

Cropland

Cropland includes five components: **cropland harvested**, **crop failure**, **cultivated summer fallow**, **cropland pasture**, and **idle cropland** (see Appendix for detailed descriptions of terms in **bold**). Cropland harvested, crop failure, and cultivated summer fallow comprise the total amount of cropland used for crops, or the acreage devoted to crop production in any year. Cropland pastured and idle cropland are not directly involved in crop production in a given year, but may rotate into production in another year.

Cropland Used for Crops

In 2002, the last year in which total cropland was inventoried by the Census of Agriculture, about 340 million acres, or 77 percent of the Nation's cropland base, were used for crops (table 1). Acreage used for crops was largest in the Northern Plains, followed by the Corn Belt, Lake States, Mountain, and Southern Plains regions. As a proportion of total cropland, cropland used for crops was above the national average in the Corn Belt, Lake States, Northern Plains, and Northeast, and below average in the Pacific, Mountain, Southern Plains, Delta States, Southeast, and Appalachia regions. Proportions ranged from a high of 87 percent in the Corn Belt to 56 percent in the Southern Plains region (see Major Land Uses data series for cropland acreage by region and State from 1945 to 2002: <http://www.ers.usda.gov/data/majorlanduses/>).

Cropland harvested, the dominant component of the acreage used for crops, includes row and closely sown crops, tree fruits and nuts, and vegetables. Cropland harvested totaled 307 million acres in 2002, down from 321 million acres in 1997 (table 5). The decrease in cropland harvested, and the

Table 5

Major uses of cropland, selected years, 1949-2002

Year	Cropland used for crops				Idle ³	Cropland pasture ⁴	Total cropland ²
	Harvested	Failed	Fallowed ¹	Total ²			
	<i>Million acres</i>						
1949	352	9	22	383	26	69	478
1954	339	13	28	380	19	66	465
1959	318	10	31	359	33	66	458
1964	292	6	37	335	52	57	444
1969	286	6	41	333	51	88	472
1974	322	8	31	361	21	83	465
1978	330	7	32	369	26	76	471
1982	347	5	31	383	21	65	469
1987	293	6	32	331	68	65	464
1992	306	8	24	338	56	67	460
1997	321	7	21	349	39	68	455
2002	307	17	16	340	40	62	442

¹ Cultivated summer fallow.

² Distribution may not add to totals due to rounding.

³ Includes all acreage diverted from crops under the Acreage Reduction Program (ARP), the Conservation Reserve Program (CRP), and other Federal acreage reduction programs shown in figure 5.

⁴ Cropland used only for pasture.

Sources: Estimates from 2002 are from USDA/NASS, 2004a, 2004b, 2005. Estimates prior to 2002 are from Daugherty, 1991, 1995; Frey, 1973, 1979, 1982; Frey and Hexem, 1985; Frey et al., 1968; Vesterby and Krupa, 2001; Wooten et al., 1962; Wooten and Anderson, 1957; and Wooten, 1953.

resulting increase in crop failure, was partly the result of severe drought in some parts of the country in 2002. Crop failure occurred on 17.1 million acres, about 5 percent of the acreage planted for harvest in 2002. This failure rate was well above average for recent years. From 1945 to 2002, the rate of cropland failure averaged less than 3 percent. The rate of cropland failure in 2002 was the highest since 1956, and before that, the Dust Bowl years of the 1930s. Forty-three percent of the failed acreage in 2002 occurred in the Northern Plains. High crop failure rates also occurred in the Southern Plains and Mountain States, which account for 20 and 19 percent, respectively, of all failed acreage in the United States (see Major Land Uses data series for regional and State-level data on cropland failure from 1910 to 2002: <http://www.ers.usda.gov/data/majorlanduses/>).

