1.1 Land Use

Total cropland (used for crops, used for pasture, and idled) has trended down slightly since the late 1960's. Year-to-year variation in cropland used for crops is largely offset by changes in cropland idled in Federal programs. Weather effects, such as the drought in 1988 and the wet weather and flooding in 1993, have strongly influenced the mix and acreage of cropland used for crops.

Major Land Uses Change Slowly Over Time

The total land area of the contiguous 48 States is approximately 1.9 billion acres, with an additional 365 million acres in Alaska and slightly over 4 million acres in Hawaii. As Alaska has very little crop area and Hawaii grows primarily crops not grown elsewhere in the United States, this discussion is limited to the 48 States. Grassland pasture and range comprises the largest area among the major land uses in the 48 States, accounting for nearly 589 million acres (31 percent) in 1987 (table 1.1.1, fig. 1.1.1). However, grassland pasture and range has declined fairly consistently since the mid-1960's, and forestland grazed has declined each census year since 1945. As a result, total pasture and range, including cropland pasture, declined from more than 1 billion acres in 1945 to just over 800 million acres in 1987.

Forest-use land, the second largest area among major uses, declined from 32 percent in 1945 to a little more than 29 percent in 1987. All land with forest cover comprises an even larger area—nearly 601 million acres (32 percent) in 1987. However, considerable areas of forested land are in special uses (parks, wilderness areas, wildlife areas) that prohibit normal forestry uses in terms of timber and other wood products. Land defined as forest-use land has been declining consistently since the 1960's, primarily due to more forested land being classified as special use areas (table 1.1.1).

Table 1.1.1—Major uses of land in the contiguous United States, 1945-87

Land use	1945	1949	1954	1959	1964	1969	1974	1978	1982	1987
	Million acres[1]									
Cropland	450.7	477.8	465.3	457.5	443.8	471.7	464.7	470.5	468.9	463.6
Cropland used for crops[2]	363.2	382.9	380.5	358.4	334.8	332.8	361.2	368.4	382.6	330.7
Cropland idled	40.1	25.6	18.7	33.6	51.6	50.7	20.8	26.0	21.3	68.0
Cropland used for pasture	47.4	69.3	66.1	65.4	57.4	88.2	82.7	76.1	65.0	64.9
Grassland pasture and range[3]	659.5	631.1	632.4	630.1	636.5	601.0	595.2	584.3	594.3	588.8
Forest-use land[4]	601.7	605.6	615.4	610.9	611.8	602.8	598.5	583.1	567.2	558.2
Forestland grazed	345.0	319.5	301.3	243.6	223.8	197.5	178.9	171.3	157.5	154.6
Forestland not grazed	256.7	286.1	314.1	367.3	388.0	405.3	419.6	411.8	409.7	403.6
Special use areas:[5]										
Urban land	15.0	18.3	18.6	27.1	29.2	30.8	34.6	44.2	49.6	55.9
Other special use areas	85.0	87.0	91.6	97.3	115.3	112.3	113.4	123.0	127.3	135.3
Miscellaneous other land[6]	93.4	84.0	80.5	78.9	63.0	78.4	90.6	91.9	88.5	93.9
Total land, 48 States[7]	1,905.4	1,903.8	1,903.8	1,901.8	1,899.6	1,897.0	1,897.0	1,897.0	1,895.7	1,895.7

[1] Distribution may not add to totals due to rounding.

[2] Includes cropland harvested, crop failure, and cultivated summer fallow. Estimates based on data from the U.S. Department of Agriculture (USDA), National Agricultural Statistics Service, and the U.S. Department of Commerce.

[3] Other grassland pasture and nonforested range (excludes cropland used only for pasture and grazed forestland).

[4] Excludes forestland in parks and other special uses of land.

[5] Includes land in rural transportation areas, rural parks, wildlife areas, defense and industrial areas, farmsteads, farm roads and lanes, and urban areas.

[6] Includes land in miscellaneous areas not inventoried and areas of little surface use such as marshes, open swamps, bare rock areas, desert, and tundra.

[7] Totals differ over time due to remeasurement of the U.S. land area.

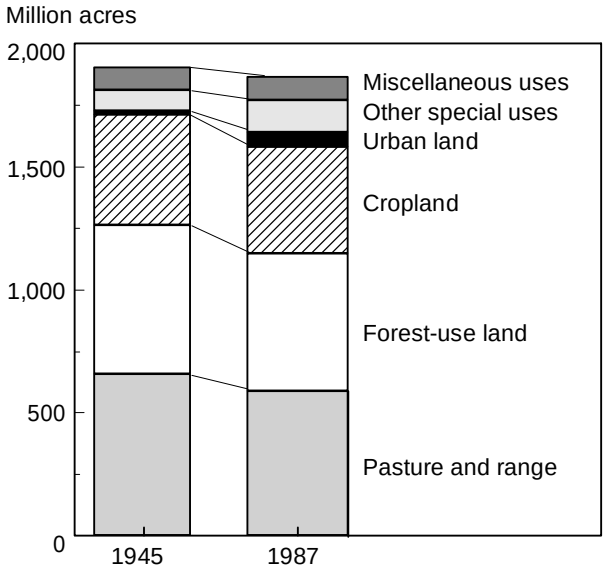
Source: Krupa and Daugherty, 1990.

Cropland comprises the third largest area of land (25 percent in 1987) in the contiguous States. Cropland has not changed much since the 1940's. Greater variation has occurred in cropland used for crops due to changes in cropland idled and used for pasture. Cropland idled reflects the influence of Federal crop programs in the various census years. Cropland used for pasture has been quite variable since 1945, partially due to shifts in crop production and the subsequent withdrawal of cropland from crop production.

Special uses of land include urban areas. Although urban land increased 273 percent from 1945 to 1987, it still accounts for less than 3 percent of total land area (table 1.1.1). Other special uses of land (highways and roads, railroads, and airports in rural areas; and parks, wilderness areas, wildlife areas, and national defense and industrial areas) increased by 50 million acres from 1945 to 1987, and accounted for about 7 percent of the land in 1987.

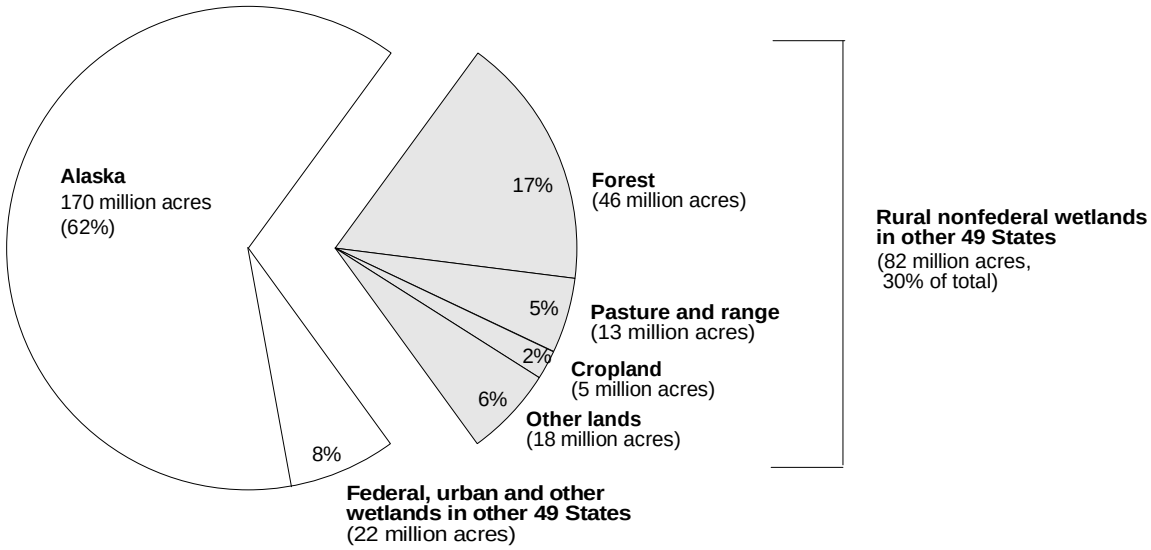
Land in miscellaneous uses changed very little during the 1945-87 period. These uses include some areas in marshes and open swamps that are said to have very little surface use. However, the marshes and swamps included in miscellaneous uses are only about one-fifth of the 82 million acres of wetlands on rural nonfederal lands in the contiguous 48 States and Hawaii (fig. 1.1.2, app. table 1.1.1). As wetland is a condition of the soil or land, it may occur over many uses. Over half of the rural nonfederal wetlands in 1987 was on land with a forest cover, one-sixth was on pasture or range, and less than one-tenth was on cropland. The distribution of the major uses of land in 1987 by farm production region is presented in table 1.1.2.

