Major Uses of Land in the United States, 1997. By Marlow Vesterby and Kenneth S. Krupa. Resource Economics Division, Economic Research Service, U.S. Department of Agriculture. Statistical Bulletin No. 973.

Abstract

The United States has a total land area of nearly 2.3 billion acres. Major uses in 1997 were forest-use land, 642 million acres (28 percent); grassland pasture and range, 580 million (26 percent); cropland, 455 million (20 percent); miscellaneous other uses, 300 million (13 percent); and special uses, 286 million acres (13 percent). Cropland acreage decreased from 1992 to 1997, but by only 1 percent (5 million acres). Grassland pasture and range decreased 2 percent (11 million acres). Special uses (primarily parks and wildlife areas) increased by 5 million acres, continuing an almost uninterrupted upward trend since 1945. Miscellaneous other uses increased 17 million acres, mostly due to expanding urban area. Rural residential area (a new category) was estimated to be 73 million acres in 1997. Urban and rural residential area, together, accounted for about 46 percent of miscellaneous other uses. Private land ownership was 60 percent of the total land area; Federal ownership was 29 percent; and State, other public, and Indian trust lands, together, accounted for the remaining 11 percent of the land area.

Keywords: Land use, land use trends, cropland, pasture, rangeland, forestland, agricultural land, nonagricultural land.

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Preface

The Economic Research Service (ERS) has served as a source of major land use estimates in the United States for over 50 years. The major land use series is the only consistent accounting of all major uses of land in the United States, public and private. Francis Marschner made some of the earliest contributions by reporting land use from 1922 through 1940 in the *Atlas of American Agriculture* when he was with the ERS predecessor agency, the Bureau of Agricultural Economics. A consistent series was started in 1945, and has since been published at intervals coinciding with the periodic censuses of agriculture. Marschner was also one of the researchers involved in the 1945 inventory (Reuss, Wooten, and Marschner, 1948). A wide range of researchers, policy analysts, and organizations have used the data, in econometric models and elsewhere, often as the authoritative source. The annual cropland portion of the series has been consistently maintained since 1910.

To ensure comparability with earlier estimates in the series, a standardized set of procedures is used (Barnard and Hexem, 1988). Even so, comparability was sometimes hindered by changes in the characteristics of data available over time. This is inevitable since the estimates are not drawn from a single survey but derived by reconciliation of several sources of data. In some instances, more recent data than 1997 were available on cropland and were incorporated when appropriate.

Economic analyses often require consistent acreage estimates of land use. Prior to 1945, acres of major land uses were not consistently available for all States and all major uses of land. Various agencies had data on land use that differed widely in definition, collection criteria, and acreage. No single agency provided all land uses that would sum to total land in the United States. For example, the Forest Service had data on forest land while the Bureau of Land Management provided public grazing land acreage. The Census of Agriculture collected information on cropland and rangeland, but only if it was included in "land in farms," missing agricultural land not in farms. Various other Federal and State agencies provided data on parks, fish and wildlife areas, roads, railroads, defense installations, and other categories.

Data gathering techniques have improved markedly due to advances in technology, sampling, and computer tabulation. Other estimates of U.S. land use do exist. The Natural Resources Conservation Service publishes the National Resources Inventory (NRI), a successor to the Conservation Needs Inventory. The NRI includes agricultural land not covered by the Census of Agriculture. However, the NRI still does not cover Federal land, missing land uses on about 29 percent of total U.S. land area. Also, the NRI concentrates on the 48 contiguous States and Hawaii, omitting Alaska—365 million acres, or 16 percent of the total U.S. area. ERS remains the only source of consistent major land use estimates for all 50 States.

Contents

Summary

ERS analysts construct land use estimates by collecting data from the census, public land management and conservation agencies, and other sources. The data are assembled, analyzed, and synthesized by State to calculate the use of several broad classes and subclasses of agricultural and nonagricultural land over time.

This publication presents the results of the latest inventory (1997) of major land uses. It analyzes trends in land use based on comparisons with earlier major land use estimates. A specific set of land use categories is defined in the appendix.

Land area of the United States is nearly 2.3 billion acres. Major uses in 1997 were forest-use land, 642 million acres (28 percent); grassland pasture and range, 580 million acres (26 percent); cropland, 455 million acres (20 percent); miscellaneous other uses, 300 million acres (13 percent); and special uses, 286 million acres (13 percent).

Cropland—including cropland used for crops, idled, and pasture—decreased by 5 million acres from 1992 to 1997 (1 percent). Cropland has declined slowly but steadily since 1978—by about 3 percent. ***Cropland used for crops***—cropland harvested, crop failure, and cultivated summer fallow—increased 11 million acres from 1992 to 1997, due to a proportionally large decrease in ***acres idled*** in Federal programs. ***Harvested cropland*** increased 15 million acres from 1992 to 1997, largely due to an 11-million-acre increase in soybean acreage, attributed to the elimination of most acreage use restriction programs by the 1996 FAIR Act. The practice of ***summer fallow***, primarily in the Plains States, continued a long-term decline to 21 million acres in 1997. The decline in summer fallow is due to better wheat varieties, improved cultivation practices, and other factors. ***Cropland failure*** and ***cropland pasture*** experienced no notable acreage changes. While cropland used for crops trended upward for most regions from 1992 to 1997, the Northeast continued a downward trend that began in 1945, further concentrating acreage used for crops in major crop producing regions.

Grassland pasture and range decreased 11 million acres from 1992 to 1997, nearly 2 percent. Cropland pasture, forest land grazed, and grassland pasture and range, combined, totaled 788 million acres, down from 803 million acres in 1992. Western regions account for over 90 percent of this land. The decrease in grassland and pasture use shifted mostly to cropland. However, some went to forest and miscellaneous uses, including urban.

Forest-use land also decreased from 1992 to 1997, but only by 1 percent. When special-use forested land in parks, wildlife, and related areas is included, total forest land also increased by 1 percent. Nearly a third of the land area of the United States, 746 million acres, is forested, including an estimated 105 million acres in special-use area. Land in forests is about equally divided between the humid eastern half of the country and the western half, including Alaska.

Special uses—parks, wildlife areas, wilderness, rural roads, railroads, airports, defense and related areas, farmsteads and farm lanes—increased nearly 2 percent from 1992 to 1997, continuing an upward trend dating from 1945. Federal and State parks, and wildlife and wilderness areas comprise 80 percent of special use land and account for most of the increase in area. Defense and

related areas decreased by almost 4 million acres, mostly in Arizona and Nevada. Over 40 percent of special-use areas are in Alaska due to vast wildlife areas and parks.

Miscellaneous other uses—urban, rural residential, and all unclassified land such as marshes, open swamps, bare rock areas, and deserts—increased about 6 percent from 1992 to 1997. Nearly one-third of the increase was due to increased urban area. Land in urban areas is estimated at 66 million acres in 1997, up from 59 million acres in 1992—an average rate of increase of 1.4 million acres per year. Rural residential land, a new land use category, was estimated to be about 73 million acres in 1997.

Regional patterns of major land uses vary greatly and reflect differences in soil, climate, topography, and population settlement patterns. The Northeast, for example, has about 12 percent of its area in cropland, compared with 60 percent for the Corn Belt. The proportions are about reversed for forest land: 60 percent in the Northeast, 19 percent in the Corn Belt. The regions with the next highest shares of cropland after the Corn Belt are the Northern Plains (55 percent), Lake States (33 percent), Southern Plains (27 percent), and Delta States (24 percent). Forest land is most prevalent in the Northeast, Appalachian, and Southeast, with each region having more than 58 percent of its area in forest. In these regions the topography is often rolling-to-mountainous and precipitation is ample.

Class of ownership. Over 60 percent (1,366 million acres) of the land in the United States is privately owned. The Federal Government owns nearly 29 percent (647 million acres), over one-third of which is in Alaska. State and local governments own about 9 percent (195 million acres). Over 2 percent (55 million acres) is held in trust by the Bureau of Indian Affairs. There was minimal change in ownership from 1992 to 1997.

Major Uses of Land in the United States, 1997

(Marking 52 years in land use estimates)

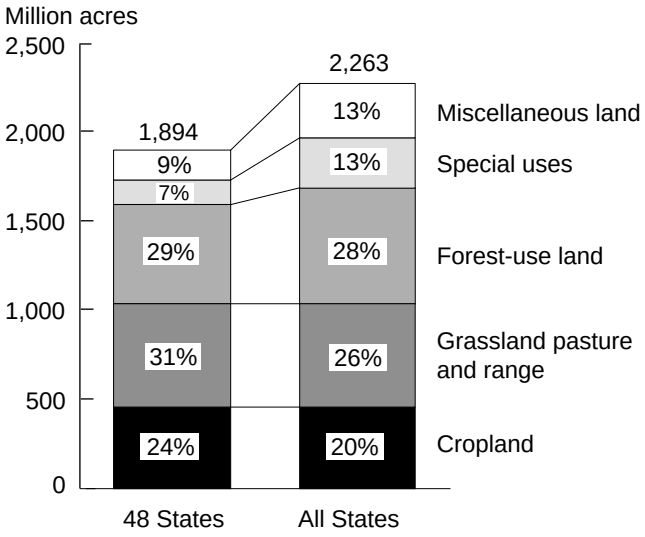
Marlow Vesterby and Kenneth S. Krupa

How the Land Is Used

The United States has a land area of about 2.3 billion acres (fig. 1). About 20 percent of the land area was cropland in 1997, 26 percent was permanent grassland pasture and range, and 28 percent was forest-use land (33 percent is defined as total forest land when land in parks and other land used for similar purposes is included). The final 26 percent constituted land used for a variety of special purposes and unclassified land, including urban land (table 1). These proportions are significantly affected by the land area of Alaska, which has very little cropland and pasture but large areas of forest-use, special-use, and miscellaneous other land (app. table 1).

Figure 1

Major uses of land, 1997



Source: ERS, USDA, table 1.

Table 1—Major uses of land, United States, 1997

Land use	Acreage		Proportion of total	
	48 States	United States	48 States	United States
	Million acres		*Percent*	
Cropland[1]	455	455	24.0	20.1
Grassland pasture and range[2]	578	580	30.5	25.6
Forest-use land[3]	552	642	29.2	28.4
Special uses[4]	142	286	7.5	12.6
Miscellaneous other land[5]	167	301	8.8	13.3
Total land area[6]	1,894	2,263	100.0	100.0

[1]All land in the crop rotation, including cropland used for crops, idle cropland, and cropland used only for pasture. Alaska and Hawaii total less than 0.4 million acres (see table 5).

[2]Permanent grassland and other nonforested pasture and range.

[3]Total forest land as classified by the U.S. Forest Service, excluding an estimated 105 million acres used primarily for parks, wildlife areas, and other uses.

[4]Rural transportation areas, areas used primarily for recreation and wildlife purposes, various public installations and facilities, farmsteads, and farm roads, including approximately 105 million acres that overlap with forest land.

[5]Includes urban areas, areas in miscellaneous uses not inventoried, and marshes, open swamps, bare rock areas, desert, tundra, and other land generally having low value for agricultural purposes.

[6]Includes streams and canals less than one-eighth mile wide, and ponds, lakes, and reservoirs covering less than 40 acres.

Distributions by major use may not add to totals due to rounding.

Sources: Estimates are based primarily on reports and records of the Bureau of the Census and Federal, State, and local land management and conservation agencies including AAR, 1997; BLM, 1998; BOC, 1999; FHWA, 1997; FS, 1998, 1999; FWS, 1997; GSA, 1998, 1999; NASS, 1998, 1999a, 1999b; SCS, 1994; NPS, 1997; and various unpublished data sources.

Land used for agricultural purposes in 1997 totaled nearly 1.2 billion acres, over 52 percent of total U.S. land area (table 2). Cropland, grassland pasture, and range accounted for most of the land used for agricultural purposes, but land used for agricultural purposes also included forest land used for grazing and land in farmsteads, farm roads, and farm lanes. In contrast, the Bureau of the Census estimated 932 million acres of "land in farms" in 1997 (USDA/NASS, 1999a). The difference is mostly accounted for by grazing lands, both forested and nonforested, that are not defined by Census as being in farms, as well as cropland underenumerated by the Census (Barnard and Hexem, 1988).