As with cropland used for crops, harvested acreage was above the national average (70 percent of total cropland) in the Corn Belt, Lake States, and Northeast; about average in the Delta States, Northern Plains, and Pacific regions; and below average in the Southeast, Appalachian, Mountain, and Southern Plains regions. In 2002, the proportion of cropland harvested ranged from 47 percent in the Mountain States to 86 percent in the Corn Belt. The Mountain States and Southern Plains had higher proportions of cropland pasture and idle cropland than other regions, accounting for lower than average rates of harvested cropland.

Cultivated summer fallow refers to cropland in sub-humid regions that is cultivated for a season or more to control weeds and accumulate moisture before small grains are planted. Summer fallow is used extensively in the semiarid West. The use of summer fallow has been decreasing since the late 1960s. In 2002, summer fallow was at 16 million acres, down from a 15-year high of 32 million acres in 1987 and 25 million acres lower than 1969. More than 41 percent of summer fallow acres are in the Northern Plains region, 39 percent in the Mountain region, and the remainder in the Pacific and Southern Plains regions.

Other Cropland

The remainder of total cropland—that portion not used for crops— was used for pasture (62 million acres) or was idle (40 million acres) in 2002. In contrast to permanent grassland pasture and range, cropland pasture is considered to be in a crop rotation. Much of the cropland used for pasture is routinely rotated between crop and pasture use, although the rotation period varies. Part of the acreage, however, is marginal for crop use and may remain in pasture indefinitely.

Cropland used for pasture accounted for nearly 14 percent of all cropland in 2002. The largest acreages were in the Southern and Northern Plains, and the Mountain States, regions that also had the highest rates of crop failure. Some cropland, which would have otherwise failed due to the drought, was probably grazed and counted as cropland pasture.

The reason for pasturing cropland varied between regions. Cropland pasture acreage in the Corn Belt and adjacent areas reflects the high proportion of land classified as cropland. On many farms in this region, the only land

available for pasture may be good quality cropland. In contrast, cropland pasture in the Plains regions and much of the South is associated with higher proportions of marginal cropland.

Idle cropland includes both land completely idled and land seeded to cover or soil improvement crops, such as buckwheat and clover, but not harvested or pastured. Idle cropland totaled 40 million acres in 2002, about 9 percent of U.S. cropland. This amount nearly equals the U.S. historical average of 38 million acres since the major land-use series began in 1945. Regionally, the idle portion of cropland ranged from 6 percent in the Northeast to 17 percent in the Mountain States. Some cropland is idle each year because of adverse weather and soil conditions at planting time or lack of economic incentives. About 85 percent of the land idled in 2002 was under the Conservation Reserve Program (CRP). In 1992, 35 million of the estimated 56 million acres of idle land were in the CRP. Most of the remainder was in annual acreage reduction programs, which were discontinued in 1996. Some CRP land may be planted to trees, but is still classed as idle cropland due to limited data on forest coverage on CRP acreage.⁸ About 1 million acres of land classed as idle in 2002 was enrolled in the Wetland Reserve Program, a Federal program offering landowners financial incentives to remove frequently flooded land from agricultural production (USDA/NRCS, 2004b).

Trends in Cropland Uses

Cropland acreage has remained relatively constant since World War II, but has declined slowly in recent decades. A drop from 478 million acres in 1949 to 444 million acres in 1964 was largely the result of surplus production and subsequent acreage reduction programs. Cropland acreage was at or above 455 million acres in each census year from 1969 to 1997 (table 5). Between 1997 and 2002, total cropland dropped 13 million acres (about 3 percent) to 442 million acres, the lowest since the Major Uses of Land (MLU) series began in 1945 and 2 million acres less than the previous low in 1964.

The sum of cropland used for crops plus idle cropland has followed similar cycles, declining 25 million acres from 1949 to 1969, increasing 20 million acres from 1969 to 1982, and then falling from 404 million acres in 1982 to a 57-year low of 380 million acres in 2002. Idle cropland includes acreage fallowed but not harvested all year as well as acreage diverted from crops under the CRP (initiated in 1985) and other Federal acreage reduction programs (in effect prior to 1996).