Figure 1.1.1
Major uses of land in the contiguous 48 States



Source: Krupa and Daugherty, 1990.

Figure 1.1.2
U.S. wetlands in the 1980's



Source: Based on data from Dahl, 1990; and USDA, SCS, 1987 National Resources Inventory.

Use of Cropland Is Down

Total cropland (used for crops, used for pasture, and idled) declined just over 8 million acres or less than 2 percent from 1969 to 1987. Cropland used for crops has fluctuated more than total cropland, as the amount of land idled by Federal programs has varied. Not all cropland idled indicated in table 1.1.1 is idled by Federal programs. Also, the cropland idled enumerated by the Censuses of Agriculture has not always reflected the land that should have been idled by government programs. However, fluctuations in cropland used for crops (table 1.1.1) do reflect land idled by various Federal programs over the years (fig. 1.1.3). The total of specified cropland uses was down in 1993 because of cropland that was not planted in the Lake States, Corn Belt, and Northern Plains regions due to wet weather and flooding (that is, land neither used for crops nor idled in a Federal program). In a census year, this land would be considered idle in addition to land idled by Federal programs.

In 1993, farmers harvested nearly 296 million acres of principal crops and 13 million acres of minor crops. About 10 million acres of the total acres harvested are estimated to be double-cropped. After allowing for double-cropping, harvested cropland was estimated to be 299 million acres (table 1.1.3). This estimate of land from which crops were harvested is about 9 million acres below 1992 and the smallest area since 1988. The reduction was the result of a higher crop failure, more land idled in Federal programs, and, perhaps most importantly, a smaller acreage planted. Crop failure was estimated to have been about 11 million acres, or more than 3 percent of the planted acreage. This failure is larger than in 1988, when severe drought devastated several regions, and is the highest estimated crop failure since the 1950's.

An estimated 22 million acres were summer-fallowed in 1993, down about a million acres from 1992 (table 1.1.3). It is likely that some of the additional land contracted into the Conservation Reserve Program (CRP) for 1993 was normally summer-fallowed. Lower Acreage Reduction Program (ARP) requirements for some program crops, especially wheat, also have contributed to the decline in land summer-fallowed since 1987 (see box, "Cropland Reduction and Diversion Programs").

The 332 million cropland acres estimated to have been used for crops (cropland harvested, crop failure,

Table 1.1.2—Major uses of land in the contiguous United States, by region, 1987[1]

Land use	North-east	Lake States	Corn Belt	Northern Plains	Appa-lachian	South-east	Delta States	Southern Plains	Moun-tain	Pacific	United States[1]
						Million acres[1]					
Cropland	15.7	42.4	99.6	109.6	29.5	18.3	23.9	52.3	47.0	25.2	463.6
Cropland used for crops[2]	11.8	32.2	73.5	87.3	16.4	10.4	15.6	29.1	35.4	19.1	330.7
Cropland idled	1.6	7.4	15.7	12.4	4.3	3.9	4.3	8.6	6.4	3.4	68.0
Cropland used for pasture	2.3	2.8	10.4	10.0	8.7	4.1	4.0	14.6	5.3	2.8	64.9
Grassland pasture and range[3]	2.8	5.5	12.8	67.1	6.6	10.0	7.3	122.4	302.3	52.0	588.8
Forest-use land[4]	69.0	46.2	29.1	3.9	70.5	73.5	47.4	20.5	117.4	80.6	558.2
Forestland grazed	1.7	3.0	6.6	1.8	5.0	9.7	16.5	13.4	68.6	28.2	154.6
Forestland not grazed	67.3	43.2	22.5	2.1	65.5	63.8	30.9	7.1	48.8	52.4	403.6
Special use areas[5]	19.8	16.3	14.7	7.5	12.9	17.0	6.0	12.6	52.7	31.7	191.2
Miscellaneous other land[6]	4.5	11.8	8.5	6.2	4.5	4.8	7.4	3.7	27.9	14.6	93.9
Total land, 48 States	111.7	122.2	164.8	194.4	123.8	123.6	92.1	211.6	547.3	204.2	1,895.7

[1] Distribution may not add to totals due to rounding.

[2] Includes cropland harvested, crop failure, and cultivated summer fallow. Estimates based on data from the U.S. Department of Agriculture (USDA), National Agricultural Statistics Service, and the U.S. Department of Commerce.

[3] Other grassland pasture and nonforested range (excludes cropland used only for pasture and grazed forestland).

[4] Excludes forestland in parks and other special uses of land.

[5] Includes land in rural transportation areas, rural parks, wildlife areas, defense and industrial areas, farmsteads, farm roads and lanes, and urban areas.

[6] Includes land in miscellaneous areas not inventoried and areas of little surface use such as marshes, open swamps, bare rock areas, desert, and tundra.

Source: Daugherty, 1991.

and summer fallow) in 1993 are down about 8 million acres (2.4 percent) from 1992 (table 1.1.3). This is the smallest area used for crops since 1988. The decrease in cropland used for crops reflects prevented plantings due to wet weather and flooding in the upper midwestern States and the increase in land idled in Federal programs.

Land idled by Federal programs in 1992 decreased to about 55 million acres, the lowest since 1986 (table 1.1.3). Based on the report on program compliance in 1993, there was a 5-million-acre increase in cropland idled in all Federal programs (fig. 1.1.3). There was an increase of 3.6 million acres in land idled in the 0/92 and 50/92 programs from USDA's program

Table 1.1.3—Major uses of cropland, United States, 1984-93[1]

Cropland	1984	1985	1986	1987	1988	1989	1990	1991	1992[2]	1993[2]
					Million acres					
Cropland used for crops	373	372	357	331	327	341	341	337	340	332
Cropland harvested[3]	337	334	316	293	287	306	310	306	308	299
Crop failure	6	7	9	6	10	8	6	7	9	11
Cultivated summer fallow	30	31	32	32	30	27	25	24	23	22
Cropland idled by all Federal programs[4]	27	31	48	76	78	61	62	65	55	60
Annual programs	27	31	46	60	53	31	28	30	20	23
Conservation Reserve Program	0	0	2	16	25	30	34	35	35	36
Total, specified uses[4,5]	400	403	405	407	405	402	403	402	395	391

[1] Includes the 48 contiguous States. Fewer than 200,000 acres were used for crops in Alaska and Hawaii.

[2] Preliminary, subject to revision.

[3] A double-cropped acre is counted as one acre.