Land classified as cropland totaled 455 million acres (table 1). This total represents all land in crop rotation, including cropland used only for pasture (fig. 2). Cropland used for crops—harvested, failed, and summer fallow—totaled 349 million acres, 77 percent of the acreage classed as cropland, including cropland

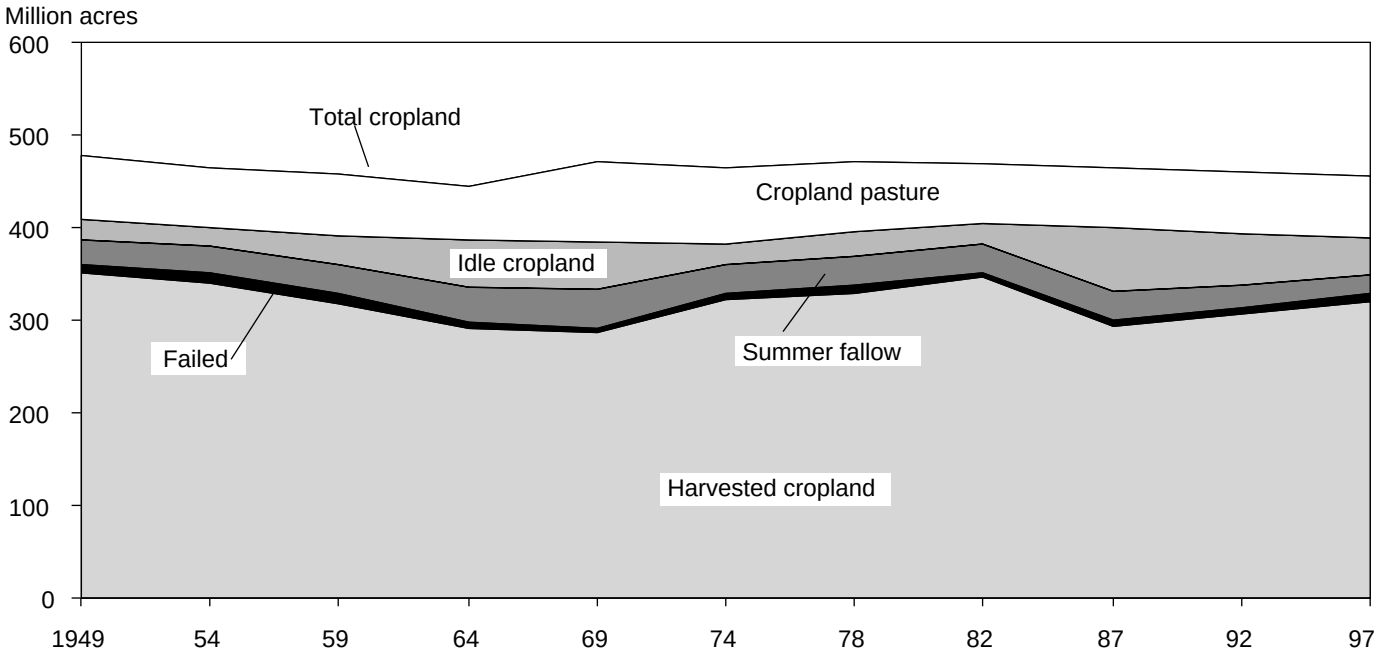
Table 2—Agricultural and nonagricultural uses of land, United States, 1997

Land use	Acreage		Proportion of total	
	48 States	United States	48 States	United States
	Million acres		*Percent*	
Agricultural:				
Cropland—				
Cropland used for crops[1]	349	349	18.4	15.4
Idle cropland	39	39	2.0	1.7
Grazing land—				
Cropland used only for pasture	67	68	3.6	3.0
Grassland pasture and range	578	580	30.5	25.6
Forest land grazed	140	140	7.4	6.2
Special uses—				
Farmsteads, farm roads	7	7	0.4	0.3
Total agricultural land[2]	1,179	1,182	62.3	52.2
Nonagricultural:				
Forest-use land—				
Forest-use land not grazed[3]	412	501	21.8	22.1
Special uses—				
Transportation uses[4]	25	25	1.3	1.1
Recreation and wildlife areas[5]	95	237	5.0	10.5
National defense areas[6]	15	16	0.8	0.7
Miscellaneous other land[7]	167	301	8.8	13.3
Total nonagricultural land[2]	715	1,081	37.8	47.8
Total land area[2]	1,894	2,263	100.0	100.0

[1]Cropland harvested, crop failure, and cultivated summer fallow.
[2]Breakdown of land uses may not add to totals due to rounding.
[3]Excludes 105 million acres of forest land in parks and land in other special uses (see app. table 1).
[4]Rural highways, roads and railroad rights-of-way, and rural airports.
[5]National and State parks and related recreational areas, national and State wildlife refuges, and national wilderness and primitive areas.
[6]Federal land administered by the Department of Defense for military purposes and land administered by the Department of Energy.
[7]Includes urban areas, miscellaneous uses not inventoried, and areas of little surface use such as marshes, open swamps, bare rock areas, desert, and tundra.

Sources: Estimates are based primarily on reports and records of the Bureau of the Census and Federal and State land management and conservation agencies. See sources for table 1.

Figure 2
Major uses of U.S. cropland



Source: See sources to tables 1 and 3.

pasture (table 2). The remaining 23 percent includes idle cropland and cropland used only for pasture.

Livestock grazing was the primary use of an estimated 580 million acres of permanent grassland pasture and range. (Forest land grazed is counted as forest land.) Some grazing land also has other uses. When cropland pasture (68 million acres) and forested grazing land (140 million acres) are added to the permanent grassland acreage, total grazing land comprised about 788 million acres, 35 percent of the total U.S. land area.

Forest-use land not grazed (total forest land minus land grazed and in special uses, such as in national and State parks) amounted to 501 million acres and was the predominant nonagricultural category of land (table 2).

Nonagricultural special-use areas (excluding 7 million acres of special-use land in farmsteads and farm roads) were estimated to account for more than 278 million acres, over 12 percent of the Nation's land area. Rural transportation uses accounted for 25 million acres. Federal and State parks, wildlife refuges, and related acres occupied 237 million acres, and defense and other public installations and facilities totaled 16 million acres.

The remaining 301 million acres of the Nation's land area included urban areas and minor acreage in various special uses not inventoried, but consisting mainly of Alaskan tundra, deserts, bare rock areas, swamps, marshes, and other unclassified areas.

Trends in Major Uses of Land

The most pronounced trends in major uses of land (1959-97) have occurred in the upward trend in special-use areas and the downward trend in grassland pasture and range (table 3). During 1982-97, cropland used for crops plus idle cropland fell from 404 million acres to 388 million. This change reversed the 1969-82 trend, when cropland used for crops plus idle cropland increased 20 million acres.

Estimates of the combined acreage of cropland pasture, grassland pasture, and range decreased 10 million acres during 1992-97, continuing a general downward trend since 1949 (Daugherty, 1989). The 1997 total was the lowest amount used for grazing since 1945, when the Major Land Use series began.

Forest-use land, exclusive of the forest area duplicated in special uses, declined 6 million acres from 1992 to 1997. The 642 million acres of forest-use land differs from the 747 million acres estimated by the Forest

Table 3—Major uses of land, United States, 1959-97

Land use	1959	1964	1969	1974	1978	1982	1987	1992	1997
					Million acres				
Cropland[1]	458	444	472	465	471	469	464	460	455
Cropland used for crops	359	335	333	361	369	383	331	338	349
Idle cropland	34	52	51	21	26	21	68	56	39
Cropland pasture	65	57	88	83	76	65	65	67	68
Grassland pasture and range[2]	633	640	604	598	587	597	591	591	580
Forest-use land[3]	728	732	723	718	703	655	648	648	642
Grazed forest-use land	245	225	198	179	172	158	155	145	140
Other forest-use land	483	507	525	539	531	497	493	503	501
Special-use areas[4]	123	144	141	147	158	270	279	281	286
Miscellaneous other land [5]	329	306	324	336	345	274	283	283	301
Total land area[1, 6]	2,271	2,266	2,264	2,264	2,264	2,265	2,265	2,263	2,263

[1]Distribution of land uses may not add to totals due to rounding.
[2]Other grassland pasture and nonforested range (excludes cropland used only for pasture and grazed forest land).
[3]Excludes forest land in parks and other special uses of land.
[4]Includes land specified in appendix table 4.
[5]Includes urban areas, areas in miscellaneous uses not inventoried, and areas of little surface use such as marshes, open swamps, bare rock areas, desert, and tundra.
[6]Totals differ over time due to remeasurement of the land area.

Sources: Estimates prior to 1997 are from Daugherty, 1991, 1995; Frey, 1973, 1979, 1982; Frey and Hexem, 1985; Frey, Krause, and Dickason, 1968; and Wooten, Gertel, and Pendleton, 1962. See sources for table 1 for 1997. The estimates are not strictly comparable.

Service (app. table 5) because the latter includes multiple-use areas in special uses such as parks and wildlife refuges. Total forest land, including multiple-use areas, declined from colonial times until about 1920, increased from 1920 to 1960, and has trended downward again since the 1960s until 1987 (FS, 1982). In 1997, total forest land was estimated to be about 10 million acres more than in 1992 and 16 million acres above 1987.

Special-use areas—primarily transportation, recreation, and other special uses—totaled 286 million acres in 1997 (table 3). The large increase between 1978 (158 million acres) and 1987 (279 million acres) came from establishing national parks, wilderness areas, and wildlife refuges in Alaska in what was once inventoried as forest or other unclassified land use. Alaska now has nearly 50 percent of the acreage for special uses (app. table 4). Since 1978, acreage in special uses in Alaska has more than quadrupled from 35 million to over 143 million acres.

Land in urban areas, as measured by the Bureau of the Census in conjunction with the decennial censuses of population, totaled 55.9 million acres in 1990, up from 47.3 million acres in 1980 (U.S. Dept. Commerce/BOC, 1993). Urban areas absorbed an average of 0.9 million acres per year from other land uses during the 1980s, compared with an average of 1.3 million acres each year during the 1970s (Frey, 1983). Appendix table 7 estimates urban land based on historic use of land per capita in urban areas and the 1997 population. At 65.5 million acres in 1997, this implies an average increase of 1.4 million acres in urban land per year since 1990.

The National Resources Inventory (NRI) enables trends in land use to be examined according to the source and destination of changes in major uses (USDA/NRCS, 2000). While the NRI does not account for all land use (Federal land and Alaska are omitted), and does not use the same definitions or data gathering procedures used by Major Land Uses (MLU), it does employ a special sampling technique that allows the construction of land use transition

matrices. Transition matrices specify where each inventoried change in land use came from and where it went. The NRI shows a substantial drop in cropland, 23 million acres from 1982 to 1997 (table 4). Rangeland also declined 10 million acres. Much of this land went to miscellaneous uses, which includes urban areas and roads. Forest land and other land also increased, but by smaller amounts. According to the NRI, cropland shifted 20 million acres to forest but also gained 6 million acres from forest land uses, for a net decrease of 14 million acres.

Comparing MLU data with the NRI, MLU also shows a decrease of cropland from 1982 to 1997, though just 14 million acres (table 3). However, MLU shows a larger decrease in rangeland (including public rangeland), 17 million acres versus NRI's 10 million. For forest land, MLU shows a decrease of 13 million acres, in contrast to the increase shown by the NRI. Again, MLU includes public land in the forest category and employs different estimation procedures. The MLU special-use category increased 16 million acres in 1982-97, mostly because of increases in parks, fish and wildlife areas, and wilderness areas. Much of the MLU special-use land has no similar category in the NRI, but is probably included in NRI's other land (Federal) and in forest land. Both the NRI and MLU show increases in urban areas, although the definitions are different (see appendix, "Definitions and Explanation of the Data"). These comparisons serve to emphasize that MLU estimates land use for all land in the United States, including Federal, and for all 50 States (NRI omits Alaska).

Basic Regional Land Use Patterns

Land used primarily for agricultural production (cropland and nonforested grazing land) accounts for 46 percent (52 percent including forested grazing) of the Nation's total land area; forest-use land accounts for 28 percent; and all other land accounts for 26 percent (table 5). But these proportions vary greatly by region. Regions reflect differences in soils, climate, topography, and patterns of population settlement (fig. 3)[1]. For example, proportions of cropland are vastly different in the Northeast (12 percent) and the Corn Belt (60 percent). Limited precipitation in semiarid areas, for example the Southern Plains and Mountain regions, means that a large proportion of the land is most suitable for grazing. Forest land is most prevalent in regions such as the Northeast, Appalachian, and

[1]ERS constructed a new set of Farm Resource Regions (USDA/ERS, 2000) to be used, when possible, in place of the old Farm Production Regions. Farm Resource Regions require county-level data, which are not available for most land classes in the State-based *Major Land Use* series.

Table 4—Land use transition matrix, 1982-97[1]

Land use	Cropland	Rangeland	Forest land	Miscellaneous	Other	1982
			Million acres[2]			
Cropland[3]	***509***	6	20	16	1	552
Rangeland	11	***395***	3	5	3	416
Forest land	6	2	***380***	12	2	403
Miscellaneous[4]	3	1	3	***116***	—	123
Other[5]	1	2	1	—	***396***	399
1997[6]	529	406	407	149	402	***1,893***

— = Less than 500,000 acres.

[1]Excludes Alaska. NRI data are presented for comparison purposes with MLU data. The NRI uses different data gathering techniques and slightly different definitions of land use.

[2]Numbers in bold indicate the acres that remained in the same use. Nonbold numbers across rows represent land moving out of the 1982 land uses. Nonbold numbers down columns represent land moving into the 1997 land uses.

[3]All crops, idle cropland, summer fallow, and pasture.

[4]Other farmland, rural land, urban land, and roads.

[5]Primarily Federal land not inventoried.

[6]Distributions may not add due to rounding.

Source: ERS, USDA, based on NRCS, 2000.

Table 5—Major uses of land, by region, 1997

Region	Cropland[1]		Grassland pasture and range[2]		Forest-use land[3]		Special uses and miscellaneous other land		Total land area[4]	
	Mil. acres	*Pct.*	*Mil. acres*	*Pct.*	*Mil. acres*	*Pct.*	*Mil. acres*	*Pct.*	*Mil. acres*	*Pct.*
Northeast	13.4	12	2.8	3	66.2	59	28.9	26	111.4	100
Lake States	40.7	33	5.0	4	49.2	40	27.2	22	122.1	100
Corn Belt	98.6	60	11.6	7	31.3	19	23.1	14	164.6	100
Northern Plains	107.8	55	68.3	35	4.3	2	13.8	7	194.3	100
Appalachian	28.0	23	5.4	4	71.5	58	18.8	15	123.7	100
Southeast	18.0	15	9.1	7	71.9	58	24.3	20	123.4	100
Delta States	22.0	24	5.5	6	50.7	56	13.0	14	91.2	100
Southern Plains	56.4	27	115.4	55	18.0	9	21.8	10	211.6	100
Mountain	45.4	8	302.7	55	112.6	21	87.3	16	547.9	100
Pacific	24.4	12	52.1	26	76.7	38	50.7	25	203.9	100
48 States[4]	454.7	24	578.0	31	552.4	29	309.0	16	1,894.1	100
Alaska	0.1	0	1.2	0	87.9	24	275.8	76	365.0	100
Hawaii	0.3	7	1.0	24	1.2	29	1.7	41	4.1	100
United States[4]	455.1	20	580.2	26	641.5	28	586.5	26	2,263.3	100

[1]Total cropland including cropland used for crops, cropland used only for pasture, and idle cropland.
[2]Open permanent pasture and range, both on farms and not on farms, excluding cropland pasture.
[3]Total forest land, excluding areas used for parks, wildlife refuges, livestock grazing, and other multiple purposes.
[4]Distribution of land uses and percentages may not add to totals due to rounding.

