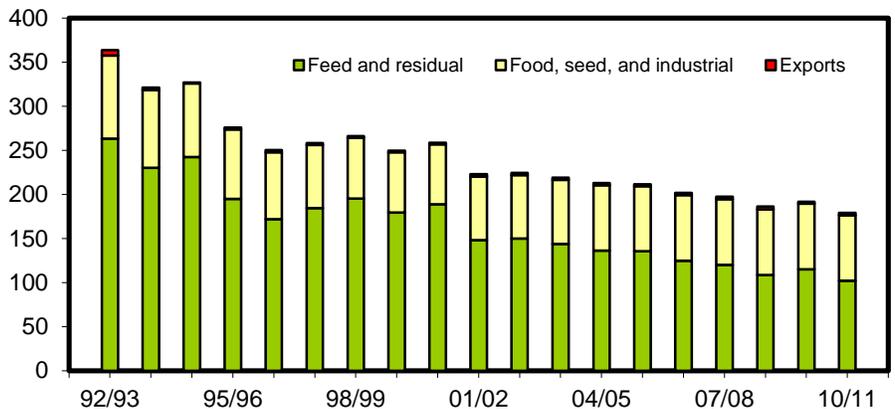
Sources: USDA, Economic Research Service, *Feed Grains Database*, and USDA, World Agricultural Outlook Board, *WASDE*.

Lower supplies combined with a smaller decline in total use resulted in ending stocks slipping by 13 million bushels to 68 million bushels. Exports, although very small, advanced but feed and residual and FSI use slipped by 11 percent and 1 percent, respectively. Total use reached 179 million bushels, compared with 192 million bushels during the previous season.

Figure 20

Total use of oats

Million bushels



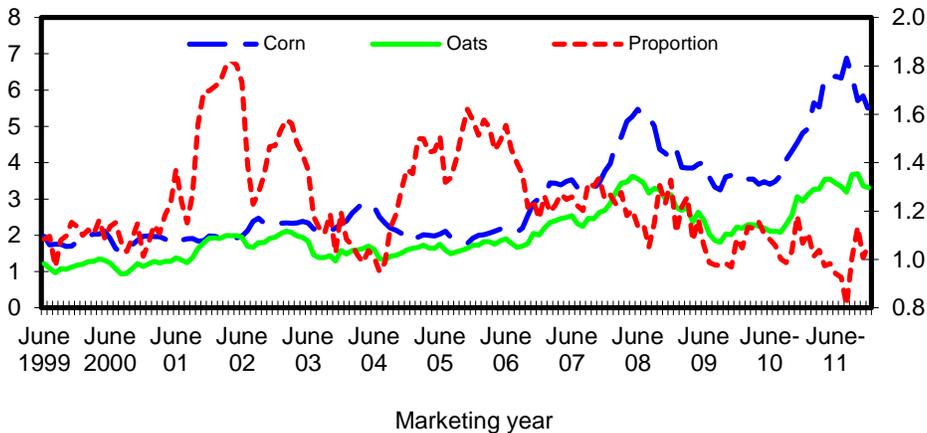
Source: USDA, World Agricultural Outlook Board, WASDE.

Figure 21

U.S. average prices of oats and corn plus oats price as a proportion of the corn price on a per pound basis, monthly

Dollars per bushel

Proportion



Source: USDA, National Agricultural Statistics Service, Quick Stats.