Although the total acreage classified as cropland has slowly declined over recent decades, other changes have occurred in component acreages. These changes largely reflect the absence or presence, and extent, of set-aside requirements for Federal crop programs. Federal program enrollments, in turn, reflect the status of supply and demand relationships for agricultural products as well as changes in Federal farm policies.

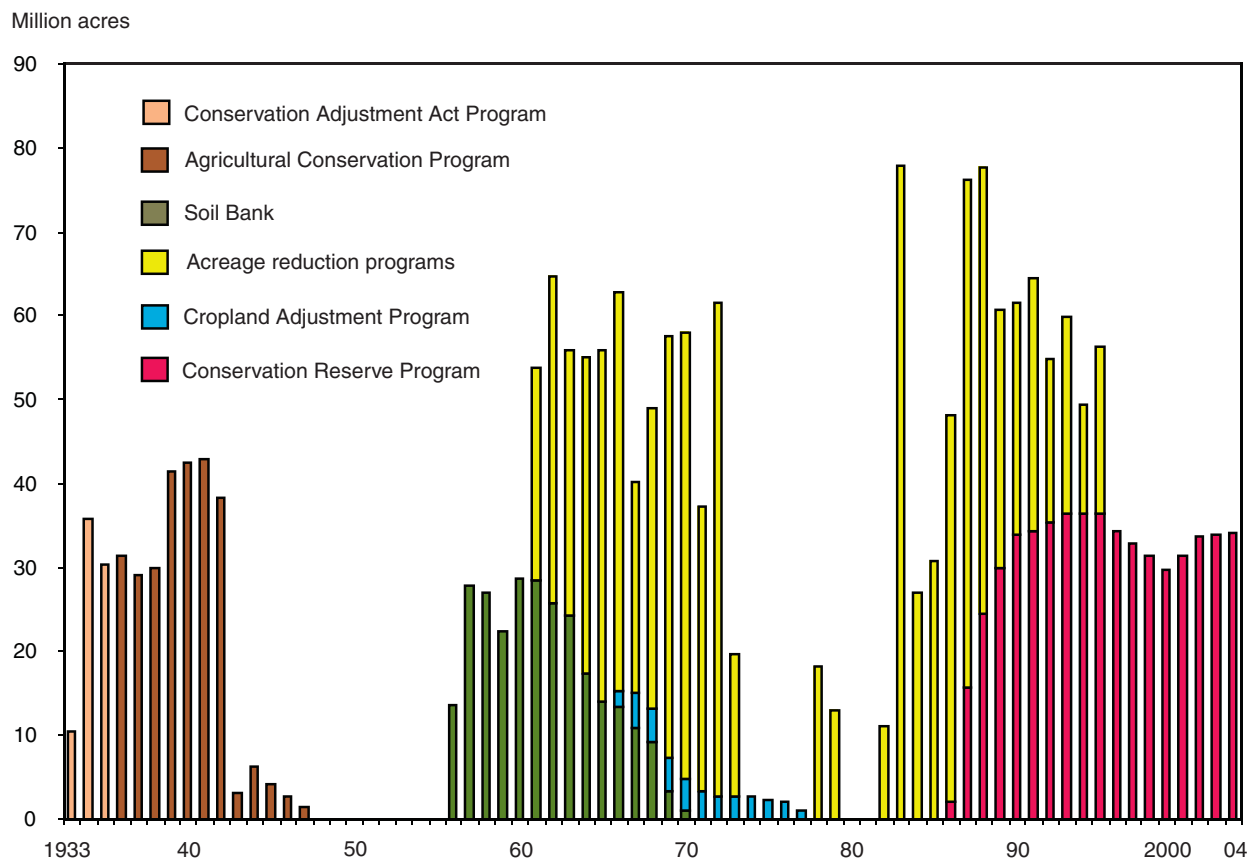
Cropland acreage used for crops has been subject to greater short-term variations than either total cropland or cropland used for crops plus idle land

⁸ All CRP land is classified as idle cropland due to the difficulty of assessing the level of forest cover on CRP lands. In 2002, approximately 2.6 million CRP acres nationwide were enrolled under practices requiring tree planting, riparian buffers, and maintenance of existing trees. Additional trees may have existed on other CRP lands, such as 2.3 million acres managed for wildlife cover in 2002 (USDA/FSA, 2003).