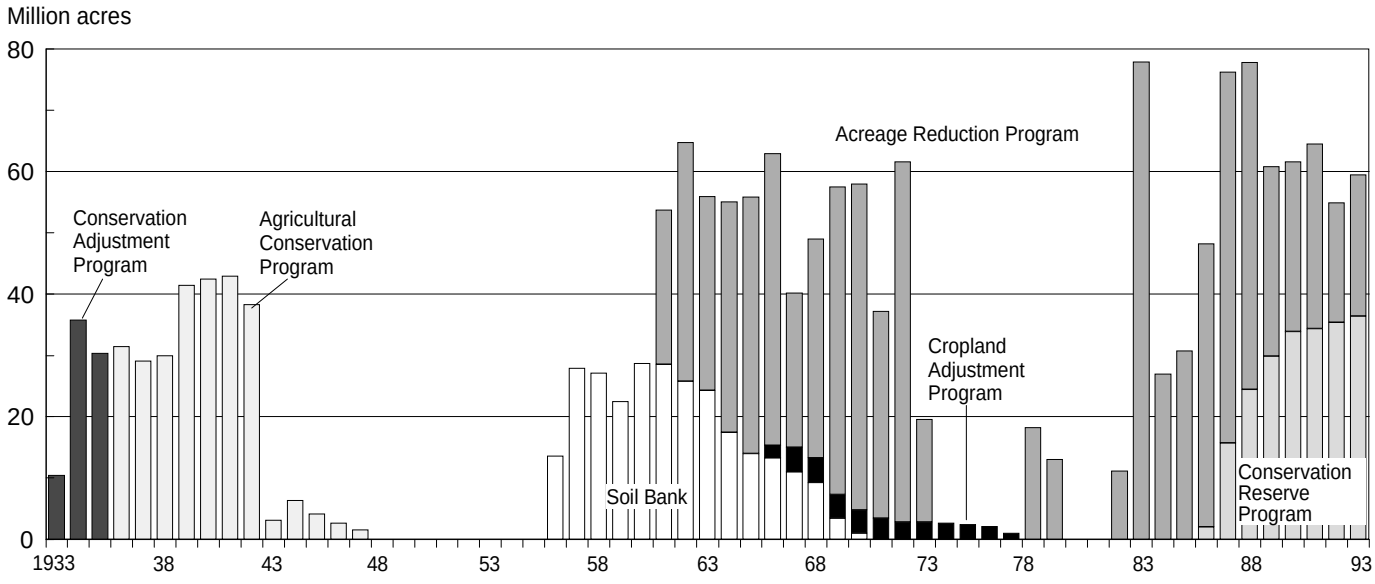
[4] Breakdown may not add to totals due to rounding

[5] Does not include cropland pasture or idle land not in Federal programs that is normally included in the total cropland base.

Source: USDA, various published and unpublished data from ASCS, ERS, and NASS.

Figure 1.1.3

Cropland acreage reductions by type of program, 1933-93



Source: Crosswhite and Sandretto, 1991.

Cropland Reduction and Diversion Programs

Programs:

Conservation Reserve Program (CRP) is designed to voluntarily retire from crop production about 40 million acres of highly erodible or environmentally sensitive cropland for 10-15 years. In exchange, participating producers receive annual rental payments up to $50,000 and 50-percent cost share assistance for establishing vegetative cover on the land.

Acreage Reduction Program (ARP) is a voluntary land retirement program in which farmers reduce their planted acreage of a program crop by a specified proportion of that crop's acreage base to become eligible for deficiency payments, loan programs, and other USDA commodity program benefits. Crops under this program include corn, sorghum, oats, barley, wheat, cotton, and rice.

0/85-92 Provision is an optional, Federal acreage diversion program that allows wheat and feedgrain producers to devote all or a portion of their maximum payment acreage to conserving uses or to a minor oilseed crop, sesame, or crambe and, under some conditions, receive deficiency payments. At least 8 percent but no more than 15 percent of the producer's maximum payment acres must be maintained in conserving uses or other allowable crop use.

50/85-92 Provision is an optional, Federal acreage diversion program that allows upland cotton and rice producers to underplant their maximum payment acreage and, under some conditions, retain deficiency payments on part of the underplanted acreage. At least 50 percent of the crop's maximum payment acreage must be planted. At least an additional 8 percent must be designated for conserving use. Minor oilseeds may not be planted on the 50/85-92 conservation use acres, but sesame or crambe may be planted, with producers still qualifying for deficiency payments.

Definitions:

Crop acreage base, for 1993 wheat and feed grains, is the average of the acreage planted and considered planted to each program crop in the 5-year period, 1988 through 1992. For upland cotton and rice, the crop acreage base in 1993 is the average acreage planted and considered planted for the 3 years, 1990 through 1992, with no adjustment for years with zero planted or considered planted acreage.

Maximum payment acreage is 85 percent of the crop acreage base for the program crop, less the acreage required to be idled by the ARP. The 15-percent nonpayment acreage before considering the ARP is the "normal flex acreage."

Normal flex acres (NFA) comprise 15 percent of any participating program crop acreage base not eligible for deficiency payments whether planted to the original program crop or "flexed" (planted) to another crop. However, for both normal and optional flex acres, program crops and oilseeds grown on flexed acres are eligible for price support loans. The flexed acres are also "considered planted" to the program crop, thereby protecting the base history. Crops specifically excluded from production on flexed acres are fruits and vegetables, including potatoes, dry edible beans, lentils, specified types of dry peas, peanuts, tobacco, wild rice, nuts, trees, tree crops, and nonparticipating ELS (extra long staple) cotton. The planting of any other crop may be excluded by the Secretary of Agriculture.

Optional flex acres (OFA) are up to 10 percent of a crop's acreage base beyond the normal flex acres that can be flexed (planted) to another crop. If planted to the original program crop, these acres are eligible for deficiency payments. If flexed to other crops, these acres are eligible only for price support loans.

Deficiency payments are payments made to farmers who participate in feed grain (corn, sorghum, oats, or barley), wheat, rice, or upland cotton programs. The payment rate per unit of crop production is based on the difference between a target price and the market price or loan rate, whichever difference is less. The total payment a farm receives is the payment rate multiplied by the eligible production.

Price support loans are nonrecourse loans available to farmers participating in commodity programs. The loan rate, which is determined according to law and administrative regulations, establishes a price "floor" for commodities. For wheat and feed grains, the basic loan rate is 85 percent of the average market price of the previous 5 years, excluding the highest and lowest years. However, the basic price support rate cannot be reduced by more than 5 percent from the preceding year. The Secretary of Agriculture may reduce the price support rate by up to 10 percent based on the projected stocks-to-use ratio for the current marketing year, and an additional 10 percent beyond the stocks-to-use adjusted level to maintain competitiveness in world markets. Upland cotton and rice had minimum loan rates specified in the 1990 Farm Act.

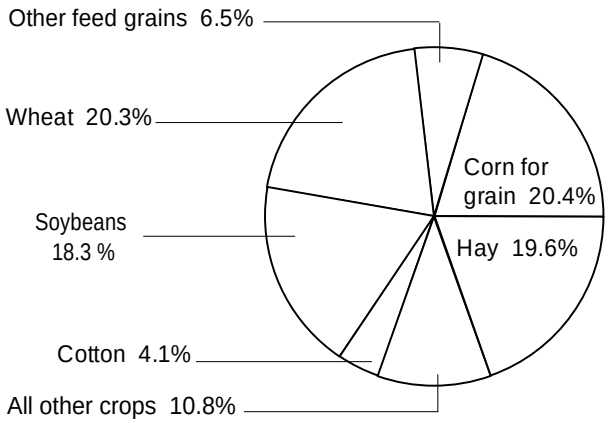
enrollment report in June 1993 to their final report of program compliance. Much of this additional program participation was the result of the permitted late signup of cropland in the flooded and weather-impacted midwestern States. Part of this 1992-93 increase in land idled, however, was more than 1 million additional acres newly enrolled in the CRP.

Four Crops Account for a High Percentage of Harvested Acres

Corn (grain and silage), wheat, soybeans, and hay accounted for more than 80 percent of all crop acres estimated to have been harvested in 1993 (table 1.1.4, fig. 1.1.4). The additional 15 crops included as "principal crops" account for another 15 percent of the area of crops harvested. Vegetables, fruits, nuts, melons, and all other crops are estimated to account for just over 4 percent of the area of all crops harvested in 1993.