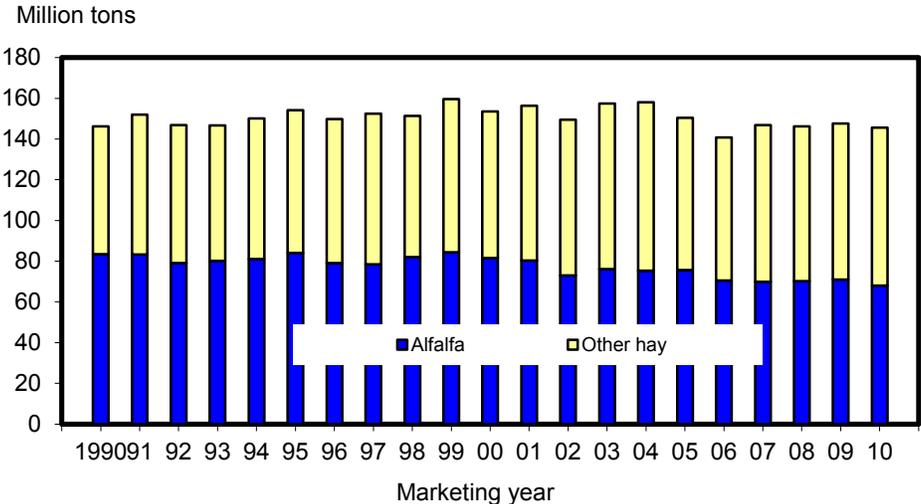
Hay Situation and Outlook

Hay Production Lower in 2010/11

U.S. hay production for 2010/11 was 145.6 million tons, down from 147.7 million tons in 2009/10. Acreage harvested was 59.9 million acres, nearly unchanged from the 59.8 million acres a year earlier. Average yield in 2010 was reported at 2.43 tons per acre, down 0.04 tons per acre from the previous year. Texas was the largest producer of hay at 10.8 million tons, and California followed with 8.3 million tons. Missouri and South Dakota were the third- and fourth-largest hay producers, respectively, in 2010.

Compared with 2009, alfalfa hay harvested area decreased in most of the country. Kansas, Minnesota, North Dakota, South Dakota, and Wisconsin--States with 200,000 acres of alfalfa hay or more--reduced their harvested area from last year. Compared with 2009, South Dakota showed the largest reduction in harvested acres, down 350,000 acres. States with the largest increases in harvested acres include Montana (up 250,000 acres) and New York (up 70,000 acres). Yields were up in the northern and southern Great Plains and the Great Lakes States. Yields were down in most of the Atlantic Coast States, southern Corn Belt, and parts of the Southwest. Minnesota recorded the largest alfalfa hay yield increase of 0.60 tons per acre, while Maryland had the largest yield decrease of 1.50 tons per acre.

Figure 22
U.S. hay production

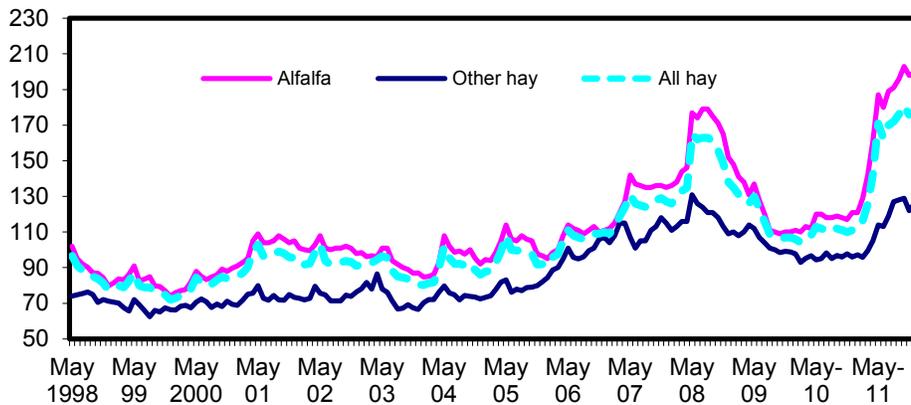


Sources: USDA, National Agricultural Statistics Service, *Crop Production and Quick Stats*.

Figure 23

Hay prices received by U.S. farmers

Dollars per short ton



Sources: USDA, National Agricultural Statistics Service, *Crop Production and Quick Stats*.

Alfalfa hay production in 2010 totaled 68.0 million tons, down from 71.1 million in 2009. Harvested area (20.0 million acres) was down 1.3 million acres from the previous year. Yields averaged 3.40 tons per acre, up 0.05 tons from 2009. California was the largest alfalfa-producing State, followed by South Dakota, Idaho, and Montana, respectively.

Compared with 2009, Montana showed the largest increase in alfalfa harvested acres, up 250,000 acres in 2010. South Dakota, Wisconsin, North Dakota, Minnesota, and Kansas all had significant reductions in acreage, ranging from 350,000 to 200,000 acres fewer than in 2009. Alfalfa yields were down or unchanged in nearly all Corn Belt States and the eastern portions of the United States but up in Rocky Mountain States. Yields were mixed in the most western States (California yields declined) as well as in the northern Missouri Valley area and extreme southern Great Plains.