(see “Major Land Uses” data product for annual national-level data on cropland used for crops, including cropland harvested, crop failure, and summer fallow, since 1910: <http://www.ers.usda.gov/data/majorlanduses/>). After falling from 383 million acres to 333 million acres from 1949 to 1969, cropland used for crops increased to 383 million acres by 1982 and then fell sharply to a 57-year low of 331 million acres in 1987. Cropland acreage used for crops increased by 18 million acres (5 percent) from 1987 to 1997, before declining 9 million acres (2 percent) during 1997-2002. The area of cropland used for crops in 2002 was 340 million acres, 11 percent below the 1982 and 1949 highs and about 5 percent below the average of 360 million acres for 1910-97. Nevertheless, cropland used for crops in 2002 remained 13 million acres (5 percent) above the 1988 low of 327 million acres.

There is an inverse relationship between two of the components of total cropland: as idled cropland increases, cropland used for crops decreases, and vice versa. Cropland used for crops was at a record high of 383 million acres in 1949 when no acres were idled by Federal programs (table 5, fig. 5). In 1972, cropland used for crops was at a near record low of 334 million acres when Federal programs idled 61 million acres. The area under Federal

Figure 5
Cropland acreage reductions by program type, 1933-2004



Note: For yearly detail of programs, 1974-95, see USDA/ERS, 1997. “Acreage reduction programs” include Acreage Conservation Reserve; 0, 50/85-82 programs; Paid Land Diversion; and Payment-in-Kind programs. Land under these programs is classified as idled cropland in the Major Land Uses estimates.
 Source: Crosswhite and Sandretto, 1991; updated by USDA/ERS based on USDA/FSA, 2005.

cropland acreage reduction programs decreased to less than 3 million acres in 1974 (fig. 5). This decline was accompanied by a 27-million acre (8 percent) increase in cropland used for crops. Cropland used for crops climbed to 387 million acres in 1981 when Federal programs did not idle any cropland, and dropped to 333 million acres in 1983 when Federal program set-aside acres reached their historic peak of 78 million acres. Between 1987 and 2002, cropland used for crops increased overall while acreage idled by Federal programs decreased from 76 million acres to just under 34 million acres. Cropland used for crops declined from 349 million acres in 1997 to about 340 million acres in 2004, while acreage idled under Federal programs increased by 200,000 acres, all under CRP.

The general magnitude and trend of the annual changes in cropland used for crops correspond to changes in the land area idled under Federal acreage-reduction programs. Land area under acreage reduction programs has fluctuated inversely with commodity prices, while cropland used for crops has varied together with prices (fig. 6). Declines in real inflation-adjusted prices appear to be followed by increases in idled acreage and corresponding decreases in cropland used for crops, and vice versa. This relationship is consistent with a response by commodity producers to changing market incentives and with government efforts to manage commodity supplies and support farm incomes under adverse market conditions.⁹

Though cropland used for crops has tended to follow trends in prices of major crop commodities, the relative changes in acreage are smaller than the relative changes in prices (fig. 6). Between 1980 and 2002, the prices of major commodities declined by over 60 percent in inflation-adjusted terms, while total cropland used for crops dropped by about 6 percent. Productivity increases might have mitigated some of the effect of real price declines on the real returns to crop production. The variation in cropland used for crops in the 1990s was also smaller than in the 1980s, despite significant variation in real prices. This pattern may reflect the phasing out and elimination in 1996 of Federal acreage-reduction programs other than CRP. The pattern may also reflect the fact that, as the area of cropland used for crops declines, the remaining cropland is generally of higher average quality and less likely to move in and out of production with short-term price fluctuations.