Harvested acreage of corn, sorghum, barley, oats, soybeans, and rice decreased in 1993, while the acreage of wheat and cotton increased (table 1.1.5). Total cropland harvested was estimated to be down nearly 9 million acres from 1992. The decrease in harvested acreage can be partly attributed to the increase in land idled in Federal programs. However, a larger part of the decrease was due to wet conditions at planting time and severe flooding in the Northern Plains, Lake States, and Corn Belt regions; to the drought conditions in the Southeast and Appalachian regions; and to killing frosts prior to crop maturity in several regions.

Figure 1.1.4
Harvested crops, 1993



Source: USDA, NASS, 1994b.

Table 1.1.4—Area of selected crops harvested, 1993, and percentage of total cropland

Selected crops harvested[1]	Area	Proportion of total
	1,000 acres	*Percent*
Principal crops harvested:		
Corn for grain	62,991	20.4
Sorghum for grain	9,486	3.1
Oats	3,793	1.2
Barley	6,791	2.2
Total, feed grains	83,061	26.9
All wheat	62,647	20.3
Rice	2,833	0.9
Rye	381	0.1
Total, food grains	65,861	21.3
Soybeans for beans	56,447	18.3
Peanuts for nuts	1,637	0.5
Sunflower	2,504	0.8
Dry edible beans	1,600	0.5
Sugarbeets	1,413	0.5
Sugarcane	884	0.3
Potatoes	1,318	0.4
Tobacco	747	0.3
Cotton	12,788	4.1
All hay	60,398	19.6
Corn silage	6,846	2.2
Sorghum silage	351	0.1
Total, all principal crops	295,855	95.9
Citrus fruits[2]	945	0.3
Noncitrus fruits[3]	1,922	0.6
Tree nuts[4]	657	0.2
Principal vegetables and melons for the fresh market[5]	1,810	0.6
Principal vegetables for processing[6]	1,375	0.4
Other crops[7]	6,091	2.0
Estimated total of crops harvested in 1993, including double-cropping	308,655	100.0

[1] Sum of indicated crops for contiguous 48 States.

[2] Bearing acreage of oranges, grapefruit, K-early citrus, lemons, limes, tangelos, tangerines, and temples.

[3] Bearing acreage of apples, apricots, berries, cherries, cranberries, dates, figs, grapes, kiwifruit, nectarines, olives, peaches, pears, plums, prunes, and strawberries.

[4] Bearing acreage of almonds, hazelnuts, pistachios, and walnuts.

[5] Area harvested of artichokes, asparagus, lima beans, snap beans, broccoli, brussels sprouts, cabbage, cantaloups, carrots, cauliflower, celery, sweet corn, cucumbers, eggplant, escarole/endive, garlic, honeydews, lettuce (head, leaf, romaine), onions, bell peppers, spinach, tomatoes, and watermelons. Includes processing total for dual usage crops (asparagus, broccoli, carrots, and cauliflower).

[6] Area harvested of lima beans, snap beans, cabbage, sweet corn, cucumbers, green peas, spinach, and tomatoes.

[7] Determined as a residual.

Source: USDA, NASS, 1993, 1994a, 1994b, 1994c.

Idled Acreage Higher Than in 1992

About 59.8 million acres were idled under Federal programs in 1993 (table 1.1.6). These estimates, based on USDA's Commodity Credit Corporation (CCC) final report of program compliance, exclude an additional 0.8 million acres of feedgrain, wheat, cotton, and rice base that were signed up under 0/92 or 50/92 provisions but were planted to minor oilseeds, sesame, or crambe, as permitted by the 1990 Farm Act. More than 60 percent of 1993 idled acres are enrolled in the CRP. The extent of idled acres from participation in annual programs and the CRP, historically, is shown in figure 1.1.3 and for 1993, by farm production region, in figure 1.1.5.

The pattern of crop idling over the 1991-93 period is somewhat mixed (table 1.1.6). However, except for 1992, fewer total acres were idled by the annual crop programs in 1993 than in any other year since 1982 (fig. 1.1.3).

Table 1.1.5—Harvested area of major crops, by region, 1987-93

Crop and period	North-east	Lake States	Corn Belt	Northern Plains	Appa-lachian	South-east	Delta States	Southern Plains	Mountain	Pacific	United States[1]
						Million acres					
Corn:[2]											
1987-91 Avg.	2.2	10.2	32.2	11.6	3.1	1.2	0.4	1.5	1.0	0.3	63.7
1992	2.4	11.8	35.9	13.5	3.4	1.5	0.7	1.8	1.0	0.2	72.1
1993	2.2	9.1	31.5	12.3	2.9	1.2	0.5	2.0	1.0	0.3	63.0
Sorghum:[2]											
1987-91 Avg.	-	-	0.7	5.0	0.1	0.1	0.6	3.0	0.4	[3]	9.9
1992	-	-	1.0	5.0	0.1	0.1	0.8	4.8	0.4	-	12.2
1993	-	-	0.8	4.3	0.1	0.1	0.4	3.5	0.4	-	9.5
Barley:											
1987-91 Avg.	0.2	0.9	-	3.3	0.1	[3]	-	[3]	2.8	1.0	8.4
1992	0.2	0.8	-	3.1	0.1	[3]	-	[3]	2.3	0.8	7.3
1993	0.2	0.8	-	2.8	0.1	[3]	-	[3]	2.2	0.7	6.8
Oats:											
1987-91 Avg.	0.4	1.6	1.1	2.0	0.1	0.1	[3]	0.3	0.2	0.1	6.0
1992	0.3	1.2	0.8	1.6	0.1	0.1	[3]	0.2	0.2	0.1	4.5
1993	0.3	1.1	0.5	1.2	[3]	0.1	[3]	0.2	0.2	0.1	3.8
Wheat:											
1987-91 Avg.	0.6	3.2	4.9	25.1	1.6	1.1	1.8	8.7	9.1	3.6	59.7
1992	0.6	3.5	4.1	27.7	1.5	0.7	1.3	9.7	9.3	4.0	62.4
1993	0.5	3.0	4.7	27.5	1.6	0.7	1.3	9.1	9.9	4.3	62.6
Soybeans:											
1987-91 Avg.	1.1	6.5	29.6	6.8	4.2	2.2	7.0	0.5	-	-	57.7
1992	1.2	7.5	30.0	7.2	4.0	1.6	6.1	0.6	-	-	58.2
1993	1.2	7.0	29.3	6.6	3.8	1.3	6.7	0.5	-	-	56.4
Cotton:											
1987-91 Avg.	-	-	0.2	[3]	0.7	0.9	2.5	5.2	0.5	1.1	11.2
1992	-	-	0.3	[3]	1.0	1.1	3.2	3.9	0.5	1.1	11.1
1993	-	-	0.3	[3]	1.0	1.3	3.1	5.4	0.4	1.1	12.8
Rice:											
1987-91 Avg.	-	-	[3]	-	-	-	1.9	0.3	-	0.4	2.7
1992	-	-	0.1	-	-	-	2.3	0.4	-	0.4	3.1
1993	-	-	0.1	-	-	-	2.0	0.3	-	0.4	2.8

- = None reported.

[1] Includes the 48 contiguous States. Because of rounding, regional acres may not sum to U.S. totals.

[2] Corn and sorghum for grain.

[3] Less than 50,000 acres.

Source: USDA, NASS, 1994b.