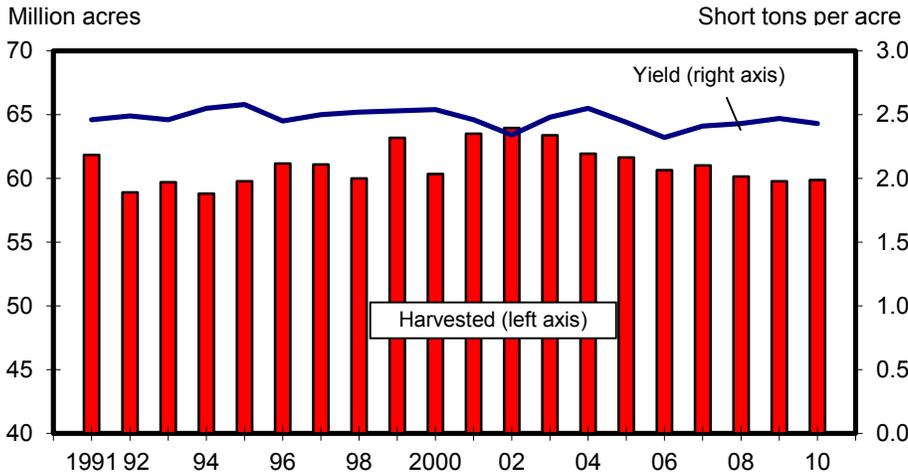
U.S. growers seeded 2.55 million acres of alfalfa and alfalfa mixtures during 2010, down 5 percent from the 2009 seeded area of 2.67 million acres. The largest increase occurred in Montana, up 25,000 acres from 2009, followed by New York and Michigan with 20,000 acres each. The largest declines were in Oklahoma, down 30,000 acres from 2009, followed by Nebraska, Minnesota, and Wisconsin with 20,000 acres each. Newly seeded acres of alfalfa and alfalfa mixtures typically are harvested for the first time in the year following planting.

Production of all other hay in 2010 totaled 77.7 million tons, up 1 percent from 2009. Area harvested (39.9 million acres) was up 4 percent from the previous year. The average yield was estimated at 1.95 tons per acre, down 0.04 tons per acre from 2009.

For 2010/11, the largest production gains for all other hay went to the biggest-producing States. Texas production led the Nation at 2.6 million tons (a 33-percent gain) followed by Oklahoma with a 0.6-million-ton gain. Montana, Washington, Wisconsin, and Louisiana also showed advances in production. Production slipped

Figure 24

U.S. hay harvested acres and yields



Sources: USDA, National Agricultural Statistics Service, *Crop Production and Quick Stats*.

in Kentucky, Arkansas, Virginia, Missouri, Mississippi, and Kansas, mostly due to extensive hot, dry weather. All other hay acreage for Texas jumped 600,000 acres to 5.1 million acres. Kansas, Virginia, and South Dakota also advanced with gains of 200,000 acres, 160,000 acres, and 150,000 acres, respectively. Montana advanced 100,000 acres, while North Dakota acreage slipped 190,000 acres, by far the largest decline. Other States that harvested fewer acres include Pennsylvania, New York, and Georgia. States east of the Mississippi generally experienced higher or unchanged yields except in Michigan, Indiana, Missouri, Georgia, Wisconsin, and Ohio. Overall, Wisconsin reported the largest yield increase, followed by Texas, Montana, and Michigan. Yields slipped more than 5 tons per acre in Virginia, Mississippi, Arizona, and Colorado.

Stocks of all hay types stored on farms totaled 102.1 million tons on December 1, 2010, down slightly from 107.2 million tons for the previous year. Disappearance in the 2010/11 (May-April) marketing year totaled 144.3 million tons, compared with 148.9 million tons for the same period in 2009. Disappearance for May-December 2010--the first half of the marketing year--totaled 64.4 million tons, compared with 62.5 million tons a year earlier. Stocks on May 1, 2011 came in at 22.2 million tons, compared with 20.9 million tons a year earlier.

Hay Prices Increase in 2010/11

The season average farm price for all hay during the May-April 2010/11 marketing year averaged \$114 per ton, compared with \$108 per ton in 2009/10. The 2008/09 crop year saw record prices of \$152 per ton due to widespread drought.