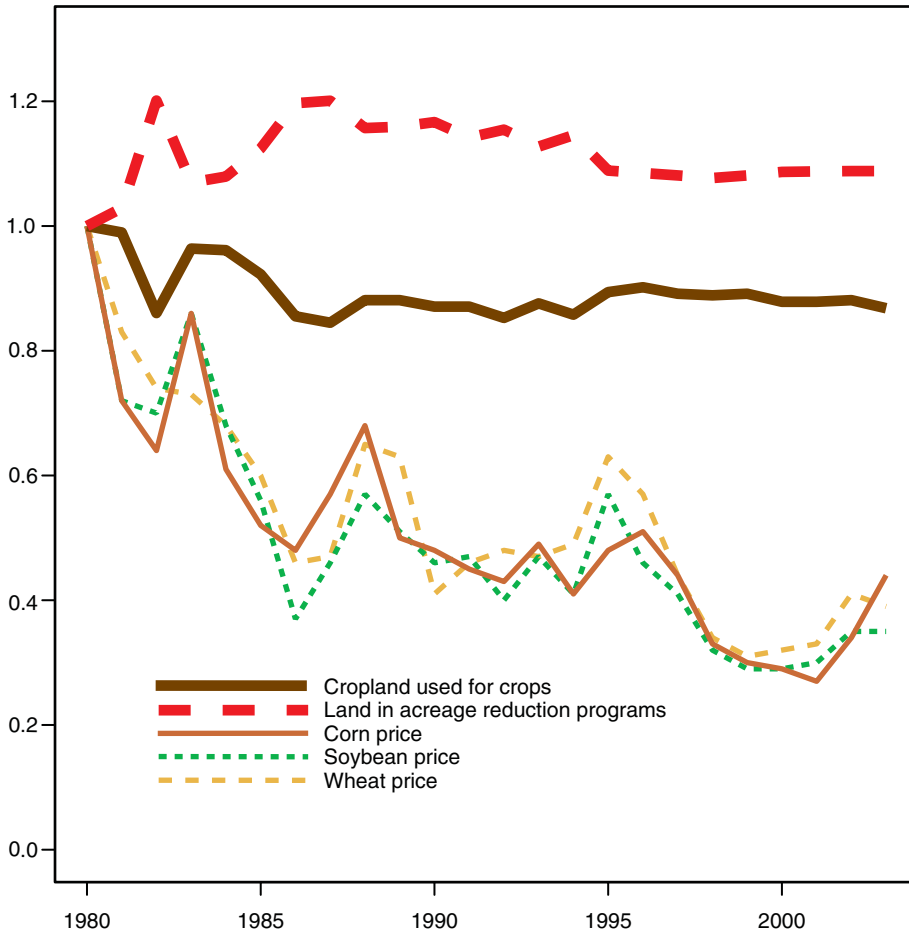
A number of major changes in farm program policy could also have influenced agricultural land-use decisions during this period. Farm legislation in the 1980s and 1990s marked a shift toward greater market orientation, with the addition of income-supporting (rather than price-supporting) commodity loan programs in 1985 and the introduction of planting flexibility on acres qualifying for commodity program payments in 1990. The Federal Agriculture Improvement and Reform (FAIR) Act of 1996 subsequently eliminated acreage set-aside requirements and virtually all cropping restrictions that had been in effect under previous farm programs. The FAIR Act also replaced commodity payments directly tied to current planting decisions with payments tied to historic production choices (Nelson and Schertz, 1996). Meanwhile, the Federal Crop Insurance and Reform Act (FCIRA) of 1994 increased Federal crop insurance premium subsidies, and additional increases were introduced in 2000. Total premium subsidies per insured acre

⁹ See Roberts et al. (2004) for a discussion of the countercyclical nature of Federal farm payments and the role of government farm programs in insuring producer risks.