Sources: See sources for table 1.

Figure 3
Farm production regions

Southeast, where the topography is conducive to growing trees and precipitation is ample. In similar fashion, there is variation among States within a region (figs. 4-7).

Cropland

Cropland includes five components. The sum of three components—cropland harvested, crop failure, and cultivated summer fallow—is cropland used for crops or the acreage devoted to crop production in any year (see appendix, "Definitions and Explanation of the Data"). The other two components, 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 1997, the last year in which total cropland was inventoried, about 349 million acres, or 77 percent of the Nation's cropland base, were used for crops (table 6, app. table 2). 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 Lake States, Corn Belt, Northern Plains, Northeast, and Pacific regions, and below average in the Mountain region and in the four southernmost regions from the Southern Plains east. Proportions ranged from a high of 86 percent in the Lake States to 57 percent in the Southern Plains region. Most of the 39 million idled acres in 1997 was due to the Conservation Reserve Program, at 33 million acres. Total idled acreage was about 17 million acres less than in 1992 (table 3). This decrease was mainly due to the elimination of Federal acreage diversion programs. Some regions undergo substantial change in cropland used for crops, depending mainly on producer enrollment in Federal programs.

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 over 321 million acres in 1997, up from 306 million acres in 1992 (table 7). The increase in cropland harvested came mostly from the 17-million-acre reduction in idled cropland. A small reduction in summer fallow from 1992 to 1997 also likely went to cropland harvested. The regional distribution of harvested acreage was similar to that of cropland used for crops except in the Northern Plains, Mountain, Pacific, and Southern Plains regions, which had larger areas in cultivated summer fallow. Harvested acreage was highest in the Corn Belt, with the Northern Plains, Lake States, Southern Plains, and Mountain regions ranked next in order.

As with proportions of cropland used for crops, harvested acreage was above the national average (71 percent of total cropland) in the Lake States, Corn Belt, 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 1997, the proportion of cropland harvested ranged from 52 percent in the Southern Plains to 84 percent in the Lake States and Corn Belt.

Crop failure occurred on 6.5 million acres, or nearly 2 percent of the acreage planted for harvest in 1997. This failure rate was a little below average for recent years (app. table 6). About 55 percent of the failure occurred in the Northern Plains and Southern Plains, where annual precipitation is more uncertain.

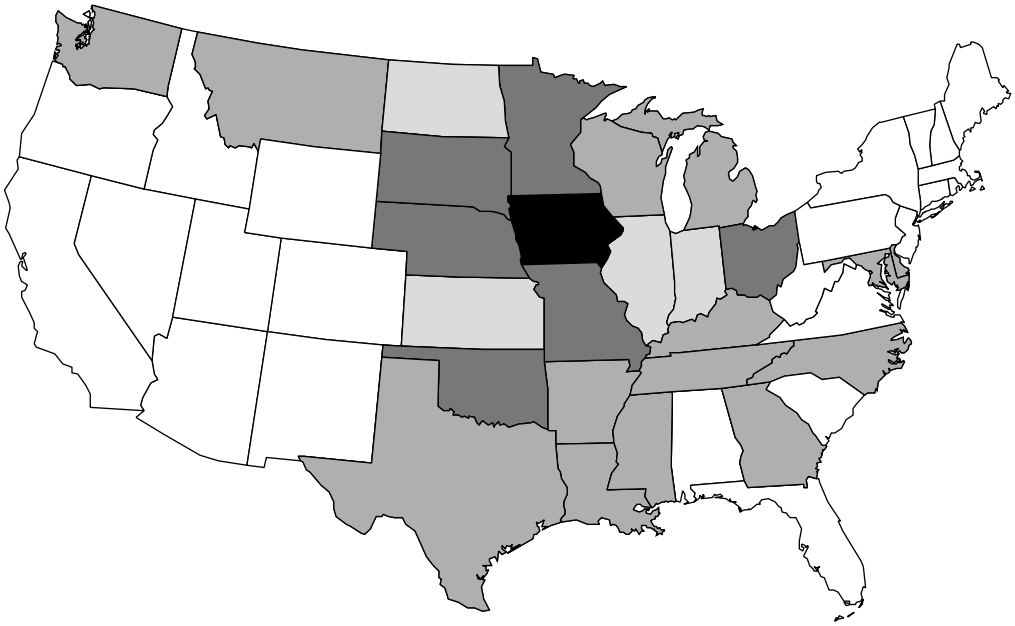
Cultivated summer fallow refers to cropland in subhumid regions that is cultivated for a season or more to control weeds and accumulate moisture before small grains are planted. This component totaled over 21 million acres in 1997. Summer fallow is a practice used for dryland small grain production in extensive areas of the semiarid West. Over 44 percent of summer fallow acres are in the Northern Plains, 37 percent in the Mountain region, and the remainder in the Pacific and Southern Plains regions (table 6).

Other Cropland

The rest of the cropland acreage was used only for pasture (68 million acres) or was idle (39 million acres) in 1997 (see appendix, "Definitions and Explanation of Data"). 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 only for pasture accounted for nearly 15 percent of all cropland in 1997. The Appalachian, Southern Plains, Southeast, and Delta regions were above the U.S. average. The largest acreage was in such agriculturally diverse regions as the Southern and Northern Plains and the Corn Belt, but these were pastured for different reasons. Cropland pasture acreage in the Corn Belt and adjacent areas reflects the high proportion of land classified as cropland. On many farms, the only land

Figure 4

Proportion of State land area in cropland, 1997



Percent cropland

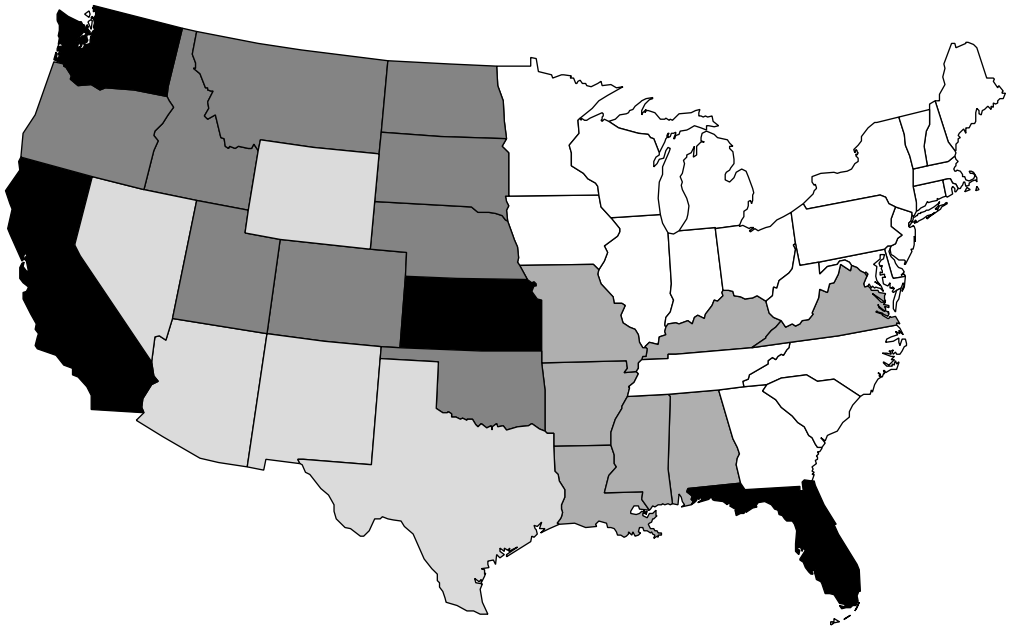
0 to 18 | 19 to 36 | 37 to 54 | 55 to 72 | 73 to 90

Alaska and Hawaii are in the 0-18 category.

Source: ERS, USDA, based on app. tables 1 and 2.

Figure 5

Proportion of State land area in grassland pasture, 1997



Percent pasture

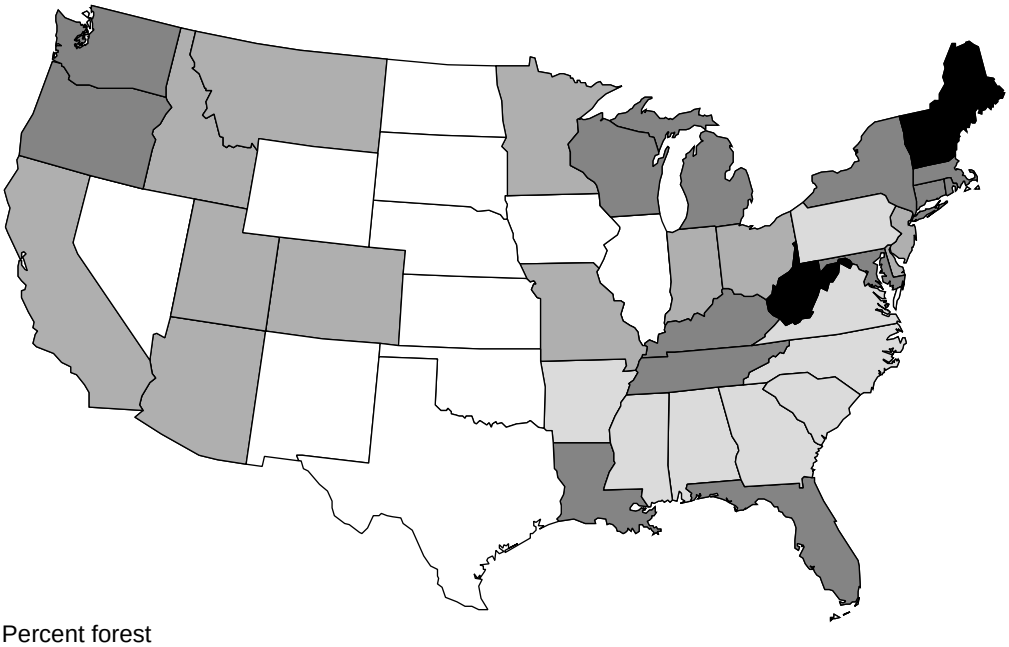
0 to 5 | 6 to 15 | 26 to 50 | 51 to 72 | 16 to 25

Alaska is in the 0-5 category. Hawaii is in the 16-25 category.

Source: ERS, USDA, based on app. tables 1 and 3.

Figure 6

Proportion of State land area in forest-use land, 1997



Percent forest

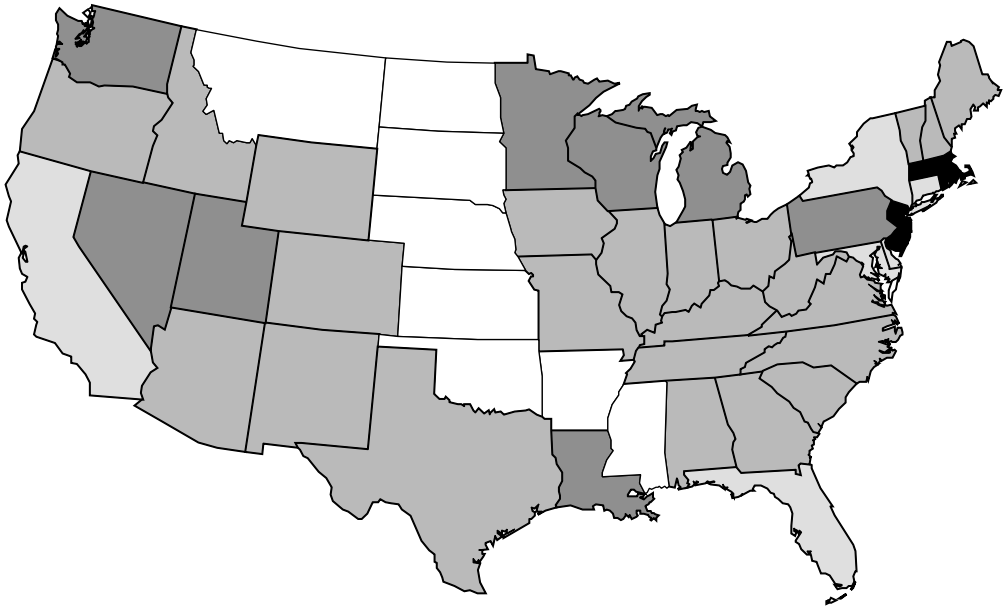
0 to 18 | 19 to 36 | 37 to 54 | 55 to 72 | 73 to 90

Alaska and Hawaii are in the 19-36 category.

Source: ERS, USDA, based on app. table 1.

Figure 7

Proportion of State land area in special uses and miscellaneous other land,1997



Percent in other uses

0 to 10 | 11 to 20 | 21 to 30 | 31 to 40 | 41 to 76

Alaska is in the 41-76 category. Hawaii is in the 31-40 category.

Source: ERS, USDA, based on app. table 1.

Table 6—Cropland by major components and region, 1997

Region	Cropland used for crops				Idle	Pasture[3]	Total cropland[2]
	Harvested	Failed	Fallowed[1]	Total[2]			
	Million acres						
Northeast	10.5	0.2	0	10.7	0.8	1.8	13.4
Lake States	34.5	0.6	0	35.0	3.2	2.5	40.7
Corn Belt	83.0	0.5	0	83.4	5.2	9.9	98.6
Northern Plains	77.7	2.1	9.3	89.1	9.0	9.8	107.8
Appalachian	16.6	0.3	0	16.9	2.1	8.9	28.0
Southeast	11.1	0.5	0	11.6	1.9	4.5	18.0
Delta States	16.1	0.2	0	16.3	1.7	4.1	22.0
Southern Plains	29.4	1.5	1.5	32.4	6.3	17.7	56.4
Mountain	25.4	0.6	7.8	33.7	6.1	5.6	45.4
Pacific	16.7	0.1	2.5	19.4	2.3	2.7	24.4
48 States[2]	321.0	6.5	21.1	348.6	38.7	67.5	454.7
Alaska	—	—	0	—	—	—	0.1
Hawaii	0.1	0	0	0.1	0.2	—	0.3
United States[2]	321.1	6.5	21.1	348.7	38.8	67.5	455.1

— = Fewer than 50,000 acres.
[1]Cultivated summer fallow.
[2]Distribution may not add to totals due to rounding.
[3]Cropland used only for pasture.