Farmers received an average of \$123 per ton for alfalfa hay during the 2010/11 marketing year, compared with \$113 per ton the previous season. Prices for the marketing year began at \$120 per ton in May 2010 and rose sharply to \$161 per ton by April 2011.

Other hay (not alfalfa) brought a weighted season average price of \$97.00 per ton in 2010/11; the season average price for 2009/10 was \$97.30 per ton, compared with \$11.80 per ton in 2008/09. Prices rose during the marketing year from \$94.40 per ton in May 2010 to \$105.00 per ton by April 2011.

Other Forage

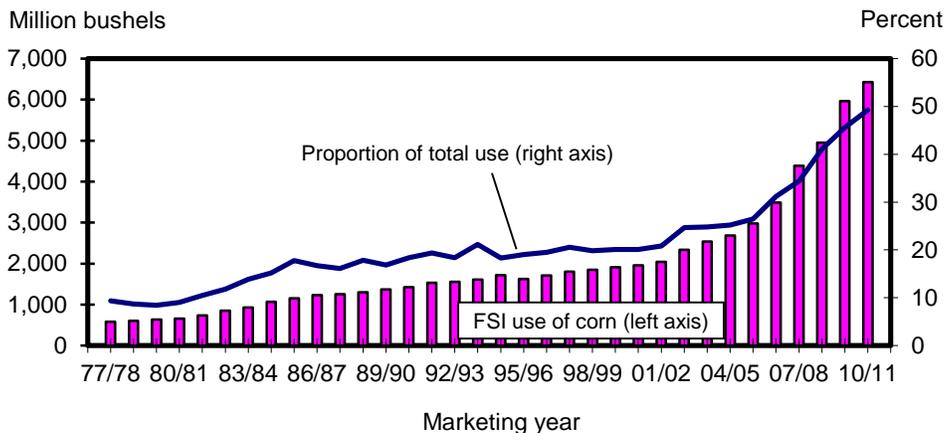
Corn silage production was estimated at 110.7 million tons in 2010/11, down 1 percent from 2009/10. The U.S. silage yield was estimated at 19.3 tons per acre, unchanged from the previous year, while area harvested for silage (5.57 million acres) was down 1 percent from a year earlier. Sorghum silage production was estimated at 3.37 million tons, down 8 percent from 2009/10. Area cut for sorghum silage was reported at 268,000 acres, up 6 percent from the previous year. Silage yields averaged 12.6 tons per acre, down 1.9 tons per acre from 2009/10. In the two largest-producing States--Kansas and Texas--producers experienced lower yields, or 9 and 14 tons per acre, respectively. Arizona reported the highest yield at 22 tons per acre.

Roughage-consuming animal units (RCAU) in 2010/11 were reported at 69.31 million, down from 70.39 million a year earlier. As of December 1, 2010, hay stocks on farms per RCAU were reported at 1.47 tons, down from 1.52 tons a year earlier. Silage production (corn and sorghum) per RCAU was reported at 1.60 tons in 2010/11, up from 1.59 tons in 2009/10.

Food, Seed, and Industrial Use of Corn

Figure 25

U.S. FSI corn use



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

Food, Seed, and Industrial Corn Uses Advanced in 2010/11

U.S. FSI corn use totaled 6,425 million bushels in 2010/11, up from 5,961 million bushels in 2009/10. FSI use accounted for 49 percent of total corn use, up from 46 percent in 2009/10 and 42 percent in 2008/09. Corn use in 2010/11 was up for all categories, particularly for corn used to produce ethanol as a result of higher biofuels mandates and favorable margins for ethanol producers.

Corn used to make ethanol totaled 5,019 million bushels in 2010/11, up 9 percent from 2009/10, exhibiting slower growth than recent years. During the marketing year ending August 2011, the U.S. Department of Energy, Energy Information Administration (EIA) reported ethanol production at 13.811 million gallons, a 1.141 million gallon increase from the previous marketing year. This production increase reflects the addition of some new ethanol plants, but primarily shows existing plants coming back into production after being purchased by new owners and/or plants operating at greater efficiencies. Ethanol stocks in August 2011—also reported by EIA—came in at 761 million gallons, up from 730 million gallons in August 2010. Rising ethanol production more than offsets increases in use, boosting ending stocks.