Figure 6

Cropland used for crops and commodity prices of key crops

Real price and cropland indices



Notes: Real (inflation-adjusted) prices are plotted with a 1-year lag to better track incentives at the time of planting. Prices and land areas are indexed to 1 for 1980 to illustrate relative time trends. To construct the index for land in acreage reduction programs, this acreage is scaled as a share of the acreage in cropland used for crops in 1980, plus a constant that shifts this share up to 1 in the base year. As a result, equal percentage changes in the two cropland indexes indicate equivalent changes in land area.

Source: USDA/ERS, using prices from the National Agricultural Statistics Service deflated with the producer price index for all commodities from the Bureau of Labor Statistics.

almost doubled from 1993 to 2000, while the total level of subsidies paid increased from about \$200 million to \$1.3 billion (Glauber and Collins, 2002). Although these legislative initiatives changed the policy environment for crop production, total cropland acreage has changed little relative to historic trends.

Changes in cropland harvested parallel changes in cropland used for crops, except when the latter is affected by abnormally large changes in crop failure and cultivated summer fallow. Thus, the 1949-2002 totals vary between 286 million and 352 million acres, a range slightly wider than the range in cropland used for crops over the same period, which was 331 million to 387 million acres.

Estimates of cultivated summer fallow peaked at 41 million acres in 1969. In 1997, cultivated summer fallow totaled 21 million acres. Summer fallow occurs mostly in the Plains States where it is used in alternate years with small grains, primarily wheat, to conserve moisture and control weeds. Since 1969, summer fallow has declined and leveled off at about 31 million acres from 1973 through 1987. It has since gradually declined to approximately 15 million acres in 2004. Wetter years (which diminish the need for moisture-retaining summer fallow), better wheat varieties, and improved cultivation practices have contributed to this decrease.

The long-term decline in the area under cultivated summer fallow is partly attributed to the adoption of moisture-conserving soil conservation practices, such as no-till and mulch-till, which have reduced the need for summer fallow. With less summer fallow, farm operators can use more land to grow crops, increasing farm income potential. Some of the decrease in summer fallow may also be attributable to the Conservation Reserve Program (CRP). Much of the CRP acreage is in the Great Plains region, where summer fallow is most commonly practiced. Land taken out of production and placed in the CRP includes some land that might otherwise have been in summer fallow.

Land marked by crop failure has ranged between 5 million and 22 million acres since 1945. The possibility of a large acreage failure is always present. Crop failure was around 10 million acres in 1988, 1993, 1996, 1998, 2000, and 2001 due to severe drought, extensive flooding, or wet weather. The 17 million acres of crop failure in 2002 were the highest since the extensive droughts of 1956. Moderate to extreme drought reached more than half of the contiguous United States during the summer of 2002 (DOC/NOAA).

Total idled acreage in 2002 was almost 1 million acres (2 percent) higher than in 1997, due mainly to an expansion of CRP. Idled cropland increased during the 1950s and 1960s when acreage shifted from crop production, then declined in the early 1970s as acreage returned to production (table 5). Since 1987, idled acreage has ranged from 39 million to 68 million acres—between two and three times the 1974-82 levels—in response to increased enrollments in Federal crop programs and as a result of lands retired under 10- to 15-year CRP contracts.

Cropland used for pasture was 68 million acres in 1997, compared with a high of 88 million acres in 1969 and a low of 57 million acres in 1964 (table 5). These acreage figures may not be strictly comparable, primarily because of inconsistent classifications between cropland pasture and permanent grassland pasture.