Sources: Estimates based on data from NASS, 1999a, 1999b.

Table 7—Major uses of cropland, selected years, 1949-97

Region	Cropland used for crops				Idle	Pasture[3]	Total cropland[2]
	Harvested	Failed	Fallowed[1]	Total[2]			
	Million acres						
1949	352	9	26	387	22	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

[1]Cultivated summer fallow.
[2]Distribution may not add to totals due to rounding.
[3]Cropland used only for pasture.

Sources: Estimates of cropland used during 1949-92 are from table 3 sources plus Wooten, 1953; Wooten and Anderson, 1957; and those for 1997 are based on data from NASS, 1998, 1999a, 1999b.

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 soil improvement crops but not harvested or pastured. Idle cropland totaled nearly 39 million acres in 1997, about 9 percent of U.S. cropland. This is about the same as the U.S. average of 38 million acres since the major land use series began in 1945. The regional range was from 5 percent in the Corn Belt to 13 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. Almost all the 1997 land idled was under Federal farm programs. Of the 39 million acres idled, 33 million were in the CRP. In 1992, 35 million of the estimated 56 million acres of idle land were in the CRP, with most of the remainder in annual acreage reduction programs. Some CRP land not in idle cropland may be planted to trees and reported as woodland in the census.

Trends in Cropland Uses

Cropland acreage has remained relatively constant since World War II. Its decline from 478 million acres in 1949 to 444 million acres in 1964 was largely the result of surplus production and subsequent acreage control programs. Cropland acreage has been at or above 455 million acres in each census year since 1969 (table 7). Excluding cropland pasture changes the patterns slightly, to show a generally declining acreage during 1949-74; an increase each census year during 1974-82; and a decline during 1982-97. The 1974-82 increase was in response to expanding exports and limited use of Federal acreage control programs. In 1982, just 11 million acres were enrolled in Federal programs.

Irrigated land was at a record high of 55 million acres in 1997 (app. table 8). Irrigated land increased nearly 9 million acres since 1987, while total cropland decreased over the same period by nearly 2 percent. Irrigated land was at record highs for every region except the Southern Plains and Mountain States.

Although the total acreage classified as cropland has not changed greatly for several decades, important changes have occurred in component acreages. These changes largely reflect the absence, presence, and extent of set-aside requirements of 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.

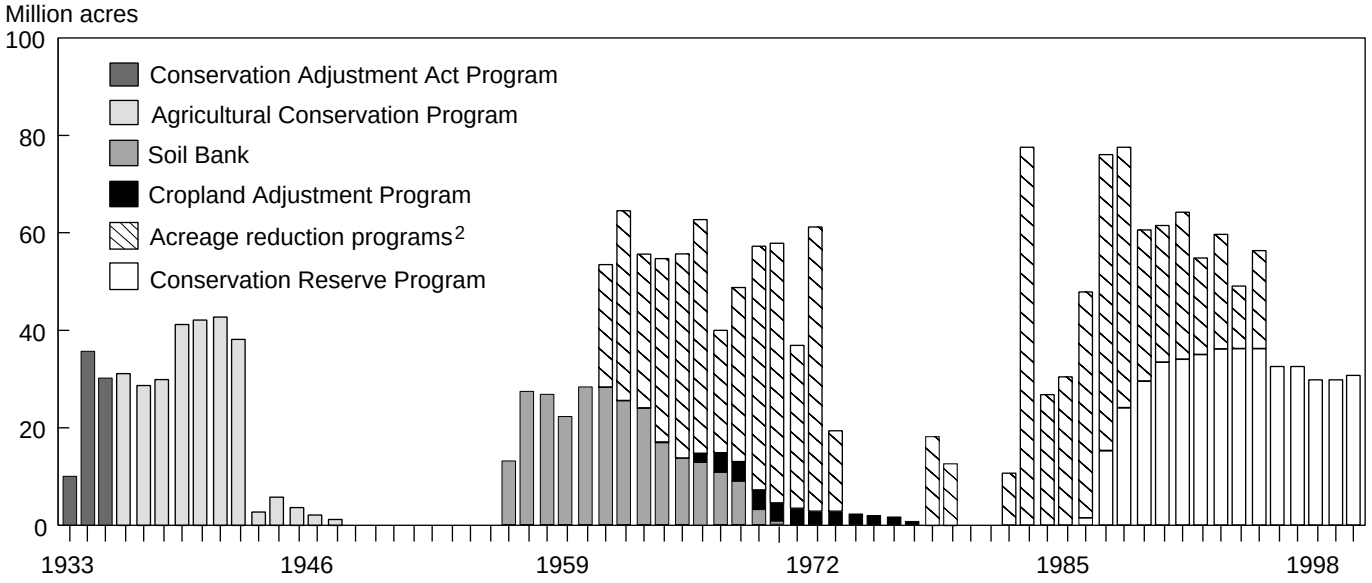
The relationship of two components of total cropland—cropland used for crops and idled cropland—are apparent by comparing their trends (app. table 6, fig. 8). (The idled cropland series is not available annually. Federal set-aside program acres shown in figure 8 are typically a large part of idled cropland and are used as a proxy.) There is an inverse relationship between the two components: as idled cropland increases, cropland used for crops decreases. Cropland used for crops was at a record high of 387 million acres in 1949 (app. table 6) when no acres were idled by Federal programs (fig. 8). In 1972, cropland used for crops was at a near-record low of 334 million acres when Federal programs idled 61 million acres. Cropland used for crops climbed to 387 million acres in 1981 when Federal programs idled no cropland, and dropped to 333 million acres in 1983 when the Payment-in-Kind (PIK) program caused Federal program set-aside acres to reach their historic peak of 78 million acres. Since 1988, cropland used for crops has trended upward while Federal program acres idled has trended downward.

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 1949-97 totals range between 286 million and 352 million acres, a range slightly wider than the range in cropland used for crops.

Estimates of cultivated summer fallow peak at 41 million acres in 1969 (app. table 6). 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 had declined, leveling off at about 31 million acres from 1973 through 1987. It has since gradually declined to 21 million acres in 2000. Wetter years (which supply moisture ordinarily saved by summer fallow), better wheat varieties, and improved cultivation practices have contributed to this decrease.

Land marked by crop failure has ranged between 5 million and 22 million acres since 1945 (app. table 6). Crops failed on 64 million acres in 1934 during the Great Depression and Dust Bowl era. The possibility

Figure 8
Cropland acreage reductions by program type, 1933-2000[1]



[1]For yearly detail of programs 1974-95, see ERS, 1997, table 1.1.14.
[2]Acreage Conservation Reserve; 0, 50/85-92 programs; Paid Land Diversion; and Payment-in-Kind programs.
Source: Crosswhite and Sandretto, 1991; updated by USDA, ERS, based on unpublished data from FSA.

of a large acreage failure is always present. Crop failure was around 10 million acres in 1988, 1993, 1996, 1998, and 2000 due to severe drought, extensive flooding, or wet weather.

Acreage of idled cropland generally varies inversely with that used for crops. Idled cropland increased during the 1950s and 1960s as acreage shifted from crop production, and declined in the early 1970s as acreage returned (table 7). Since 1987, idled acreage has ranged from 39 to 68 million acres—almost 2 to 3 times the 1974-82 rates—in response to increased enrollments in Federal crop programs and as a result of acreage retired under 10-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 7). Acreage may not be strictly comparable, primarily because of inconsistent classifications between cropland pasture and permanent grassland pasture (see appendix, “Definitions and Explanation of the Data”).

Regional Changes in Cropland Used for Crops

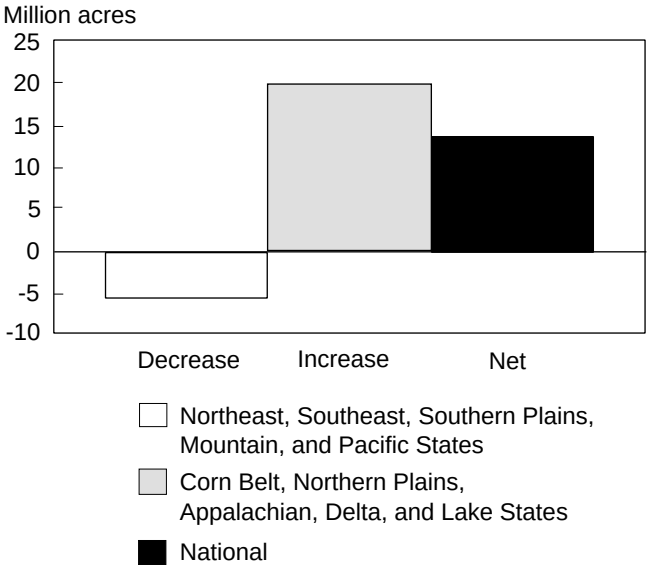
The acreage used in crop production is subject to sharp annual variations. This is exemplified by the record high of 387 million acres in 1981 when no cropland was idled by Federal programs, and the low in 1988 of 327 million acres when a record 78 million acres were idled (app. table 6) (fig. 8). Acreage diversions were at relatively high levels in 1964 when the Soil Bank and other acreage reduction programs were in effect. The CRP, a soil conservation program, was the only program effectively idling cropland in 1997.

Nationally, from 1964 to 1997, cropland used for crops increased by almost 14 million acres (4 percent). However, sharp downward shifts occurred in some regions and larger increases in others (fig. 9). This further concentrated acreage used for crops in major crop producing regions.

Cropland used for crops in the Northeast, Southeast, Southern Plains, Mountain, and Pacific regions declined by 6 million acres between 1964 and 1997 (table 8). But the remaining regions gained nearly 20 million acres. Almost 60 percent of the 1964-97 increase, nationally, occurred in the Corn Belt (fig. 10), while the Delta States and Northern Plains each accounted for another 14 percent (table 8). The net gains from 1964-97 are attributable to conversion from grassland pasture and range, and transfers from cropland pasture acreage in the Corn Belt and Delta States.

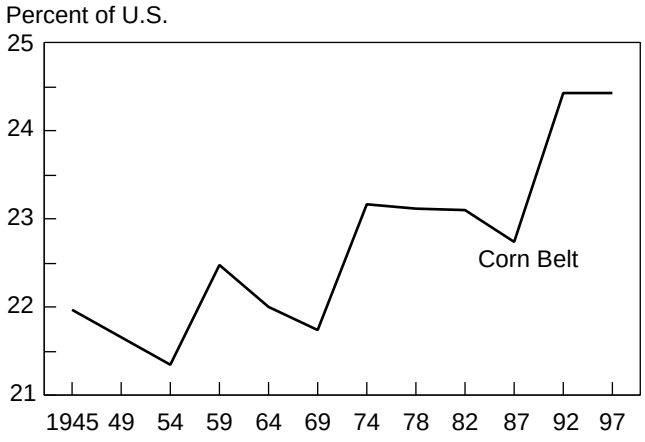
For some regions, changes in cropland used for crops represent year-to-year fluctuations that tend to balance out over time. But for others, the long-term trend has

Figure 9
Changes in cropland used for crops, increasing regions, decreasing regions, and national, 1964-97



Source: ERS, USDA, based on Frey, Krause, and Dickason, 1968; and app. table 2.

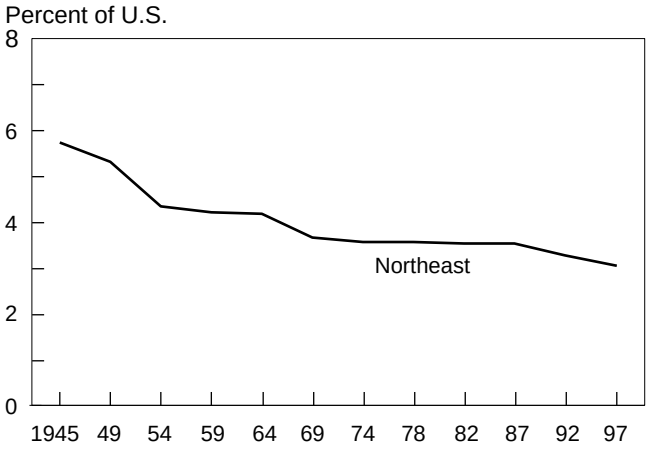
Figure 10
Corn Belt cropland used for crops, share of 48-State total



Source: ERS, USDA, based on app. table 2 and ERS Electronic Data Product, Major Land Uses (EDP #89003) http://usda.mannlib.cornell.edu/data-sets/land/89003/.

been more dramatic. The Northeast has experienced a long and steady decrease in cropland used for crops (fig. 11). Urban pressures and a comparative disadvantage in many crops have resulted in the conversion of Northeast cropland to other uses.

Figure 11
Northeast cropland used for crops, share of 48-State total



Source: ERS, USDA, based on app. table 2 and ERS Electronic Data Product, Major Land Uses (EDP #89003) http://usda.mannlib.cornell.edu/data-sets/land/89003/.

Changes in Principal Crops Harvested

Trends in crops harvested are closely associated with levels of cropland diverted through Federal programs (fig. 8, table 9). In 1963, 56 million acres of cropland were diverted through the Soil Bank and acreage reduction programs, but in 1981 Federal programs diverted no cropland. Strong growth in the export market and rapid expansions through double cropping of soybeans and small grains marked the 1970s and early 1980s. The acreage of principal crops harvested increased by 68 million acres during 1963-81, but then decreased by 36 million acres from 1981 to 1997. The CRP diverted almost 33 million acres from production in 1997. 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; 30 million acres (CRP) were diverted in 1999, and harvested area rebounded to 316 million acres. It might be expected that cropland harvested would increase in direct proportion to the cropland freed by the decrease in Federal programs. However, the increase in harvested acres from 1988 to 1999, 29 million acres, trails the 47-million-acre decrease in Federal programs, probably due to poor market conditions and weather-related crop failures in the 1990s.