Table 1.1.6—Cropland idled under Federal acreage reduction programs, 1984-93

Program and crop	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
					Million acres					
Annual programs, base acres:										
Corn	3.9	5.4	14.2	23.2	20.5	10.8	10.7	7.4	5.2	10.7
Sorghum	0.6	0.9	2.9	4.1	3.9	3.3	3.3	2.4	2.0	2.2
Barley	0.5	0.7	2.0	3.0	2.8	2.3	2.9	2.1	2.3	2.2
Oats	0.1	0.1	0.5	0.8	0.3	0.3	0.2	0.5	0.6	0.8
Wheat	18.6	18.8	21.0	23.9	22.5	9.6	7.5	15.6	7.3	5.4
Cotton	2.5	3.6	4.0	3.9	2.2	3.5	2.0	1.2	1.7	1.4
Rice	0.8	1.2	1.5	1.6	1.1	1.2	1.0	0.9	0.4	0.7
Total, annual programs[1]	27.0	30.7	46.1	60.5	53.3	30.9	27.7	30.1	19.5	23.4
Conservation Reserve Program (CRP), base acres:[2]										
Corn	--	--	0.2	2.3	2.8	3.4	3.8	3.9	4.1	4.3
Sorghum	--	--	0.2	1.2	1.9	2.2	2.4	2.4	2.4	2.5
Barley	--	--	0.1	1.1	1.9	2.4	2.7	2.8	2.8	2.8
Oats	--	--	0.1	0.5	0.9	1.1	1.3	1.3	1.4	1.4
Wheat	--	--	0.6	4.2	7.1	8.8	10.3	10.4	10.6	10.8
Cotton	--	--	0.1	0.7	1.0	1.2	1.3	1.3	1.4	1.4
Rice	--	--	[3]	[3]	[3]	[3]	[3]	[3]	[3]	[3]
Total CRP-idled base acres[1]	--	--	1.2	10.0	15.5	19.0	21.8	22.0	22.6	23.2
Total base acres idled[1]	27.0	30.7	47.4	70.5	68.8	49.9	49.5	52.1	42.1	46.6
Total CRP-idled nonbase acres	--	--	0.7	5.7	8.9	10.9	12.1	12.4	12.8	13.2
Total cropland idled under Federal programs[1]	27.0	30.7	48.1	76.2	77.7	60.8	61.6	64.5	54.9	59.8

-- CRP not yet in effect.

[1] Because of rounding, crop acreages may not sum to totals. Base acreages idled under 0/92 and 50/92 programs from 1986 through 1992 are included in annual program data. However, base acres of feedgrains and wheat enrolled in 0/92 and planted to oilseeds in 1991 (0.5 million acres), in 1992 (0.7 million acres), and in 1993 (0.8 million acres) are not included.

[2] Program began in 1986. Small acreages of peanut and tobacco base were bid into the CRP in addition to the crops listed.

[3] Less than 50,000 acres.

Source: USDA, ASCS, various published and unpublished data.

Table 1.1.7—Acreage Reserve Program (ARP) requirements for participation in major program crops, 1984-94

Program crops	Proportion of crop acreage base to be idled from program crop and placed in a conserving use										
	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
						Percent					
Feed grains:											
Corn	10	10	17.5	20	20	10	10	7.5	5	10	0
Sorghum	10	10	17.5	20	20	10	10	7.5	5	5	0
Oats	10	10	17.5	20	5	5	5	0	0	0	0
Barley	10	10	17.5	20	20	10	10	7.5	5	0	0
Wheat	20	20	22.5	27.5	27.5	10	5	15	5	0	0
Upland cotton	25	20	25	25	12.5	25	12.5	5	10	7.5	11
Rice	25	20	35	35	25	25	20	5	0	5	0

Source: USDA, ASCS, Annual Farm Program Fact Sheets.

ARP Requirements Up for Corn and Rice in 1993, Down or Unchanged for Other Program Crops

The 1993 ARP (Acreage Reduction Program) requirements increased for corn and rice; remained the same as 1992 for sorghum and oats; and decreased for barley, wheat, and upland cotton (table 1.1.7). The higher corn ARP requirement, with changes in other program provisions for feedgrain crops, resulted in an increased feedgrain base idling of 5.8 million acres over 1992. Wheat base idled was down 1.8 million acres from the 17.9 million acres idled in 1992. The cotton base idled was down 0.3 million acres due to the smaller ARP requirement. This reduction occurred despite a larger acreage participating in the program in 1993. The rice program participation in 1993 was identical to 1992, but 0.3 million more acres of rice base were idled due to the increased ARP requirement and changed participation in the 50/92 program. Except for cotton, all program crops will have a zero percent ARP requirement for 1994. The cotton ARP requirement for 1994 is 11 percent (table 1.1.7).

An additional 0.6 million base acres were contracted into the CRP in 1993 (table 1.1.6). The net base acreage idled by annual programs and the CRP in 1993 increased 4.5 million acres above 1992. Even with this increase, the total crop base idled in 1993 was at the second lowest level since the CRP began —46.6 million acres.

Base Acreage Continues Down From 1985 Peak

Total base acreage of major program crops—wheat, feed grains, cotton, and rice—reached a peak for the last decade at 240.3 million acres in 1985 (table 1.1.8). However, since 1986, the CRP has cut the effective base acreage each year—to 211 million acres in 1993.

Complying base acreage—the portion of effective base acreage operated by producers who participate in annual commodity programs—varies for several reasons, including the attractiveness of program provisions and outlook for crop prices. The

Table 1.1.8—Principal and program crops planted, total base acreage, and other Federal program acreage statistics and relationships, 1984-93

Item	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993[1]
					Million acres					
Principal crops planted[2]	358.3	353.0	338.2	315.3	318.3	331.6	326.9	326.0	327.4	320.3
Program crops planted[3]	215.4	216.9	204.3	185.4	182.8	196.0	195.8	191.5	197.1	188.2
Total base acreage of program crops	234.4	240.3	235.0	236.4	239.2	239.0	238.4	235.2	234.7	234.2
Base acres in CRP[4]	--	--	1.2	10.0	15.5	19.0	21.8	22.0	22.6	23.2
Effective base acreage[5]	234.4	240.3	233.8	226.4	223.7	220.0	216.6	213.2	212.1	211.0
Complying base acreage	128.6	162.8	192.9	197.2	187.8	168.0	166.6	169.0	167.1	176.0
Annual program set-aside	27.0	30.7	46.1	60.5	53.3	30.9	27.7	30.1[6]	19.5[6]	23.4[6]
Complying base minus set-aside	101.6	132.1	146.8	136.7	134.5	137.1	138.9	138.9	147.6	152.6
Complying base planted	88.0	116.1	135.5	131.6	125.0	123.1	132.1	127.4	134.7	136.5
					Percent					
Effective base acreage as percentage of principal crops planted	65.4	68.1	69.1	71.8	70.3	66.3	66.3	65.4	64.8	65.9
Complying base acreage as percentage of effective base acreage	54.9	67.7	82.5	87.1	84.0	76.4	76.9	79.3	78.8	83.4
Complying base acreage as percentage of program crops planted	59.7	75.1	94.4	106.4	102.7	85.7	85.1	88.3	84.8	93.5
Complying base planted as percentage of program crops planted	40.9	53.5	66.3	71.0	68.4	62.8	67.5	66.5	68.3	72.5

-- CRP not yet in effect.

[1] Preliminary, subject to revision.

[2] Principal crops are listed in table 1.1.4.

[3] Program crops include the seven crops listed in table 1.1.6.

[4] Program began in 1986.

[5] Total base acreage of program crops less base acres in CRP.

[6] Excludes land in 0/92 and 50/92 programs planted to minor oilseeds.

Source: USDA, NASS, 1994b; USDA, ASCS, Annual Commodity Program Compliance Reports.

proportion of the effective base complying in 1993 was 83.4 percent, up 4.6 percentage points from 1992 and higher than any year since 1988 (table 1.1.8).

The acreage complying in annual crop programs increased more than 5 percent overall in 1993. The enrolled base acreage of each program crop equaled or exceeded 1992 levels. Only rice did not increase enrolled base acreage over the complying base acreage in 1992. The enrolled base acreage of corn increased nearly 7 percent from the complying corn base in 1992.

The maximum acreage that program participants may plant on their complying base acreage is the complying base acreage minus that required to be idled (ARP requirement). Because not all program participants plant up to their maximum acreage, the complying base actually planted is less. Some producers use the 0/92 and 50/92 programs to idle additional acreage. Due to weather conditions in 1993 and the possibility of signing up for the 0/92 program much later than usual in specified areas, participation exceeded the original enrollment.