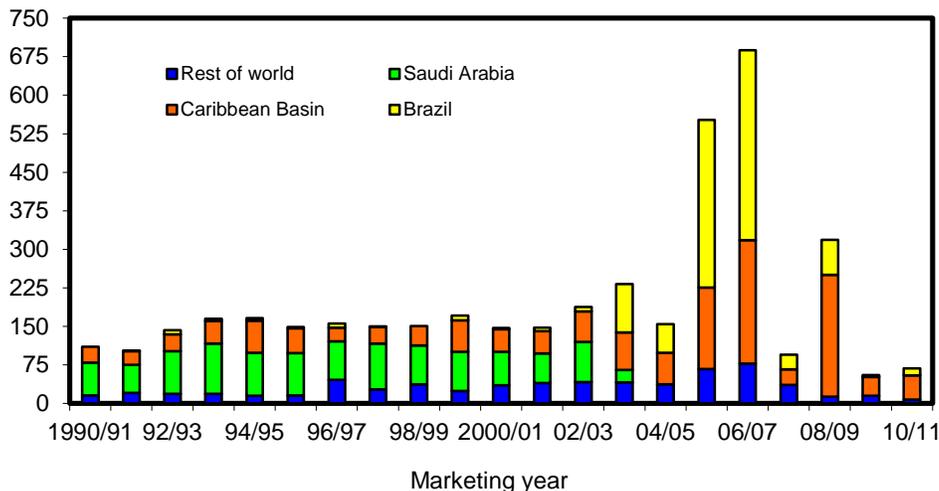
Throughout 2010/11, profit margins for ethanol producers were favorable. Although corn prices reached record highs, escalating oil prices combined with the \$0.45 per gallon Volumetric Ethanol Excise Tax Credit (VEETC) and increasing use mandates under the Renewable Fuel Standard (RFS) encouraged blending ethanol with gasoline. High sugar prices boosted Brazilian ethanol prices as Brazilian mills produced sugar instead of fuel, opening export opportunities for U.S. ethanol both to fulfill Brazilian demand and to replace Brazilian supplies in other markets, such as the European Union. U.S. exports in 2010/11, not including ethanol blended with gasoline, were nearly 20 percent higher than 2009/10.

Record corn prices in 2010/11 increased costs for ethanol blenders but were offset by the effects of high oil prices. Crude oil prices reached \$112.55 per barrel by

Figure 26

U.S. ethyl alcohol imports

Million gallons



Source: U.S. Department of Commerce, Census Bureau.

April 2011 and remained above \$70.00 per barrel during all of 2010/11. Gasoline prices were robust, making ethanol more competitive. Unleaded gasoline prices averaged \$2.73 per gallon (rack price, F.O.B. Omaha, NE), compared with \$2.54 per gallon for ethanol at the same source. After accounting for the VEETC tax credit, ethanol prices remained competitive, averaging \$0.64 per gallon lower than unleaded gasoline, without adjusting for differing energy content.

The 2011 RFS mandated production of 12.6 billion gallons of conventional renewable fuel, which can be filled using ethanol produced from corn starch. Adjusted for a crop-year basis, the mandate is 12.4 billion gallons for 2010/11. Ethanol supplies (including imports) in 2010/11 were 14.6 billion gallons, 9 percent higher than the previous season, with 13.8 billion gallons from production. Because of positive economics for ethanol production, output exceeded the crop-year adjusted RFS available for conventional biofuels and generated strong exports, which do not count toward the RFS.

A so-called blend wall (10-percent ethanol inclusion rate) did not constrain ethanol production in 2010/11. Gasoline consumption (including ethanol) during the period totaled 135.3 billion gallons, down 1.9 percent from 2009/10. At a 10-percent blend, 13.5 billion gallons of ethanol could be utilized (not including E-85 with up to 85 percent ethanol), which is below estimated production, not including exports of at least 825 million gallons. Although the U.S. Environmental Protection Agency (EPA) approved the use of E-15 fuel (15 percent ethanol, 85 percent gasoline) or most cars and light trucks, vehicle warranty and infrastructure constraints (especially in the gasoline distribution industry) have delayed commercial sales of the blend. U.S. ethyl alcohol imports totaled 41.5 million gallons during 2010/11 for the Census harmonized tariff categories that include ethanol, down from 82.9 million gallons for 2009/10 and 321.6 million gallons for 2008/09. Fuel imports were subject to a 54-cent-per-gallon duty unless the alcohol was produced in Caribbean