Table 8—Cropland used for crops, by region

Region	1964	1981	1992	1997	Change 1964-81	Change 1981-97	Change 1964-97
				Million acres			
Northeast	14.0	13.6	11.1	10.7	-0.4	-2.9	-3.3
Lake States	34.3	40.3	34.7	35.0	6.0	-5.3	0.7
Corn Belt	72.0	87.5	80.7	83.4	15.5	-4.1	11.4
Northern Plains	86.2	93.5	84.5	89.0	7.3	-4.5	2.8
Appalachian	15.0	19.4	16.6	16.9	4.4	-2.5	1.9
Southeast	11.8	14.8	10.4	11.6	3.0	-3.2	-0.2
Delta States	13.5	19.6	16.5	16.3	6.1	-3.3	2.8
Southern Plains	34.1	38.0	31.6	32.4	3.9	-5.6	-1.7
Mountain	33.9	38.1	33.0	33.7	4.2	-4.4	-0.2
Pacific	19.9	22.2	18.2	19.4	2.3	-2.8	-0.5
48 States[1]	334.8	387.0	337.4	348.6	52.2	-38.4	13.8

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

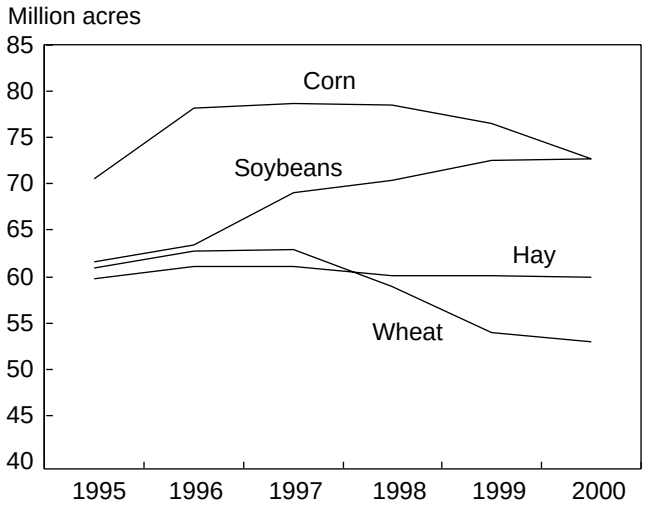
Sources: Estimates for the 48 contiguous States based on data from ERS, 1992; NASS, 1999a, 1999b.

The 1963-81 and 1981-97 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 28.6 million acres in 1963 to 69.1 million acres in 1997 to supplant wheat as the second leading U.S. crop—after corn (table 9). Wheat acreage, some of which was double-cropped before soybeans, increased by 17 million acres between 1963 and 1997. 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. Other crops—cotton, flaxseed, and tobacco—declined by 3.2 million acres.

During 1981-97, the acreage of food crops declined by 10 percent, almost entirely from wheat. Feed crops declined sharply during 1981-97, with oats declining over 70 percent. The amount of other crops harvested also continued to drop, with over 45 percent of the 1981-97 decline accounted for by dramatically reduced flaxseed acreage.

The Federal Agriculture Improvement and Reform (FAIR) Act of 1996 eliminated most acreage use restrictions that had been in effect under previous farm programs (Nelson and Schertz, 1996). The FAIR Act and various market forces have affected the supply and demand for the four agricultural crops that comprise 80 percent of total harvested acres in the United States (fig. 12) (USDA/ERS, 2001). The harvested acreage of soybeans has increased 15 percent since 1996. Wheat acreage decreased by about the same amount and corn decreased by 7 percent. Harvested hay acreage was largely unaffected. The FAIR Act allowed producers to increase more profitable soybean acreage

Figure 12
Trends in harvested crop acres, 48 contiguous States, 1995-2000



Source: ERS, USDA, based on USDA/NASS, 2000.

Table 9—Principal crops harvested, 48 contiguous States

Crop	1963	1981	1992	1997	Change 1963-81	Change 1981-97
			Million acres			
Food crops:						
Wheat	45.5	80.6	62.8	62.8	35.1	-17.8
Soybeans	28.6	66.2	58.2	69.1	37.6	2.9
Rice	1.8	3.8	3.1	3.1	2.0	-0.7
Rye	1.6	0.7	0.4	0.3	-0.9	-0.4
Peanuts	1.4	1.5	1.7	1.4	0.1	-0.1
Sunflowers	NR	3.8	2.0	2.8	3.8	-1.0
Dry edible beans	1.4	2.2	1.5	1.8	0.8	-0.4
Dry edible peas	0.3	0.1	0.2	0.3	-0.2	0.2
Potatoes	1.3	1.2	1.3	1.4	-0.1	0.2
Sweet potatoes	0.2	0.1	0.1	0.1	-0.1	0.0
Sugar beets	1.2	1.2	1.4	1.4	0.0	0.2
Sugarcane	0.5	0.7	0.9	0.9	0.2	0.2
Total	83.8	162.1	133.6	145.4	78.3	-16.7
Feed crops:						
Corn, all	68.3	83.2	78.1	78.7	14.9	-4.5
Sorghum, all	17.0	15.5	12.0	9.6	-1.5	-5.9
Oats	21.3	9.4	4.5	2.8	-11.9	-6.6
Barley	11.2	9.0	7.3	6.2	-2.2	-2.8
Hay	66.4	59.6	58.9	61.1	-6.8	1.5
Total	184.2	176.7	154.8	158.4	-7.5	-18.3
Other crops:						
Cotton	14.2	13.8	11.1	13.4	-0.4	-0.4
Flaxseed	3.2	0.6	0.2	0.1	-2.6	-0.5
Tobacco	1.2	1.0	0.8	0.8	-0.2	-0.2
Total	18.6	15.4	12.1	14.3	-3.2	-1.1
Total-principal crops[1]	286.6	354.2	300.5	318.1	67.6	-36.1

NR = Not reported.
[1]Distributions may not add due to rounding.

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

without concern about losing base acreage of wheat and corn, which could have been costly under previous farm programs.

Pasture and Range

Nearly 35 percent of U.S. land area, 788 million acres in 1997, is range, grassland pasture, or cropland pasture (table 10, app. table 3). This area also includes forest land on which grazing occurs as a multiple use—but excludes land grazed before or after crops were harvested. Examples include fall and winter pasturage of small grains land and after-harvest pasturage of hay land. The three types of grazing land differed greatly in terms of acreage, distribution, productivity, and other characteristics. (See Daugherty, 1989, for a summary of U.S. grazing lands during 1950-82.)

Cropland Pasture

The smallest but generally most productive component of grazing acreage, cropland pasture, occupied 3 percent of total U.S. land area and accounted for 9 percent of total pasture and range acreage in 1997. While

Table 10—Pasture and range, by type and region, 1997

Region	Nonforested pasture and range				Total pasture and range	
	Cropland pasture[1]	Grassland pasture and range[2]	Total[3]	Forest land grazed[4]	Acreage[3]	Portion of land area
			Million acres			*Percent*
Northeast	1.8	2.8	4.7	1.4	6.0	5
Lake States	2.5	5.0	7.5	2.8	10.3	8
Corn Belt	9.9	11.6	21.5	6.6	28.0	17
Northern Plains	9.8	68.3	78.1	1.9	80.0	41
Appalachian	8.9	5.4	14.4	4.8	19.2	16
Southeast	4.5	9.1	13.6	6.1	19.7	16
Delta States	4.1	5.5	9.6	14.4	24.0	26
Southern Plains	17.7	115.4	133.1	9.3	142.3	67
Mountain	5.6	302.7	308.2	66.4	374.6	68
Pacific	2.7	52.1	54.8	26.4	81.2	40
48 States[3]	67.5	578.0	645.4	140.0	785.4	41
Alaska	—	1.2	1.2	0.1	1.3	*
Hawaii	—	1.0	1.0	0.3	1.3	32
United States[3]	67.5	580.2	647.7	140.4	788.0	35

— = Less than 500,000 acres.
* = Less than 0.5 percent.
[1]Cropland used only for pasture estimates based on NASS, 1999a.
[2]Grassland and other nonforested pasture and range in farms (NASS, 1999a) plus estimates of open or or nonforested grazing land not in farms.
[3]Distribution may not add to totals due to rounding.
[4]Woodland grazed in farms (NASS, 1999a) plus an approximation of forested grazing land not in farms.
Sources: Estimates are based on BLM, 1998; FS, 1998, 1999; NASS, 1999a; NRCS, 2000; and unpublished data sources.

cropland pasture is considered part of the cropland base, it may be marginal for crop use and remain in pasture for extended periods. Two-thirds of the 68 million acres in this category were concentrated in the Southern Plains, Corn Belt, Northern Plains, and Appalachian regions. Cropland pasture comprises a relatively high percentage of total grassland pasture and range in the Appalachian, Corn Belt, Northeast, and Lake States regions. However, the share of land area in grassland pasture and range is much higher in the Plains and Mountain regions than in the eastern regions. Cropland pasture is significant in the western regions, but pales next to the vast acreages of range and grazed forest land.

Cropland pasture may shift to cropland used for crops when commodity prices are high. However, these shifts are much more frequent between idled cropland and cropland used for crops because idled cropland is generally more suited to crop production than is cropland pasture. Also, these shifts may be more pronounced in those regions with better quality cropland pasture, as in the more productive agricultural areas such as the Corn Belt.

Grassland Pasture and Range

Grazing is the predominant use on 580 million acres of grassland pasture and range, over half of which is in the Mountain region ("grassland pasture" is the name more commonly used in the Eastern United States). The Northern Plains and Pacific regions together account for 20 percent. Another 20 percent of this land use is in the Southern Plains. These four regions have about 539 million acres (93 percent) of U.S. grassland pasture and range. The rest is distributed

among the remaining regions, none of which are over 2 percent. Of the types of grazing land, grassland pasture and range dominates in all except the Appalachian and Delta regions, where cropland pasture and forested grazing land predominate, respectively.

Grassland pasture and range, alone, accounts for 55 percent of all land area in both the Southern Plains and Mountain regions. Grazing of this varied cover type accounts for 35 percent of the area in the Northern Plains, where a relatively larger proportion of the land area is used for crops, and 26 percent in the Pacific region, where forest-use land predominates. In other regions, except Hawaii, the proportion of area in grassland pasture and range varied from 7 percent in the Southeast to less than 1 percent in Alaska. Nearly a third of the land in Hawaii is grazed, but because of the State's small size, grassland pasture there contributes little to the national acreage sum.

Forest Land Grazed

Forested land grazed consists mainly of forest with sufficient forage to accommodate livestock grazing. The 140 million acres of grazed forest land include acreage in open forest, land reverting to forest, and similar areas that have grass or other forage growth and are grazed to some extent. Grazed forest land ranged from less than 1 million acres in Alaska and Hawaii to 66 million acres in the Mountain region. Acreage of this pasture type is relatively high throughout the West, Southwest, and South, but is the dominant type only in the Delta States. Regional variation in the amount of grazed forest land reflects the productivity of forested grazing, the demand for grazing, the amount of forest land, and such factors as species composition and stand density.

Forage values vary widely in the different regions, depending on climate, soils, tree canopies, and other factors. Values are relatively high on open stands of pine in the South where climate permits grazing throughout the year. However, upland hardwoods, with a more complete canopy, allow little production of forage, although substantial acreage is grazed because of their availability on farms. Ponderosa pine and other open forest types in the West enable seasonal grazing, but forest land with thick growing trees, such as fir, offers little grazing value.

Trends in Pasture and Range Acreage

The total acreage of all grazing land declined between 1992 and 1997 (table 11). This continues the trend since 1949. While cropland pasture and grassland pasture and range have increased in some years, forest land grazed has consistently declined. Cropland pasture increased by about 1 million acres from 1992 to 1997, but grassland pasture and range decreased by 11 million acres and grazed forest land by 4 million acres.

Pasture and range acreage sometimes converts to cropland when demand for crop products is high. However, grazing lands are less economically suited for crop production than for other uses. Substantial acreages of land used for grazing have shifted to recreational, wildlife, and environmental uses. Under favorable growing conditions, particularly in southern regions, pasture land may revert to forest. Some acres are converted to urban uses to serve the needs of a growing population. These forces have combined to cause a long-term net decline in pasture and range acreage, from over 1 billion acres in 1949 to 788 million acres in 1997 (table 11).

The combined acreage of cropland pasture and grassland pasture and range declined from 1949 through 1997 for a net decrease of 55 million acres in the 48 contiguous States (table 12). Not all regions experienced long-term declines in nonforested pasture and range. Between 1949 and 1997, pasture and range increased by 30 million acres in the Southern Plains, and 3 million acres in the Southeast. These increases offset large declines in the Mountain region (44 million acres) and the Pacific region (11 million acres). Increases in the regions east of the Rocky Mountains were associated with declines in acreage used for crops and with clearing and reclassification of forest land. A part of this increased acreage had been classed as forested grazing land, mitigating the net increase in nonforested grazing land. The large decreases in the Western States mainly involved Federal range that was withdrawn for wilderness and similar areas, or that was reclassified as unsuitable for grazing.

Forest land grazed decreased 179 million acres from 1949 to 1997 (table 11). Among reasons for this decline were fewer farms and less land in farms, increases in stand density, and improvements in both livestock feeding and forest management practices. All of these factors have been especially important in the South, where woodland grazing acreages have been high.

Table 11—Total pasture and range, by type, United States, 1949-97

Year	Cropland pasture	Grassland pasture and range	Subtotal[1]	Forest land grazed	Total[1]
			Million acres		
1949	69	632	701	319	1,020
1954	66	634	700	301	1,001
1959	66	633	699	245	944
1964	57	640	697	225	922
1969	88	604	692	198	890
1974	83	598	681	179	860
1978	76	587	663	172	835
1982	65	597	662	158	820
1987	65	591	656	155	811
1992	67	591	658	145	803
1997	68	580	648	140	788

[1]Distributions may not add due to rounding.