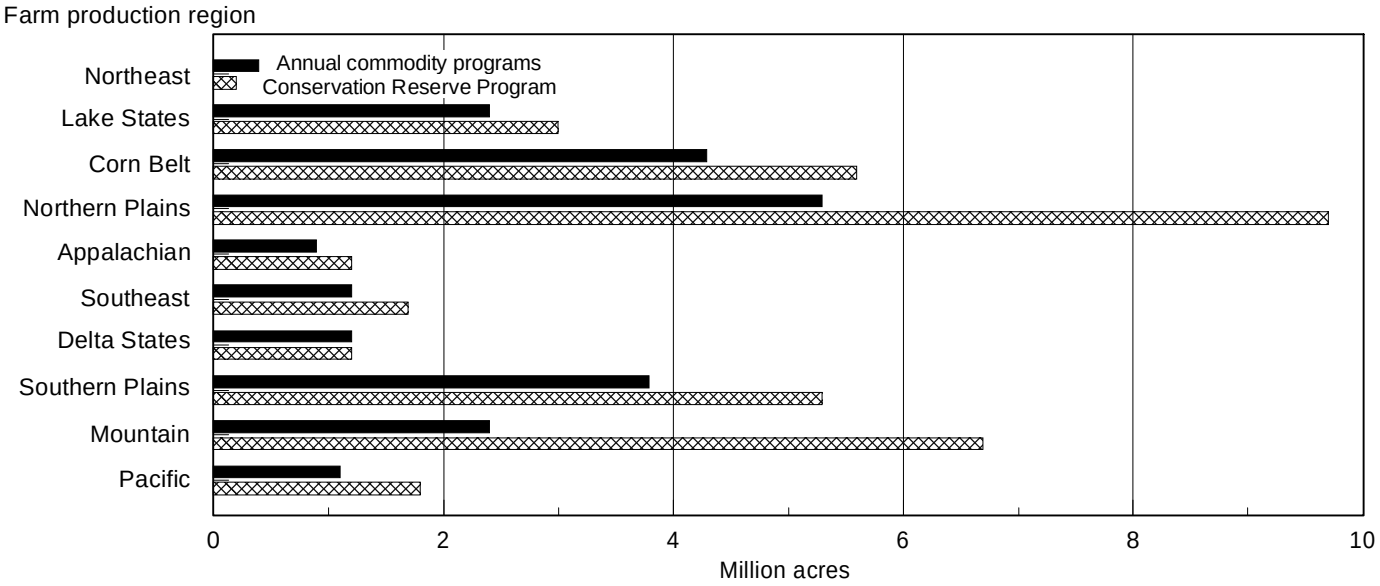
Total acreage of program crops planted includes the acreage planted by program participants as well as by nonparticipants. The proportion of program crop acreage enrolled in Federal programs rose from 33 percent in 1982 to 71 percent in 1987 and declined from 1987 through 1989. From 1990 through 1992, about two-thirds of the acreage of all program crops was produced by participants in annual Federal programs. However, based on the program compliance reported by USDA's CCC for 1993, that proportion increased to a new high of 72.5 percent.

Flex Acre Provisions Allow Considerable Shift From Corn and Wheat to Other Crops

Under 1990 farm legislation, the "maximum payment acreage" limits deficiency payments to program participants to 85 percent of the base acreage established for their program crop, less the acreage required to be idled by the ARP requirement. The 15 percent of base acres on which deficiency payments will not be made are called "normal flex acres" (see box, "Cropland Reduction and Diversion Programs"). In addition to normal flex acres, another 10 percent of program crop base acres could be used as "optional flex acres."

Planting flexibility on up to 25 percent of the base acreage provides some incentive for a wider selection of crops and increased crop rotation. Considerable data concerning crop flexing, including the net change in program crop acreage as a result of the crop flex provisions for 1991-93, are presented in table 1.1.9. The total acres actually flexed have increased each year since the program began in 1991. Among the program crops, only cotton had a net increase in acreage due to crop flexing. Corn and wheat

Figure 1.1.5
Cropland idled under Federal acreage reduction programs, by region, 1993



Source: USDA, ASCS, various published and unpublished data.

Table 1.1.9—Impact of program crop planting flexibility provisions, 1991-93

Item	1991	1992	1993
	Thousand acres		
Total enrolled base acres	168,952	167,083	176,044
Total possible flex acres[1]	33,183	41,735	43,974
Total acres actually flexed	7,283	7,854	8,978
(Percent of possible flex acres)	(22)	(19)	(20)
Flexed to nonprogram crops[2]	4,980	4,903	5,844
(Percent of total acres flexed)	(68)	(62)	(65)
Flexed to other program crops	2,303	2,951	3,134
(Percent of total acres flexed)	(32)	(38)	(35)
Net change in crop acreages:[3]			
Corn	-3,104	-2,693	-3,002
Sorghum	-371	-216	-250
Barley	-320	-561	-518
Oats	-231	-258	-271
Total, feedgrains	-4,026	-3,728	-4,041
Wheat	-1,319	-1,570	-2,217
Cotton	151	121	143
Rice	-261	-275	-307
Total, program crops[4]	-5,454	-5,451	-6,423

[1] Includes Normal Flex Acres and Optional Flex Acres.

[2] The nonprogram crops were mostly soybeans each year.

[3] After netting out acres flexed from one program crop to another.

[4] Distribution may not add to totals due to rounding.

Source: USDA, ASCS Annual Commodity Program Compliance Reports.

exhibited the major acreage reductions from flexing, with a large proportion of the flexed acreage going into soybeans.

Wetlands Conversion Slows

About 274 million acres of wetlands remain nationwide, including 170 million acres in Alaska. Remaining wetlands on rural, nonfederal land in the contiguous 48 States and Hawaii total 82 million acres and are concentrated in the Southeast and the Upper Midwest (fig. 1.1.6, app. table 1.1.1). About half of historic U.S. wetland acreage has been lost over the past 200 years, most of it in the contiguous 48 States (table 1.1.10). California lost the highest proportion of its wetlands, 91 percent, while Florida lost the greatest wetlands area, 9.3 million acres.

Wetlands conversion has slowed in recent decades, and the share of conversion to agriculture has declined relative to urban and other uses (table 1.1.11). (Conversion figures do not represent net changes, however, since conversion has been partially offset by wetland creation and restoration.) Agriculture claimed 87 percent of the 690,000 acres converted annually between 1954 and 1974, but only 27 percent of the 107,800 acres converted annually between 1987 and 1991.

Wetlands are generally defined on the basis of soil, vegetation, and hydrologic characteristics. (Wetland delineation is discussed in greater detail in module 6.4.) Hydric soils are soils formed under prolonged conditions of soil saturation. Cropland on hydric soils consists primarily of former wetlands that have been converted through drainage or other means to allow permanent cultivation. There are about 58 million acres of cropland on hydric soils not in wetlands in the 49 States excluding Alaska (app. table 1.1.1).

Urbanization of Cropland and Pasture Is Small Relative to Total Area

Urban land in the United States constitutes less than 3 percent of the total land area. However, 75 percent of the U.S. population live in urban areas (table 1.1.12). Despite large increases in urban area, percentage decreases in rural area are small because rural area is much larger than urban area. The 10-year rate of expansion in urban area has decreased from 39 percent during the 1950's to 18 percent during the 1980's. Losing farmland to urban uses does not threaten total cropland or the level of agricultural production, which should be sufficient to meet food and fiber demand into the next century (Vesterby, Heimlich, and Krupa, 1994).

Land converted to urban uses comes from several different major land uses. During the 1970's, 37 percent of new urban development came from cropland and pasture (fig. 1.1.7). These land use changes were for 135 of the fastest growing counties in the United States—counties that accounted for 47 percent of the total U.S. population increase in the 1970's. From 1982 to 1987, the average annual expansion in urban area was about 727,000 acres (table 1.1.13).