Irrigated land reached a record-high of 56 million acres in 1997 and declined about 1 million acres nationally between 1997 and 2002 (see <http://www.ers.usda.gov/data/majorlanduses/> for irrigated land acreage in 2002 by region and State). Irrigated land has increased nearly 9 million acres (19 percent) since 1987, while total cropland decreased over the same period by 22 million acres, or nearly 5 percent (table 2). Irrigated land in 1997 was at record-high levels for every region except the Southern Plains and Mountain States. Between 1997 and 2002, irrigated land decreased in

all regions except for the Delta States, where it reached a high of 6 million acres in 2002.

Regional Changes in Cropland Used for Crops

While the area of cropland used for crops declined between 1997 and 2002, cropland used for crops increased by almost 5 million acres, or 1.4 percent, from 1964 to 2002. At the same time, sharp downward shifts occurred in some regions and larger increases in others. This further concentrated acreage used for crops in major crop-producing regions.

Cropland used for crops in the Northeast, Northern Plains, Southeast, Southern Plains, Mountain, and Pacific regions declined 12 million acres from 1964 to 2002, but increased by 17 million acres in the remaining regions (see Major Land Uses data series for trends by region and State: <http://www.ers.usda.gov/data/majorlanduses/>). Sixty-three percent of the 1964-2002 increase, nationally, occurred in the Corn Belt. The net gains from 1964 to 2002 are attributable to conversion from grassland pasture and range and transfers from cropland pasture acreage in the Corn Belt and Delta States regions.

For some regions, changes in cropland used for crops represent year-to-year fluctuations that tend to balance out over time. For others, the long-term trend has been more dramatic. The Northeast has experienced a long-term decline in cropland used for crops. Cropland used for crops encompassed 11 million acres in the Northeast in 2002, equal to 3 percent of total cropland used for crops in the contiguous 48 States. This compares to 21 million acres in 1945, equal to 6 percent of the 48 States' acreage of cropland used for crops. Urban pressures and a comparative disadvantage in many crops have resulted in the conversion of Northeast cropland to other uses. Between 1997 and 2002, however, cropland used for crops increased almost 1 million acres (about 7 percent) in the Northeast, slightly increasing the region's share of the contiguous 48-State total.

Changes in Principal Crops Harvested

Trends in crops harvested are closely associated with levels of cropland diverted from production through Federal programs (fig. 5). In 1963, 56 million acres of cropland were diverted through the Soil Bank and acreage reduction programs, but Federal programs diverted no cropland in 1980-81. Strong growth in the export market and rapid expansions through double-cropping of soybeans and small grains marked the 1970s and early 1980s. The harvested acreage of principal crops increased by 68 million acres during 1963-81, then decreased by almost 56 million acres from 1981 to 2002. The CRP diverted almost 34 million acres from production in 2002 (USDA/FSA, 2003). The harvested acreage of principal crops peaked at 354 million acres in 1981, when no cropland was diverted.

Federal programs diverted a record 78 million acres in 1988, which brought harvested acres down to a low of 287 million acres. Since then, Federal program acreages have declined. In 1999, diverted acreage totaled just 30

million in the Conservation Reserve Program, and harvested area reached 316 million acres. It might be expected that cropland harvested would increase in direct proportion to the cropland coming out of Federal programs. However, the increase in harvested acres from 1988 to 2002, 29 million acres, did not match the 47-million-acre decrease in Federal programs, probably due to poor market conditions and weather-related crop failures in the 1990s.

The 1963-81 and 1981-2002 periods also exhibit changes in the mix of crops. Of food crops, only soybeans, some of which were double-cropped, registered substantial increases over time. Soybean acreage more than doubled from about 29 million acres in 1963 to over 72 million acres in 2002, surpassing wheat as the second-leading U.S. crop in acreage terms and almost matching the corn acreage (table 6). Wheat acreage, some of which was double-cropped ahead of soybeans, increased by 35 million acres between 1963 and 1981 but then dropped back to near-1963 levels between 1981 and 2002.