Sources: Estimates based on reports and records of the Bureau of the Census and Federal and State land management and conservation agencies. Estimates for years prior to 1997 from sources listed in tables 3 and 5 plus Daugherty, 1989; Frey, 1983.

Table 12—Trends in nonforested pasture and range acreage, 48 contiguous States, 1949-97[1]

Region	1949	1954	1959	1964	1969	1974	1978	1982	1987	1992	1997
						Million acres					
Northeast	11	11	11	10	7	6	6	5	5	5	5
Lake States	12	12	13	13	12	10	8	9	8	8	7
Corn Belt	31	31	35	32	31	29	26	24	23	22	21
Northern Plains	82	82	84	85	84	85	83	79	77	80	78
Appalachian	20	20	22	20	21	19	17	15	15	15	14
Southeast	11	15	18	16	16	17	15	15	14	14	14
Delta States	12	14	15	14	15	14	11	12	11	11	10
Southern Plains	103	114	120	127	128	128	128	136	137	134	133
Mountain	352	335	318	319	319	313	311	309	308	309	308
Pacific	66	64	59	58	56	57	56	55	55	57	55
48 States[2]	700	698	695	694	689	678	661	659	653	656	645

[1]Includes cropland pasture and grassland pasture and range.
[2]Distributions may not add due to rounding.

Sources: Estimates for the 48 contiguous States based on reports and records of the Bureau of the Census and Federal and State land management and conservation agencies. Estimates for years prior to 1997 are from sources listed in tables 3, 5, and 10.

Forest Land

Forest land totaled 747 million acres in 1997 (table 13), an increase of 10 million acres over 1992. In the 48 contiguous States, the increase was 12 million acres. Alaska lost 2 million acres, likely due to reclassification, bringing the total U.S. increase down to 10 million acres. Two-thirds of the 1997 forest land was timberland and the remainder was a combination of reserved timberland and other forest land (see appendix, “Definitions and Explanation of the Data”). Of the total, 67 percent was non-Federal (Powell and others, 1993; USDA/FS, 2000; Smith and Sheffield, 2000).

Table 13—Total forest land, by major class and region, 1997

Region	Timberland			Reserved timberland and other forest land[2]	Total forest land		
	Federal	Non-Federal	Total[1]		Federal	Non-Federal	Total[1]
				1,000 acres			
Northeast	1,460	65,563	67,023	6,357	2,157	71,223	73,380
Lake States	6,278	42,910	49,188	2,905	7,699	44,394	52,093
Corn Belt	2,564	28,758	31,322	1,425	2,914	29,833	32,747
Northern Plains	1,076	3,242	4,318	482	1,324	3,476	4,800
Appalachian	5,956	65,539	71,495	2,243	7,567	66,171	73,738
Southeast	4,640	68,090	72,730	2,551	6,242	69,039	75,281
Delta States	5,046	45,626	50,672	495	5,391	45,776	51,167
Southern Plains	1,096	16,904	18,000	8,021	1,279	24,742	26,021
Mountain	45,999	20,700	66,699	71,746	97,373	41,072	138,445
Pacific	30,746	28,374	59,120	31,039	48,017	42,142	90,159
48 States[1]	104,861	385,706	490,567	127,264	179,963	437,868	617,831
Alaska	4,306	8,089	12,395	114,984	66,748	60,631	127,379
Hawaii	0	700	700	1,048	12	1,736	1,748
United States[1]	109,167	394,495	503,662	243,296	246,723	500,235	746,958

[1]Distributions may not add due to rounding.
[2]Includes 105 million acres of forest land in parks, wildlife areas, and other special land uses.

Sources: FS, 1982, 1998, 1999, 2000; Powell and others, 1993; and unpublished material furnished by the U.S. Forest Service.

Timberland has trended upward since 1987, when it was at a 35-year low (table 14). Of the non-Federal forest owners, nonindustrial private ownership increased by over 3 million acres from 1992 to 1997. Farmers are included in this category, but woodlands on farms declined by over 2 million acres from 1992 to 1997 (USDA/NASS, 1999a). Thus, nonindustrial privately owned timberland not on farms increased by nearly 5 million acres from 1992 to 1997.

Federal timberland increased 13 million acres in 1992-97, reversing a 30-year downward trend. Earlier declines from 1952 to 1992 were primarily the result of transferring timberland into reserved areas. Recent increases are mainly the result of reclassification of some National Forest lands due to standardization with protocols in use on other land ownerships.

Most of the forest area serves multiple purposes. For example, livestock grazing occurs on nearly one-fifth of the acreage and large areas are available for recreational use. Forest land provides watershed protection, wildlife habitat, parks, and various other special purposes. Excluding the area grazed and the areas used for parks, wildlife areas, and other special land uses leaves 501 million forest acres.

Land area in forests is about equally divided between the humid eastern half of the country and the western half, including Alaska (table 13). Forest predominates in the Northeast, Appalachian, Southeast, and Delta States, comprising 56-66 percent of all land. Forest land is also relatively extensive in the Lake States and Pacific regions, accounting for 43-44 percent of all land. Acreages in the Mountain region and Alaska are quite large but make up a smaller proportion of total land area in those regions.

About 46 percent of the reserved timberland and other forest land—parks, wilderness, and wildlife refuges, for example—is in the Southern Plains, Mountain, and Pacific regions, where it accounts for over 44 percent of all the forest land in those regions. Much of the remainder (47 percent) is in Alaska, where it accounts for 90 percent of all forest land in that State. In contrast, acreages of reserved timberland and other forest land in the Eastern States are relatively small, account-

Table 14—Timberland in the United States by type of ownership, 1952-97

Type of ownership	1952	1962	1977	1987	1992	1997
			1,000 acres			
Federal:						
National Forest	94,707	96,845	88,701	85,211	84,661	96,437
Bureau of Land Management	18,116	17,230	13,237	5,800	5,754	6,142
Other Federal	5,234	4,828	4,949	6,041	6,239	6,588
Total Federal[1]	118,056	118,903	106,887	97,052	96,655	109,167
Non-Federal:						
State, county, and municipal	27,380	27,254	31,282	33,974	34,840	36,799
Forest industry	58,979	61,434	68,937	70,347	70,455	66,857
Nonindustrial private	304,440	307,528	285,249	283,564	287,606	290,839
Total non-Federal[1]	390,799	396,216	385,468	387,885	392,901	394,495
Total timberland[1]	508,854	515,118	492,355	484,936	489,555	503,662

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

Source: See sources listed for table 3; appendix table 5; Powell and others, 1993; and FS, 2000.

ing for no more than 10 percent in any region east of the Mississippi River (Powell and others, 1993).

Estimates of total forest land increased from 737 million acres in 1992 to 747 million in 1997. Except for the Southern Plains, forest land in all regions increased. Forest land in Alaska declined and in Hawaii was unchanged. However, when areas in parks or other special uses are subtracted, the remaining "forest-use" land declined by 6 million acres during 1992-97 (less than 1 percent).

Special and Miscellaneous Other Uses

Land for all special uses—including rural highways, roads, railroads, airport rights-of-way, parks, and related recreational areas—comprised 286 million acres in 1997 (table 15). Rural transportation areas accounted for 25 million acres, about 9 percent of the total. National and State parks and related wilderness and primitive areas totaled nearly 138 million acres. An additional 99 million acres were administered by Federal and State fish and wildlife agencies, and over 16 million acres served defense and atomic energy purposes. Land in farmsteads, farm roads, and farm lanes accounted for nearly 7 million acres in 1997.

Of the 237 million acres used for parks, recreation, and wildlife purposes in 1997, 27 percent were in the Mountain and Pacific regions combined, and nearly 60 percent were in Alaska. Much of this land has been withdrawn from the public domain, including such rugged areas as the Denali, Grand Canyon, Yellowstone, and Yosemite National Parks. An additional 13 percent spans forested or fish and wildlife refuges east of the Rocky Mountains, including areas in New York, Pennsylvania, Michigan, Minnesota, North Carolina, Tennessee, Florida, and Texas—all with a million or more acres. Alaska alone accounted for over three-fourths of the Federal and State fish and wildlife areas in the United States.

Acreage in parks, wildlife areas, and, to a lesser extent, national defense areas are concentrated in the Western States and Alaska, where large public domain holdings have been set aside, and in less agriculturally productive areas of the East. Many areas, particularly the national parks and wilderness systems, were selected because of specific or unique site characteristics.

Trends in Special Uses

Land used for rural transportation; recreation, wildlife, and other nonagricultural; and nonurban special uses almost tripled, increasing from 103 million acres in

Table 15—Trends in special uses of land, 1959-97

Special-use areas[1]	1959	1964	1969	1974	1978	1982	1987	1992	1997
					Million acres				
Nonagricultural:									
Intensive uses	25.0	26.0	26.0	26.3	26.7	26.8	25.7	25.2	25.4
Highways/roads	20.2	21.2	21.0	21.2	21.5	21.5	21.2	21.0	21.0
Railroads	3.4	3.3	3.2	3.1	3.0	3.0	2.3	2.0	1.9
Airports	1.4	1.5	1.8	2.0	2.2	2.3	2.2	2.2	2.5
Extensive uses	87.7	107.4	107.0	112.5	122.8	234.9	245.8	249.3	253.6
National/State parks	29.7	31.9	35.0	36.8	38.5	89.7	96.0	94.3	98.1
Wilderness areas	14.5	14.6	14.3	14.8	18.1	26.0	32.5	35.7	40.0
Wildlife areas	17.2	29.0	32.1	35.9	41.3	95.2	96.4	98.8	99.0
Defense/industrial	26.3	31.9	25.6	25.0	24.9	24.0	20.9	20.5	16.4
Agricultural:									
Farmsteads/farm roads	10.1	9.2	8.4	8.1	8.4	8.0	7.1	6.2	6.6
Total[2]	122.8	142.6	141.4	146.9	157.9	269.7	278.6	280.8	285.5

[1]Definitions and procedures are given in footnotes to app. table 4, showing special-use areas by State.
[2]Distributions may not add to totals due to rounding.

Sources: Estimates are based on reports and records of the Bureau of the Census and Federal and State land management and conservation agencies. See sources for table 1. For estimates of years prior to 1997, see sources for tables 1, 3, and 10.

1959 to nearly 280 million acres in 1997. This was the result of nearly a four-fold increase in rural parks and fish and wildlife areas. The overall increase in special uses occurred despite decreases in defense and farmstead acres and a very small increase in the transportation area. Of the 190-million-acre increase in parks and wildlife areas from 1959 to 1997, 126 million acres (66 percent) occurred in Alaska.

National defense acres—including energy, research, and industrial areas—differ from other special uses mainly in that location is paramount and higher values and intensive uses characterize much of the land. This land category consisted of 16.4 million acres in 1997, a decrease of more than 4 million acres from 1992. The decrease is largely attributable to consolidation and closing of military installations.

Rural transportation areas increased by only 0.2 million acres from 1992 to 1997. The increase was actually larger than indicated, but some land in this category was reclassified from rural to urban as urban areas expanded. Rural transportation reflects the influence of both population densities and historical land settlement patterns.

The 163-million-acre increase in special uses during 1959-97 did not include much land of cropland quality, although some rangeland was involved. Relatively little of the land used primarily for recreation and wildlife purposes was previously used for intensive agriculture.

Urban and Rural Residential Area[2]

The urban area was 56 million acres in 1990 and is estimated to have increased to 66 million acres by 1997 (app. table 7). Urban areas increased by 30 million acres from 1960 to 1990, or 1 million acres per year. From 1990 to 1997, the rate is estimated to be 1.4 million acres per year. Urban area increases are unique because, contrary to the other major land use changes, which are dynamic and shift between uses over time, urbanization tends to be a one-way, irreversible shift. Once urbanized, very little land ever reverts to another major land use.

Previous major land use reports show trends in urban land based on Bureau of the Census urban area statistics. This report continues the Census-based series, but adds a new land use category called “rural residen-

[2]In terms of classification, urban area is placed in the “miscellaneous other uses” category in this report. However, in the ERS Electronic Data Product, Major Land Uses (EDP #89003), urban area is included as part of the “special uses” category. See http://usda.mannlib.cornell.edu/data-sets/land/89003/. Rural residential land is part of the “miscellaneous other uses” category and is not available by State.

tial." Rural residential area is an estimate of the acres of land and associated lots in rural areas used for housing. Data on this category are available from several periodic American Housing Surveys published by the U.S. Department of Housing and Urban Development (HUD) and the U.S. Department of Commerce, Bureau of the Census (see footnote to table 16 for limitations associated with these data).

The ERS estimate for the nonfarm, rural residential area is 73 million acres in 1997, up from the 1980 estimate of 56 million acres (table 16). The average annual rate of increase in rural residential land has been slightly more than 1 million acres per year since 1980. Combining the total urban annual rate of 1.07 million acres and the rural residential rate of 1.02, the average rate of increase in these categories is 2.1 million acres per year. Evidence suggests that the yearly rate of increase of residential land use may have been higher for short periods of time. For example, a recent report states that land used for all single-family housing, urban and rural, increased by 2.3 million acres per year from 1994 to 1997 (HUD, 2000).

Large lot sizes occur more frequently in rural areas than in urban areas (fig. 13). Rural residential area encompassed 44 million acres of lots 10 acres and more, versus 12 million acres of such large urban lots. However, in the smaller lot sizes, urban land occurred in greater frequency. Urban land occupied 2.8 million acres of lots less than 1/8 acre, while rural land encompassed only 300,000 acres of such small lots. Land in rural areas is generally less expensive, which may account for larger lot sizes in rural areas.