Land use change is dynamic. With the exception of urban land, shifts occur to and from major land uses (table 1.1.13). For example, 43 percent of the urban area increase of 3.6 million acres from 1982 to 1987 came from cropland and pasture. But the net decrease in cropland and pasture was less than 1 percent, or 520,000 acres. The cropland and pasture category gained and lost more land to other major uses than to urban uses over the 5-year period.

Table 1.1.10—U.S. wetlands extent and losses, 1780's-1980's[1]

State	1780's extent	1980's extent	Period losses	1980's extent
	--1,000 acres--		*Percent*	*Percent of State*
California	5,000	454	91	0.4
Ohio	5,000	483	90	1.8
Iowa	4,000	422	89	1.2
Missouri	4,844	643	87	1.4
Indiana	5,600	751	87	3.2
Illinois	8,212	1,255	85	3.5
Kentucky	1,566	300	81	1.2
Connecticut	670	173	74	5.4
Maryland	1,650	440	73	6.5
Arkansas	9,849	2,764	72	8.1
Oklahoma	2,843	950	67	2.1
New York	2,562	1,025	60	3.2
Tennessee	1,937	787	59	2.9
Mississippi	9,872	4,067	59	13.3
Idaho	877	386	56	0.7
Pennsylvania	1,127	499	56	1.7
Delaware	480	223	54	16.9
Texas	16,000	7,612	52	4.4
Nevada	487	236	52	0.3
Michigan	11,200	5,583	50	15.0
Alabama	7,568	3,784	50	11.5
Colorado	2,000	1,000	50	1.5
North Dakota	4,928	2,490	49	5.5
North Carolina	11,090	5,690	49	16.9
Kansas	841	435	48	0.8
Louisiana	16,195	8,784	46	28.3
Florida	20,325	11,038	46	29.5
Wisconsin	9,800	5,331	46	14.8
Minnesota	15,070	8,700	42	16.2
Virginia	1,849	1,075	42	4.1
New Jersey	1,500	916	39	18.3
Oregon	2,262	1,394	38	2.2
Wyoming	2,000	1,250	38	2.0
Rhode Island	103	65	37	8.4
Arizona	931	600	36	0.8
Vermont	341	220	35	3.6
South Dakota	2,735	1,780	35	3.6
Nebraska	2,911	1,906	35	3.9
New Mexico	720	482	33	0.6
Washington	1,350	938	31	2.1
Utah	802	558	30	1.0
Massachussetts	818	588	28	11.1
South Carolina	6,414	4,659	27	23.4
Montana	1,147	840	27	0.9
West Virginia	134	102	24	0.7
Georgia	6,843	5,298	23	14.1
Maine	6,460	5,199	20	24.5
New Hampshire	220	200	9	3.4
48-State total	221,130	104,374	53	5.0
Hawaii	59	52	12	1.3
Alaska	170,200	170,000	0	45.3
Total U.S.	391,388	274,426	30	11.9

[1] Includes both Federal and nonfederal lands.

Source: Dahl, 1990.

Table 1.1.11—U.S. wetlands conversion, 1954-91

Item	1954-74[1]	1974-83[2]	1982-87[3]	1987-91[4]
	Thousands of acres per year			
To:				
Cropland	600.0	237.5	50.0	29.3
Urban use	55.0	14.1	56.0	58.3
Other	35.0	171.7	24.8	20.3
Total	690.0	423.2	130.8	107.8
	Percent of total annual conversion			
To:				
Cropland	87.0	56.1	38.2	27.2
Urban use	8.0	3.3	42.8	54.1
Other	5.1	40.6	19.0	18.8
Total	100.0	100.0	100.0	100.0

[1]Source: Frayer, Monahan, Bowden, and Graybill, 1983 (excludes Alaska and Hawaii).

[2]Source: Dahl and Johnson, 1991 (excludes Alaska and Hawaii).

[3]Source: USDA, SCS, 1982 and 1987 National Resources Inventory data (includes only rural, nonfederal land; excludes Alaska).

[4]Source: USDA, SCS, 1987 National Resources Inventory data; 1991 (includes only rural, nonfederal land; excludes Alaska).

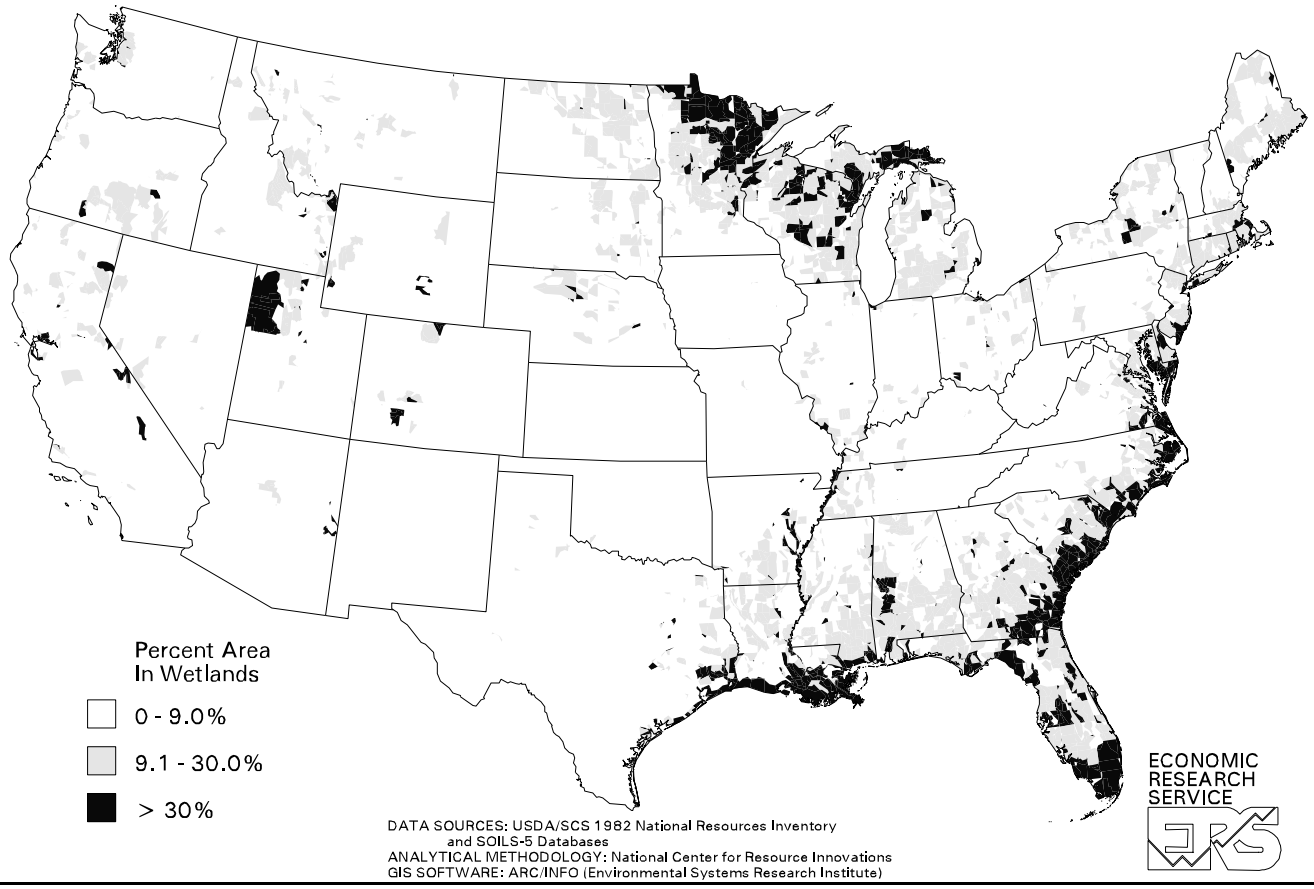
Table 1.1.12—U.S. population and urban area, 1950-90

Year	U.S. population		Portion urban	Urban area	Urban area increase[1]
	Total	Urban			
	-----Million-----		*Percent*	*Million acres*	*Percent*
1950	151	97	64	18	
1960	179	125	70	26	39
1970	203	150	74	35	36
1980	227	167	74	47	37
1990	249	187	75	56	18

[1]Percent increase over that of 10 years past.