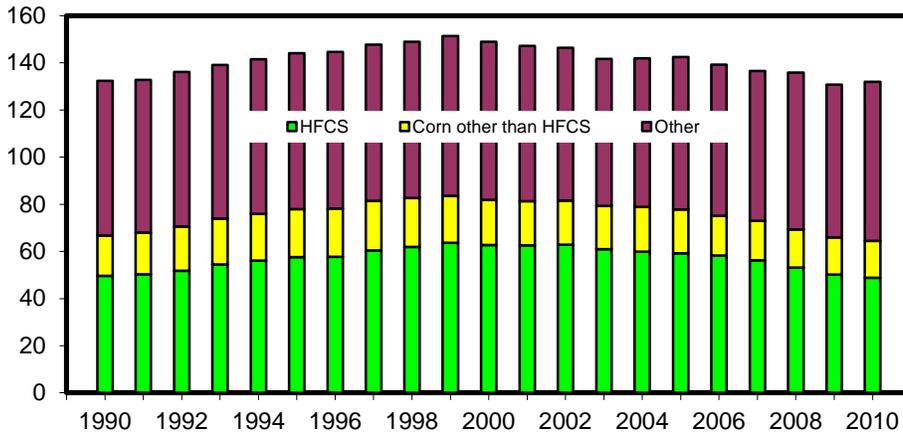
Basin countries that can ship duty free to the United States up to a level equal to 7 percent of the U.S. market. Almost all of the ethanol shipped from the Caribbean Basin comes from Brazilian ethanol that has been further processed.

Corn used for HFCS in 2010/11 reached 521.1 million bushels, up less than a percent from 2009/10. HFCS is primarily used in soft drinks and food products. As economic conditions improved, corn use for HFCS recovered after falling below 500 million bushels during 2008/09. U.S. production was estimated at 19,703 million pounds, compared with 20,169 million from the previous year. Estimated corn use for HFCS exports was down 1.7 percent for 2010/11, relative to 2009/10. In 2010/11, HFCS exports in corn equivalents to Mexico increased 20 percent from the previous year, as tighter Mexican sugar supplies boosted demand for U.S. HFCS. As a result, Mexico increased HFCS imports to support domestic sweetener demand with lower cost HFCS.

Figure 27

U.S. per capita sweetener consumption

Pounds

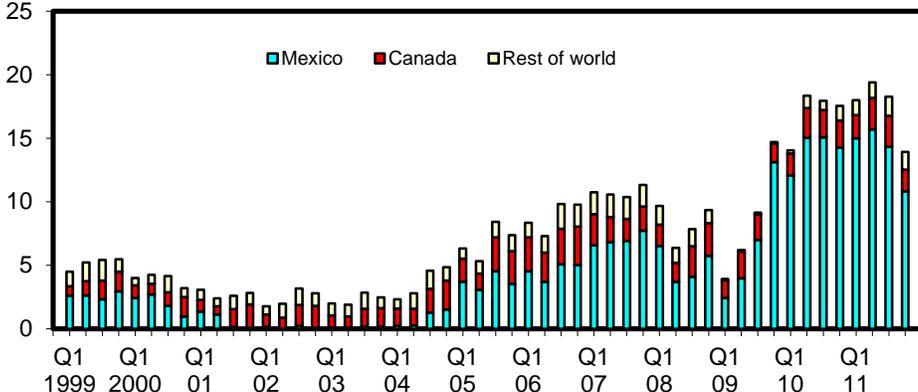


Note: Other includes refined sugar, honey, and other sweeteners.
 Source: USDA, Economic Research Service, *Sugar and Sweeteners Yearbook*

Figure 28

U.S. HFCS-55 exports per quarter in bushel equivalents

Mil. bu



Note: HFCS 55 is high fructose corn syrup with a 55 percent fructose rating.
 Source: U.S. Department of Commerce, Census Bureau.

Corn used for cereals and other products was reported at 197.0 million bushels for 2010/11, up slightly from 193.7 million in 2009/10, as per capita demand for these products remained relatively stable and U.S. population increased. Corn used for beverages and manufacturing was reported at 135 million bushels, up slightly from 134 million bushels in 2009/10, also as a result of slowly recovering demand for industrial product manufacturing as economic conditions gradually improved. Output of starch and sugars (glucose and dextrose) improved in 2010/11 by 3.2 and 5.9 percent, respectively, reflecting increased industrial use. Starch is used in a variety nonfood products, such as drywall for building construction, and food products. Glucose and dextrose are used extensively in food and beverage products.