Table 6
Principal crops harvested, 48 contiguous States

Crop	1963	1981	1992	1997	2002	Change	
						1963-81	1981-2002
<i>Million acres</i>							
Food crops							
Wheat	45.5	80.6	62.8	62.8	45.8	35.1	-34.8
Soybeans	28.6	66.2	58.2	69.1	72.2	37.6	6.0
Rice	1.8	3.8	3.1	3.1	3.2	2.0	-0.6
Rye 1.6	0.7	0.4	0.3	0.3	-0.9	-0.4	
Peanuts	1.4	1.5	1.7	1.4	1.3	0.1	-0.2
Sunflowers	NR	3.8	2.0	2.8	2.2	3.8	-1.6
Dry edible beans	1.4	2.2	1.5	1.8	1.7	0.8	-0.5
Dry edible peas	0.3	0.1	0.2	0.3	0.3	-0.2	0.2
Potatoes	1.3	1.2	1.3	1.4	1.3	-0.1	0.1
Sweet potatoes	0.2	0.1	0.1	0.1	0.1	-0.1	0.0
Sugar beets	1.2	1.2	1.4	1.4	1.4	0	0.2
Sugarcane	0.5	0.7	0.9	0.9	1.0	0.2	0.3
Total	83.8	162.1	133.6	145.4	130.8	78.3	-31.3
Feed crops							
Corn, all	68.3	83.2	78.1	78.7	76.8	14.9	-6.4
Sorghum, all	17.0	15.5	12.0	9.6	7.7	-1.5	-7.8
Oats	21.3	9.4	4.5	2.8	2.1	-11.9	-7.3
Barley	11.2	9	7.3	6.2	4.1	-2.2	-4.9
Hay	66.4	59.6	58.9	61.1	64.5	-6.8	4.9
Total	184.2	176.7	154.8	158.4	155.2	-7.5	-21.5
Other crops							
Cotton	14.2	13.8	11.1	13.4	12.4	-0.4	-1.4
Flaxseed	3.2	0.6	0.2	0.1	0.1	-2.6	-0.5
Tobacco	1.2	1.0	0.8	0.8	0.1	-0.2	-0.9
Total	18.6	15.4	12.1	14.3	12.6	-3.2	-2.8
Total ¹	286.6	354.2	300.5	318.1	298.6	67.6	-55.6

NR = Not reported.

¹ Distributions may not add due to rounding.

Sources: Compiled by USDA/ERS, based on principal crops harvested from Daugherty, 1995; USDA/NASS, 1999b, 2005.

Total food crop production increased by 93 percent between 1963 and 1981, from 84 to 162 million acres. Feed crops, on the other hand, declined by nearly 8 million acres (4 percent). Other crops—cotton, flaxseed, and tobacco—declined by more than 3 million acres (17 percent). During 1981-2002, the acreage of food crops declined by 19 percent, almost entirely from wheat. Feed crops declined by 12 percent, with oats declining almost 78 percent. The amount of other crops harvested also continued to drop. Cotton, accounting for 92 percent of other crop acreage, declined by 10 percent from 1981 to 2002, while flaxseed and cotton acreage each declined by over 80 percent.

Market forces and perhaps changes in farm programs have affected the supply and demand for the four agricultural crops (corn, soybeans, wheat, and hay) that comprise 80 percent of total harvested acres in the United States. The harvested acreage of soybeans has increased almost 17 percent since 1996, while wheat acreage decreased by about 21 percent and corn by 2 percent. Harvested hay acreage increased by almost 2 percent. The increase in planting flexibility, introduced with the Food, Agriculture, Conservation, and Trade Act of 1990 and culminating with the FAIR Act of 1996, allowed producers to increase more profitable soybean acreage without losing base acreage of wheat, corn, and other program crops, which could have been costly under previous farm programs. In addition, new varieties of corn and soybeans have allowed expansion of these crops into previously wheat-producing areas of the Plains States (USDA/ERS, 2004).