In 1997, urban land in the United States was less than 3 percent of total land area, but housed 75 percent of the U.S. population. Urban area and rural residential area comprises 6.1 percent of total land area when Alaska is included (7.3 percent without Alaska). However, even with large percentage increases in urban and rural residential areas, percentage decreases in the remaining rural area are small because rural area is so vast. And conversely, because the amount of urban land has grown larger in absolute terms over time, the rate of urban expansion has decreased on a percentage basis—from 39 percent during the 1950s to 18 percent during the 1980s and an estimated 17 percent during 1990-97.

Urbanization and the increase in rural residences do not threaten the U.S. cropland base or the level of agricultural production at present or in the near term. Urbanization rates of increase are relatively small and other land (such as forest, pasture, and range) can be shifted into crop production. Also, crop yields per acre continue to increase due to advances in technology. For these reasons, the U.S. cropland base should

Table 16—Change in urban and rural area, United States, 1980-97[1]

	1980			1997[2]			Annual change	
Area	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
				Million acres				
Residential area[3]	29	56	85	36	73	109	0.42	1.03
Nonresidential	18	2,160	2,178	30	2,124	2,154	0.66	-2.10
Totals	47	2,216	2,263	66	2,197	2,263	1.07	-1.07

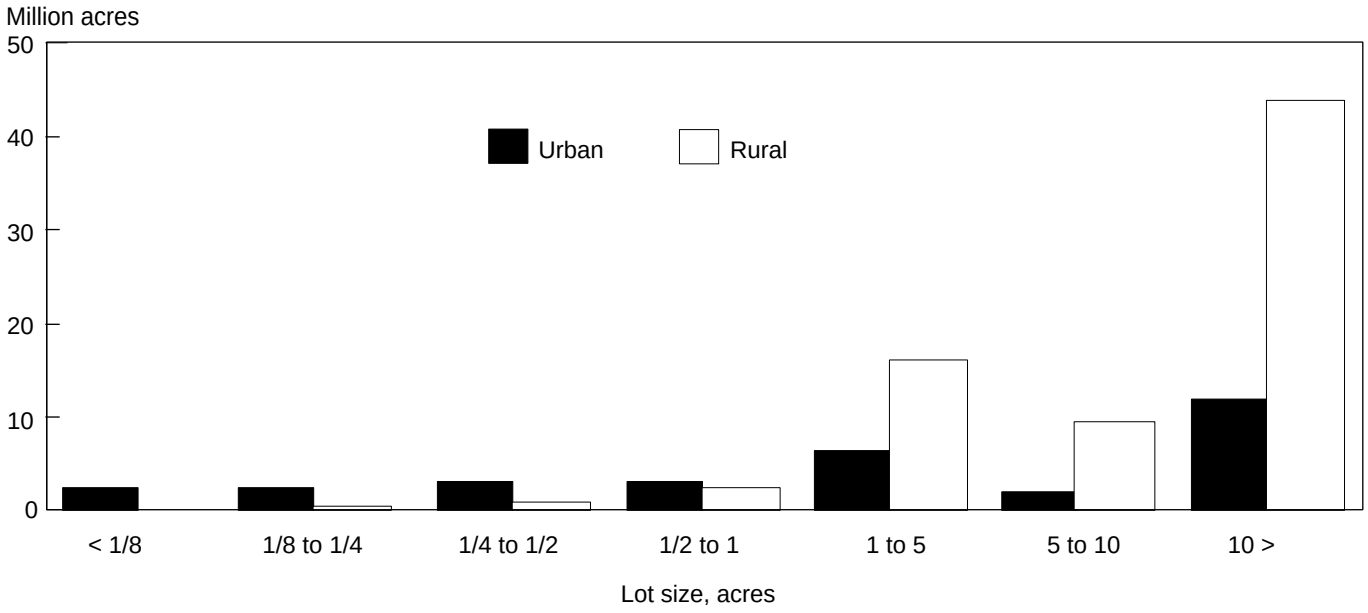
[1]Area associated with farm housing units was subtracted to account for land in productive farms. However, there remain a large number of residential lots, 10 acres and over, that logically stretch the concept of land used for housing lots.

[2]Adjusted to 1997 estimated urban and rural areas. Distributions may not add to totals due to rounding.

[3]"Residential area" should be used with caution. Residential area is derived from American Housing Survey (AHS) data and is subject to three types of statistical error: (1) sampling error, (2) error due to incomplete data, and (3) error due to wrong or inconsistent answers (HUD/BOC, 1999a). The first two types of error, together, have a plus and minus 4 percent band at the 90-percent confidence level around the 82 million housing units associated with the 1997 urban residential area. A plus and minus 7-percent band is required for the 28 million housing units associated with the 1997 rural residential area. Fewer sample units produce less accurate results. While AHS information is not available on the effect of "wrong answers" on lot size data, lots over 5 acres are a "special item" requiring a statistical formula that calculates larger sampling errors. AHS data are not available by State.

Sources: USDA, ERS, based on housing unit and lot size data from BOC, 1992; HUD/BOC, 1999a; HUD/BOC, 1999b; HUD/BOC, 1996; NASS, 1999a; Vesterby, Heimlich, and Krupa, 1994; table 3 (plus Alaska and Hawaii).

Figure 13
Urban and rural residential area by lot size, United States, 1997[1]



[1]1997 AHS data are based on 1980 urban area. Farm housing lots subtracted.
Sources: See table 15.

be sufficient to meet food and fiber demands (both domestic and foreign) for the foreseeable future (Vesterby, Heimlich, and Krupa, 1994).

Miscellaneous Other Land Uses

The remaining acres of the Nation's land are miscellaneous other land. They consist largely of marshes, open swamps, desert, tundra, and minor acreage in uses that were not inventoried. Acreage of this unclassified land is relatively large in arid portions of the West and several Atlantic and gulf coastal areas. Alaska, with ecologically sensitive tundra areas, has 132 million acres, over 56 percent of the total.

Major Uses of Land, by Class of Ownership

Most of the land in the United States, over 60 percent, is privately owned (table 17). The Federal Government is the next largest landowner with more than 28 percent, mostly in the West. State and local governments own nearly 9 percent and Indian trust land accounts for over 2 percent. These proportions change only gradually over time, except in Alaska where large areas of Federal land have been transferred to State and native (private) ownership.

Federal land, at 647 million acres in 1997, includes the original public domain and land acquired by purchase and other means. About 37 percent of all Federal land is in Alaska, 41 percent in the Mountain region, and 14 percent in the Pacific region. The remaining 9 percent is distributed among the other eight farm production regions and Hawaii, with the largest portion—nearly 2 percent—in the Lake States.

About 152 million acres of Federal grassland and a portion of Federal forestland are used for grazing. Livestock can also graze some of the special and miscellaneous land.[3] Federal land also includes forest land used for various special purposes and miscellaneous other land, such as marshes, open swamps, bare rock areas, desert, and special uses not inventoried.

State and local governments have accumulated landholdings of various sizes by means of grants from the Federal Government, tax reversions, purchases, gifts, and escheats. These publicly administered areas are distributed throughout the Nation more evenly than is Federal land, but are still highly concentrated in the

[3] Acreages in table 17 do not reflect multiple or alternative uses of land. In addition to 580 million acres of grassland pasture and range, 68 million acres of cropland and approximately 140 million acres of forest land are used for grazing. Substantial forestland is also used for recreational, wildlife, and similar purposes.

Table 17—Ownership and use of land, by major categories, 1997

Ownership	Cropland	Grassland pasture and range	Forest land[1]	Special uses and miscellaneous land[2]	Total land area[4]
			Million acres		
Federal	—	152	247	248	647
State and other public	3	40	70	83	195
Indian[3]	2	36	11	6	55
Private	450	352	420	145	1,366
Total[4]	455	580	747	481	2,263

— = Less than 500,000 acres.

[1]Includes reserved forest land in parks and other special uses.

[2]Excludes an estimated 105 million acres in special uses that have forest cover and, therefore, are included with forest land in this table.

[3] Managed in trust by the Bureau of Indian Affairs.

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

Sources: Federal, State, and local government and Indian land acreage are approximations based on public records and reports. Private land is the remainder of the land in each use category. See sources for table 1.

Western States. State and local governments hold land for forests, parks, wildlife refuges, highways and roads, institutional uses, and other specific purposes. Most Western States also own relatively large acreages to earn income. About 40 million acres in this category are used for grazing.

The Bureau of Indian Affairs manages 55 million acres in trust for Indian tribes and individuals. Like Federal and State land, most Indian land is concentrated in the Western States, and about 36 million acres is grazing land. A small acreage is used for crop production.

Private land, except that under Indian ownership, totaled nearly 1.4 billion acres in 1997. Included is 99 percent of the Nation's cropland, 61 percent of the grassland pasture and range, 56 percent of the forest land, and 30 percent of the special-use and miscellaneous land. These proportions reflect the selective transfer of the better agricultural lands from Federal ownership under historic Federal land disposal practices.

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Appendix: Definitions and Explanation of the Data

Major land uses presented in this report are the latest from a series of land use inventories, based on available land use data from a wide variety of sources, conducted by the Economic Research Service and predecessor agencies. This series extends back more than 50 years and, since 1945, has been generally comparable in categories and area coverage (Daugherty, 1991, 1995; Frey, 1982, 1979, 1973; Frey and Hexem, 1985; Frey, Krause, and Dickason, 1968; Reuss, Wooten, and Marschner, 1948; Wooten, 1953; Wooten and Anderson, 1957; Wooten, Gertel, and Pendleton, 1962). These periodic inventories are useful because numerous public agencies develop land use data, but no single agency except the Economic Research Service accounts for the use of all land in the country, both public and private. The inventories provide a framework within which changes in the supply and demand for land for agricultural and other purposes can be measured and analyzed.

The estimates, with few exceptions, were constructed from available data, rather than used exactly as developed by source agencies. This process is necessary because land use data, regardless of origin or utility for specific purposes, have limitations for comprehensive inventory purposes. Data are typically obtained from surveys differing greatly in scope, methods, definitions, and other characteristics. Individual sources account for only one or a few uses and for only a limited part of the total land area. The available data contain conflicts and overlaps that must be reconciled or removed.

Definitions and explanations of the various land use categories are:

Cropland—Total cropland includes five components: cropland harvested, crop failure, cultivated summer fallow, cropland used only for pasture, and idle cropland. The estimate of total cropland in 1997 includes total cropland as reported by the 1997 Census of Agriculture (NASS, 1999a), plus an upward adjustment to conform to data on principal crops harvested as reported by the National Agricultural Statistics Service for 1997 (NASS, 1999b).

Cropland used for crops. Three of the cropland acreage components—cropland harvested, crop failure, and cultivated summer fallow—are collectively termed cropland used for crops, or the land input to crop production. Regional acreage in these components is developed annually and, in the past, was reported in separate but coordinated series. For example, *Economic Indicators of the Farm Sector: Production and Efficiency Statistics, 1990* shows cropland data by farm production region, annually for several decades (USDA/ERS, 1992). The annual estimates of cropland harvested are based on both census data and the series on principal crops harvested as maintained by NASS. Annual estimates of crop failure are based on differences in planted and harvested acreage of principal crops from the NASS series. Annual estimates of cultivated summer fallow historically have been based on fragmentary data from a variety of sources. Since the late 1970s, they have been based on data from the Census of Agriculture and unpublished NASS data.

Cropland harvested includes row crops and closely sown crops; hay and silage crops; tree fruits, small fruits, berries, and tree nuts; vegetables and melons; and miscellaneous other minor crops. In recent years, farmers have double-cropped about 4 percent of this acreage.

Crop failure consists mainly of the acreage on which crops failed because of weather, insects, and diseases, but includes some land not harvested due to lack of labor, low market prices, or other factors. The acreage planted to cover and soil improvement crops not intended for harvest is excluded from crop failure and is considered idle. In recent years, crops have failed on about 2-3 percent of the acreage planted for harvest.

Cultivated summer fallow refers to cropland in subhumid regions of the West cultivated for one or more seasons to control weeds and accumulate moisture before small grains are planted. This practice is optional in some areas, but it is a requirement for crop production in the drier cropland areas of the West. Other types of fallow, such as cropland planted to soil improvement crops but not harvested and cropland left idle all year, are not included in cultivated summer fallow but are included as idle cropland.

Cropland pasture generally is considered to be in long-term crop rotation. However, some cropland pasture is marginal for crop uses and may remain in pasture indefinitely. This category also includes land that was used for pasture before crops reached maturity and some land used for pasture that could have

been cropped without additional improvement. Cropland pasture and permanent grassland pasture have not always been clearly distinguished in agricultural surveys.

Idle cropland includes land in cover and soil improvement crops and cropland on which no crops were planted. Some cropland is idle each year for various physical and economic reasons. Acreage diverted from crops to soil-conserving uses (if not eligible for and used as cropland pasture) under Federal farm programs is included in this component. Cropland enrolled in the Federal Conservation Reserve Program (CRP) is included in idle cropland.

Grassland pasture and range—Grassland pasture and range comprise all open land used primarily for pasture and grazing, including shrub and brush land types of pasture; grazing land with sagebrush and scattered mesquite; and all tame and native grasses, legumes, and other forage used for pasture or grazing. Because of the diversity in vegetative composition, grassland pasture and range are not always clearly distinguishable from other types of pasture and range. At one extreme, permanent grassland may merge with cropland pasture, or grassland may often be found in transitional areas with forested grazing land.

No single agency other than ERS attempts to account for all land used for pasture and range. The estimates in this report are composites of data from the Census of Agriculture, Bureau of Land Management, Forest Service, Soil Conservation Service, and several other Federal agencies. The 580 million acres classed as grassland pasture and range in 1997 included 397 million acres in farms (USDA/NASS, 1999a). Also included are estimates of private grazing land not in farms and public, nonforested grazing land.

Forest land—As defined by the Forest Service, forest land is "land at least 10 percent stocked by trees of any size, including land that formerly had such tree cover and that will be naturally or artificially regenerated. Forest land includes transition zones, such as areas between heavily forested and nonforested lands that are at least 10 percent stocked with forest trees and forest areas adjacent to urban and built up lands. Also included are pinyon-juniper and chaparral areas in the West and afforested areas" (Powell and others, 1993, p. 117). There are a number of components to total forest land, a few of which are described below.