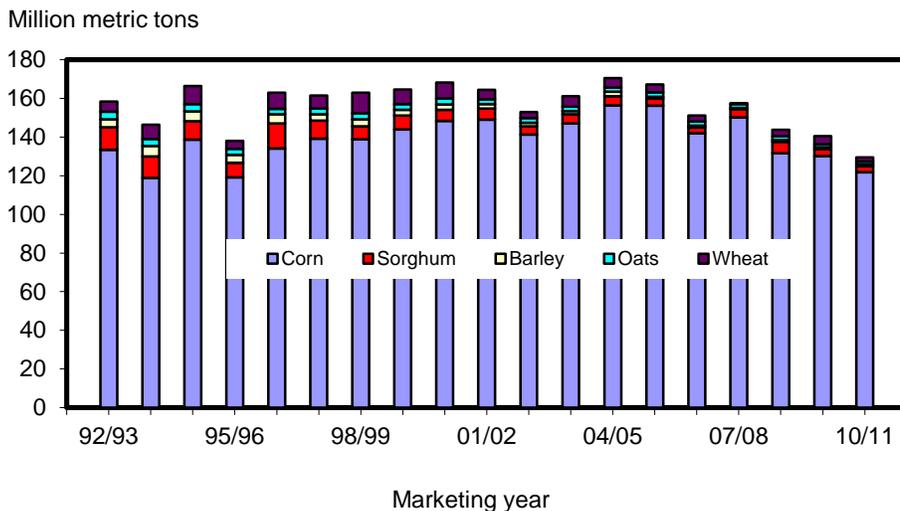
Feed and Residual Use

Feed and Residual Use Decreased in 2010/11

At 129.6 million tons, U.S. feed and residual use of the four feed grains, plus wheat, during the September-August 2010/11 corn marketing year was down 9.6 mmt from the 139.2 mmt used in September-August 2009/10. Corn represented 94 percent of feed and residual use in 2010/11, up from 93 percent in 2009/10, as feed and residual use for wheat, sorghum, and oats all slipped.

The grain-consuming animal units (GCAU) index for 2010/11 improved 0.8 percent to 92.4 million. In the index components, GCAU's for dairy cows, cattle on feed, hogs, broilers, and turkeys were up year to year; only layers were down. With feeding down, GCAU's up, and increased availability of distillers' grains from rising ethanol production, grain fed per GCAU decreased to 1.40 tons in 2010/11, compared with 1.52 tons in 2009/10.

Figure 29
U.S. feed and residual use

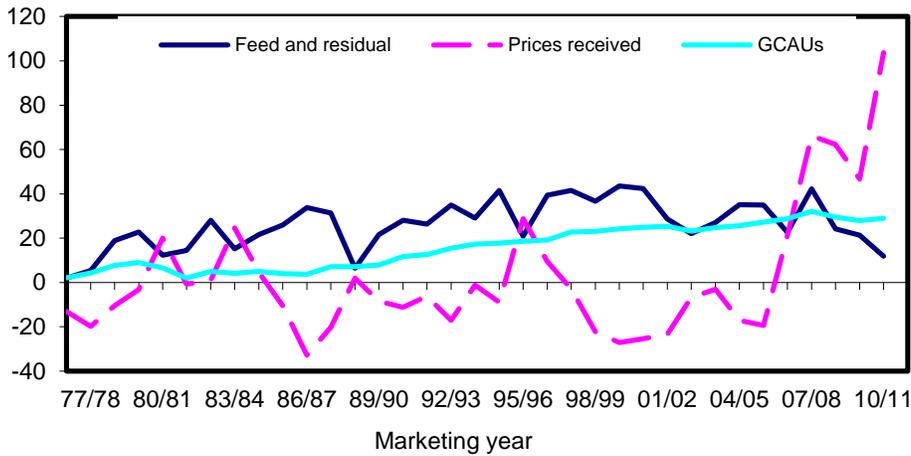


Source: USDA, Foreign Agricultural Service, *Grain: World Markets and Trade (Grain Circular)*.