Sources: USDC, 1991; Frey, 1983.

Figure 1.1.6
Distribution of wetlands on rural, nonfederal land



Wetlands Policy Issues

Wetlands provide a variety of benefits, including water quality improvement, groundwater replenishment, floodwater retention, fish and wildlife habitat, and recreational opportunities. These benefits spur interest in protecting remaining wetlands and restoring some of those that have been converted to other uses. Appropriate policy tools depend on a number of factors. Many of the States with the highest proportional losses of wetlands—such as California—had relatively small wetland acreages to begin with, and have relatively small wetland areas remaining (table 1.1.10). In these States, the potential for restoration is much higher than that for the protection of remaining wetlands. The States with the largest initial wetland acreages—such as Florida—lost proportionately less, and have greater areas remaining; in these States, considerable potential remains for both restoration and the protection of remaining wetlands.

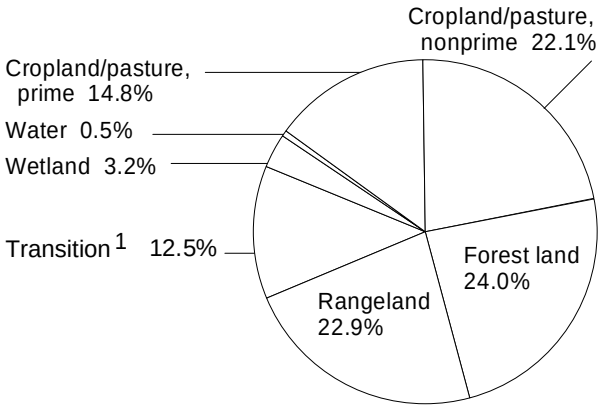
Wetlands restoration and protection are complicated by the ownership of converted and remaining wetlands. Many of the benefits of wetlands accrue to society at large, or to individuals other than the landowners on whose property wetlands occur. For example, a wetland property may provide habitat for migratory birds and reduce flooding on downstream properties, but fail to generate direct benefits for its owner. As a result, many private landowners may find it more profitable to convert wetlands to alternative uses, such as agriculture or urban development, even when such conversion is costly to society.

About 83 percent of remaining rural, nonfederal wetlands acreage in the contiguous 48 States is located on privately owned land (Heimlich and Langner, 1986). Short of outright acquisition, protection of remaining wetlands will require the cooperation of private landowners, either through regulation or through various incentive mechanisms (such as swampbuster sanctions or the Water Bank Program). Private ownership of most converted wetlands, including 58 million acres of hydric cropland, means that wetlands restoration will require similar cooperation in the form of cost-sharing and other incentives (as in the Wetlands Reserve Program). The Clinton administration unveiled a number of specific wetlands policy proposals in August 1993; these are discussed in greater detail in module 6.4.

Urban Land Conversion Affects Prime Cropland No More Than Other Land

Fast-growth counties have a smaller proportion of prime cropland (43 percent of cropland) than the United States (49 percent) and convert proportionately less prime cropland to urban uses. Of all cropland and pasture converted in the 1970's, 40 percent was prime (fig. 1.1.7). Prime cropland and pasture converted from other rural uses replaced about one-third of the prime cropland lost to urban uses, resulting in smaller net losses than would otherwise have occurred. The largest concentrations of fast-growth counties are in Florida, Arizona, and southern California, where there is very little prime land. Other areas that have heavy concentrations of prime land, such as Iowa, Illinois, Indiana, and Kansas, have few fast-growth counties.

Figure 1.1.7
Urbanized land, by prior land use, fast-growth counties, 1970-80



1 Transition--land use change evident at early date, but end use not apparent.
Source: Vesterby, Heimlich, and Krupa, 1994

Author: Art Daugherty, (202) 219-0424.

Contributors: Marlow Vesterby, Keith Wiebe, and Ralph Heimlich.

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Table 1.1.13—Land use change from 1982 to 1987, contiguous United States

Land use[1]	Cropland and pasture	Rangeland	Forest land	Urban and built-up	Other[2]	Federal land	1982 land use
				Million acres			
Cropland and pasture	**538.7**	3.5	4.9	1.6	2.2	0.6	551.6
Rangeland	7.5	**395.2**	1.4	0.6	1.0	0.8	406.5
Forest land	2.6	1.1	**385.1**	1.0	0.9	0.7	391.5
Urban and built-up	0.0	0.0	0.0	**46.3**	0.0	0.0	46.3
Other[2]	1.5	0.1	0.8	0.4	**92.3**	0.2	95.4
Federal land	0.7	0.8	0.4	0.0	0.1	**401.3**	403.3
1987 land use	551.1	400.8	392.5	49.9	96.6	403.6	**1,894.5**

Zeros indicate less than 50,000 acres.

[1]Diagonal numbers, in bold, indicate the acres that remained in the same use. Nondiagonal numbers across rows represent land moving out of the 1982 land uses in the far right column. Nondiagonal numbers down columns represent land moving into the 1987 land uses on the bottom row.

[2]Includes rural transportation, marshland, and barren land.

Source: USDA, SCS, 1987 National Resources Inventory data.

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Appendix table 1.1.1—Wetlands and cropland on hydric soils on rural nonfederal lands, by region and State, 1980's

State/region	Wetlands[1]	Cropland on hydric soils[2]
	1,000 acres	
Connecticut	357.9	11.4
Delaware	247.3	96.4
Maine	1,830.8	72.1
Maryland	991.6	243.2
Massachusetts	464.5	27.3
New Hampshire	240.9	17.7
New Jersey	605.6	69.8
New York	2,218.5	422.2
Pennsylvania	648.8	270.7
Rhode Island	91.9	2.0
Vermont	136.7	108.2
Northeast	7,834.5	1,341.0
Alabama	4,028.4	141.4
Florida	8,294.5	1,319.3
Georgia	5,958.0	179.8
South Carolina	3,333.3	299.7
Southeast	21,614.2	1,940.2
Kentucky	475.3	335.1
North Carolina	3,131.7	1,157.2
Tennessee	760.9	362.4
Virginia	1,262.3	64.6
West Virginia	103.6	31.6
Appalachian	5,733.8	1,950.9
Illinois	1,011.4	7,394.3
Indiana	603.1	4,149.8
Iowa	183.1	6,698.7
Missouri	158.3	3,972.4
Ohio	872.9	3,957.8
Corn Belt	2,828.8	26,173.0
Michigan	4,015.9	2,204.2
Minnesota	7,497.2	9,389.6
Wisconsin	5,635.7	802.9
Lake States	17,148.8	12,396.7
Arkansas	2,049.0	3,475.0
Louisiana	6,419.2	2,340.9
Mississippi	2,846.3	2,488.6
Delta	11,314.5	8,304.5
Kansas	61.0	620.7
Nebraska	1,108.5	653.5
North Dakota	2,838.3	1,453.1
South Dakota	1,501.5	788.3
Northern Plains	5,509.3	3,515.6
Oklahoma	265.8	193.1
Texas	3,497.8	988.5
Southern Plains	3,763.6	1,181.6
Arizona	132.9	0.0
Colorado	709.7	146.5
Idaho	423.9	72.2
Montana	661.3	139.0
Nevada	75.3	53.6
New Mexico	101.8	2.0
Utah	858.8	12.9
Wyoming	620.1	111.9
Mountain	3,583.8	538.1
California	1,149.2	163.3
Hawaii	64.6	0.0
Oregon	1,046.1	267.6
Washington	389.1	121.4
Pacific	2,649.0	552.3
United States[3]	81,980.3	57,893.9

[1]Source: USDA, SCS, 1987 National Resources Inventory data.

[2]Source: USDA, SCS, 1982 National Resources Inventory and SOILS 5 databases. Excludes cropped wetlands.

[3]Excludes Alaska.