Figure 30

GCAU, prices, and feed and residual use of corn

Percent change from 1976/77



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

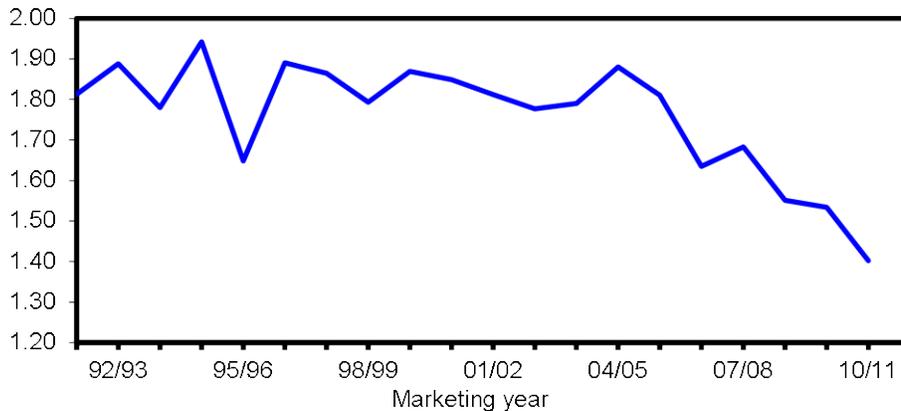
Livestock inventories provide an indication of feed demand and are used to calculate GCAUs. Dairy cows on January 1, 2011, totaled 9.15 million head, up 64,100 head from January 1, 2010. Milk producers reduced feeding intensity as a short-term response to higher feed prices. Dairy replacement heifers totaled 4.56 million head at the start of 2011, up slightly from January 1, 2010. Milk production in 2011 (mostly in the 2010 corn marketing year) was estimated at 196.2 billion pounds, up from 192.8 billion pounds in 2010. Milk producers, spurred by low milk prices, liquidated a portion of their herds in 2009 but began rebuilding them in 2010. Thus, feed use by the dairy industry may have increased slightly.

Cattle and calves on feed for the U.S. slaughter market (feedlots with capacity of 1,000 or more head) totaled 14.0 million head on January 1, 2011, or 3 percent higher than January 1, 2010. This inventory included 7.18 million steers and steer calves, up 4 percent from the previous year, and accounted for 62 percent of the total inventory. Heifers and heifer calves accounted for 4.26 million head, up 5 percent from 2010. The number of feeder cattle outside of feedlots on January 1, 2011, totaled 26.7 million head, down from 27.5 million head at the same time the previous year. As higher corn prices and improved forage availability lead to more cattle placed on feed at heavier weights, gains in feed needs for cattle on feed were limited. Heavier placement weights indicate that less grain is needed to raise feeder cattle to market weight, likely due to increased use of distillers' grains (such as dried distillers' grains, or DDGs). As of January 1, 2011, U.S. cattle and calves totaled 92.7 million head, 1 percent below the 93.9 million reported on January 1, 2010. This is the lowest January 1 inventory of all U.S. cattle and calves since the 91.2 million reported in 1958.

Figure 31

U.S. feed and residual use of corn, sorghum, barley, oats, and wheat per GCAU

Tons per GCAU



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

Broiler production increased slightly in 2011 to 37.2 billion pounds. Egg producers increased output 1 percent from 2010 to 7.7 billion dozen in 2011. Although feed and energy prices were higher than those of a year earlier, egg prices have not remained consistently high enough to give producers much incentive to increase production. In 2011, turkey production was forecast at 5.8 billion pounds, up 2.6 percent from 2010. Overall, feed demand by the poultry sector continued to slip as higher grain prices and weakened demand affected the sector.

Pork production in 2011 was up 1.4 percent from the 22.5 billion pounds produced in 2010. As reported in the Quarterly Hogs and Pigs report, U.S. hog producers farrowed 2.92 million sows during the March-May 2011 quarter, down less than 1 percent from farrowings during the same period in 2010, and down 3 percent from 2009. Farrowings for June-August 2011 (2.97 million sows) were down 1 percent from 2010 and 2009.

As of March 1, 2011, the total number of hogs under contract--owned by operations with over 5,000 head but raised by contractees--accounted for 46 percent of the total U.S. hog inventory, up 2 percent from the previous year. The decrease in pork production suggests that feed needs for the pork sector had decreased from the previous year.

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Appendix Tables

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