Timberland—Forest land that is producing or is capable of producing crops (in excess of 20 cubic feet per acre per year) of industrial wood and not withdrawn from timber utilization by statute or administrative regulation. Currently inaccessible and inoperable areas are included (Powell and others, p. 121).

Productive reserved forest land—Forest land that would otherwise be classified as timberland except that it is withdrawn from timber utilization by statute or administrative regulation (Powell and others, p. 120). Wilderness areas and parks are included in this category. This definition changed slightly in 1997: ***Reserved forest land***—Forest land withdrawn from timber utilization through statute, administrative regulation, or designation (Smith and Sheffield, 1997). "For 1997, Reserved Forest includes lands previously classified as unproductive reserved and tabulated under the Other Forest category" (FS, 2000, p. 2).

Other forest land—Forest land other than timberland and reserved timberland. It includes available and reserved unproductive forest land, which is incapable of producing 20 cubic feet per acre per year of industrial wood under natural conditions because of adverse site conditions such as sterile soils, dry climate, poor drainage, high elevation, steep slopes, or rockiness. Urban forest land is also included (Powell and others, p. 119). This definition changed slightly in 1997 "For 1997, Other Forest no longer includes land classified as unproductive reserved. This area, amounting to about 12 million acres in 1997, in now included in the Reserved Forest category" (FS, 2000, p. 2).

Forest-use land—A modified Major Land Use total of 642 million acres (1997) that excludes estimated forest land in parks, wildlife areas, and similar special-purpose uses from the inventory of forest land. To eliminate all overlap with other uses that exist because of multiple use is not feasible, but this reduced area is a more realistic approximation of the land that may be expected to serve normal forest uses as opposed to having forest cover. Forest-use land includes forested grazing land in this report.

At any point in time, some forest-use land will always be unavailable for timber harvest. The land may be economically inaccessible. In addition, private landowners may have objectives other than timber harvest. For example, Birch (1996) found that 29

percent of the privately owned forest land is managed primarily for timber production.

Forest-use land grazed—Forested pasture and range consists mainly of forest, brush-grown pasture, arid woodlands, and other areas within forested areas that have grass or other forage growth. The total acreage of forested grazing land includes woodland pasture in farms plus estimates of forested grazing land not in farms. For many States, the estimates include significant areas grazed only lightly or sporadically. The Census of Agriculture, the National Resources Inventory, and the Forest Inventory and Analysis are the principal sources of data (USDA/NASS, 1999a; USDA/NRCS, 2000; USDA/FS, 2000). Historical data from these and other sources were useful in developing the 140-million-acre approximation.

Forest-use land not grazed—Forest-use land not used for grazing.

Forest land in special uses—Forest land in special uses such as in parks, wildlife areas, and similar special-purpose uses, estimated at 105 million acres for 1997.

The Forest Service conducts a continuous, rather than periodic, survey of forest resources. At any time, the forest area data for individual States may vary in age by several years. This characteristic hampers estimates of other areas, especially pasture and range. However, forest area data provide a good overall measure of forest area and are useful in explaining changes and trends in land use. Forest land is given less emphasis than cropland and pasture in this report because the Forest Service periodically analyzes the Nation's forest resources in considerable detail.

Special-use areas—Special uses in this report include areas in highway, road, and railroad rights-of-way and airports; Federal and State parks, wilderness areas, and wildlife refuges; and national defense and industrial areas. Estimates of the area in special uses were made because some of these uses affect the supply of agricultural land and all help account for changes in land use. The sources and procedures used in developing these estimates are outlined in footnotes to appendix table 4.

Miscellaneous other land—Includes miscellaneous other uses such as industrial and commercial sites in rural areas, cemeteries, golf courses, mining areas, and quarry sites; and marshes, swamps, sand dunes, bare rocks, deserts, tundra, rural residential, and other unclassified land. In this report, urban land is included in miscellaneous. (In the ERS Electronic Data Product, Major Land Uses, (EDP #89003), urban area is included as part of the special uses category. See http://usda.mannlib.cornell.edu/data-sets/land/89003.)

Urban area—Nationally, there are two sources of data on urban area. First, the Bureau of the Census, U.S. Department of Commerce, compiles urban area every 10 years, coincident with the Census of Population. Second, the Natural Resources Conservation Service, U.S. Department of Agriculture, publishes developed land area, including urban components, at 5-year intervals as part of the National Resources Inventory (NRI).

Bureau of the Census—Cities, towns, and Census-designated places of 2,500 or more persons, including urbanized areas with populations of 50,000 or more—central cities and their "urban fringe" (BOC, 1992). Included in this definition are residential areas and concentrations of nonresidential urban area such as commercial, industrial, and institutional land; office areas; urban streets and roads; major airports; urban parks and recreational areas; and other land within urban defined areas. The definition allows for exceptions and special cases, and has changed slightly from decade to decade. Portions of extended cities that are essentially rural in character are excluded.

National Resources Inventory—***Developed land*** in the National Resources Inventory consists of urban and built up areas and land devoted to rural transportation (USDA/SCS, 1991, 1994; USDA/NRCS, 2000).

Urban and built up areas consist of residential, industrial, commercial, and institutional land; construction and public administrative sites; railroad yards, cemeteries, airports, golf courses, sanitary landfills, sewage plants, water control structures, small parks, and transportation facilities within urban areas.

Large urban and built up areas include developed tracts of 10 acres and more.

Small built up areas include developed tracts of 0.25 to 10 acres, which do not meet the definition of urban area but are completely surrounded by urban and built up land.

Rural transportation land includes highways, roads, railroads, and rights-of-way outside of urban and builtup areas.

Comparison—While the U.S. Geological Service, NASA, HUD, and several local, State, and Federal agencies collect data or conduct special-purpose studies on urban areas, the Census and the NRI provide the only nationally consistent historical series. Due to differences in data collection techniques and definitions, the NRI estimates of "large urban and built-up areas" is usually higher than the Census "urban area" estimates for nearly all States. The Census urban area series runs from 1950, while the NRI started providing a consistent series in 1982. NRI started sooner than 1982, but the 1977 estimate was flawed and was found to have significantly overestimated urban area (Fischel, 1982; Frey, 1983; Vesterby, Heimlich and Krupa, 1994).

Historically, the ERS Major Land Use series has used Census urban area numbers. Prior to 1982, Census urban area was the only reliable national source of urban area data available. Since 1945, Census urban area has been used in Major Land Uses to maintain a consistent series. For comparison purposes, Census urban area is checked against the NRI to help project and interpolate census trends between decennial census years.

Residential area—Residential area is the sum of acres in lots used for housing units. This is a new series for Major Land Uses, beginning with this 1997 report. Data for this series are from the American Housing Surveys (AHS) conducted by the Bureau of the Census, U.S. Department of Commerce (HUD/BOC, 1996, 1999a, 1999b). While the data have limitations (see footnotes to table 16) and are not available by State, they do allow compilation of two important new Major Land Use estimates. First, an estimate of the residential component of urban land shows how much land is used for housing in urban areas versus land used for all other urban purposes, such as commercial and industrial sites, institutional uses, and urban parks. Second, and more important, an estimate is now made of land used for residences in rural areas. This is an attempt to document what seems to be a growing demand for more and larger housing lots outside of urban areas. The AHS started the current series in 1980 and collects sample-based data every 2 years.

Appendix table 1—Major uses of land, by region and State, 1997

Region and State	Crop-land[1]	Grassland pasture and range[2]	Forest-use land[3]	Special uses[4]	Other land[5]	Total land area[6]
			1,000 acres			
Northeast	13,402	2,827	66,242	9,837	19,093	111,401
Maine	466	37	16,952	520	1,778	19,753
New Hampshire	112	40	4,551	317	720	5,740
Vermont	484	212	4,462	337	425	5,920
Massachusetts	211	35	2,675	553	1,542	5,016
Rhode Island	30	3	356	61	220	669
Connecticut	166	30	1,682	299	923	3,101
New York	4,112	1,314	15,405	3,810	5,581	30,223
New Jersey	634	29	1,507	728	1,850	4,748
Pennsylvania	5,181	910	15,852	2,379	4,364	28,685
Delaware	451	8	376	102	313	1,251
Maryland	1,555	208	2,424	731	1,338	6,256
District of Columbia	0	0	0	0	39	39
Lake States	40,704	4,995	49,188	9,048	18,138	122,073
Michigan	8,304	1,606	18,667	2,468	5,313	36,358
Wisconsin	9,561	1,844	15,701	2,182	5,472	34,761
Minnesota	22,839	1,544	14,820	4,398	7,353	50,954
Corn Belt	98,565	11,579	31,322	7,446	15,689	164,601
Ohio	12,026	1,376	7,567	1,153	4,087	26,209
Indiana	13,689	1,158	4,342	1,102	2,666	22,957
Illinois	24,925	1,559	4,058	1,901	3,137	35,580
Iowa	27,911	1,477	1,944	1,550	2,878	35,760
Missouri	20,013	6,010	13,411	1,740	2,921	44,095
Northern Plains	107,846	68,311	4,318	6,107	7,716	194,298
North Dakota	28,818	11,329	441	1,489	2,079	44,156
South Dakota	21,765	22,594	1,588	1,575	1,051	48,573
Nebraska	23,555	21,828	797	1,423	1,599	49,202
Kansas	33,708	12,560	1,492	1,620	2,987	52,367
Appalachian	27,992	5,442	71,495	7,630	11,187	123,747
Virginia	4,340	1,533	15,345	1,468	2,657	25,343
West Virginia	1,411	481	11,899	699	925	15,415
North Carolina	5,890	814	18,638	2,264	3,574	31,180
Kentucky	8,860	1,491	12,348	996	1,733	25,429
Tennessee	7,491	1,123	13,265	2,203	2,298	26,380
Southeast	17,982	9,117	71,938	8,985	15,356	123,377
South Carolina	2,532	465	12,418	1,032	2,824	19,271
Georgia	7,329	1,336	23,004	1,854	3,544	37,068
Florida	3,650	5,455	14,605	4,676	6,172	34,558
Alabama	4,471	1,860	21,911	1,423	2,815	32,480

See footnotes at end of table.

—continued

Appendix table 1—Major uses of land, by region and State, 1997—continued

Region and State	Crop-land[1]	Grassland pasture and range[2]	Forest-use land[3]	Special uses[4]	Other land[5]	Total land area[6]
			1,000 acres			
Delta States	22,031	5,533	50,672	3,693	9,306	91,235
Mississippi	6,464	1,946	18,589	848	2,179	30,025
Arkansas	10,082	2,006	18,392	1,450	1,398	33,328
Louisiana	5,485	1,582	13,691	1,395	5,729	27,882
Southern Plains	56,377	115,373	18,000	6,840	14,990	211,579
Oklahoma	16,336	17,314	6,233	1,477	2,593	43,954
Texas	40,040	98,059	11,767	5,363	12,396	167,625
Mountain	45,426	302,658	112,575	50,946	36,312	547,917
Montana	18,573	46,039	19,165	6,414	2,965	93,156
Idaho	5,766	21,165	17,123	5,266	3,641	52,961
Wyoming	3,080	44,873	5,085	6,332	2,777	62,147
Colorado	11,415	27,867	18,781	5,699	2,623	66,386
New Mexico	2,427	52,188	14,084	6,360	2,615	77,673
Arizona	1,254	40,509	16,306	10,092	4,571	72,731
Utah	2,045	23,737	13,832	5,058	7,916	52,588
Nevada	867	46,278	8,199	5,726	9,204	70,275
Pacific	24,367	52,144	76,661	31,228	19,476	203,876
Washington	8,400	7,406	17,418	6,639	2,749	42,612
Oregon	5,338	22,395	26,664	3,593	3,450	61,441
California	10,628	22,343	32,579	20,996	13,277	99,823
48 States	454,691	577,978	552,411	141,761	167,263	1,894,104
Alaska	68	1,226	87,936	143,013	132,796	365,039
Hawaii	293	961	1,189	769	898	4,111
United States	455,052	580,165	641,536	285,544	300,957	2,263,254

[1]Total acreage in the crop rotation.
[2]Grassland and other nonforested pasture and range in farms excluding cropland used only for pasture, plus estimates of open or nonforested grazing land not in farms.
[3]Excludes an estimated 105 million acres in parks and other special uses of land.
[4]Transportation, recreation, and other special uses of land specified in app. table 4.
[5]Miscellaneous areas such as marshes, open swamps, bare rock areas, deserts, and urban and other special uses not inventoried.
[6]Approximate land area as established by the Bureau of the Census in conjunction with the 1990 Census of Population (BOC, 1992).

Appendix table 2—Major uses of cropland, by region and State, 1997[1]

Region and State	Crops[2]	Idle	Pasture	Total
		1,000 acres		
Northeast	10,715	840	1,847	13,402
Maine	324	77	65	466
New Hampshire	84	6	22	112
Vermont	342	10	132	484
Massachusetts	160	12	39	211
Rhode Island	22	2	6	30
Connecticut	131	8	27	166
New York	3,162	317	633	4,112
New Jersey	526	40	68	634
Pennsylvania	4,187	299	695	5,181
Delaware	434	7	11	451
Maryland	1,344	62	149	1,555
District of Columbia	0	0	0	
Lake States	34,991	3,212	2,500	40,704
Michigan	7,098	705	500	8,304
Wisconsin	7,803	799	959	9,561
Minnesota	20,090	1,707	1,041	22,839
Corn Belt	83,445	5,226	9,894	98,565
Ohio	10,576	556	895	12,026
Indiana	12,516	516	658	13,689
Illinois	23,140	932	853	24,925
Iowa	24,259	1,578	2,074	27,911
Missouri	12,956	1,645	5,413	20,013
Northern Plains	89,042	9,030	9,773	107,846
North Dakota	24,460	2,858	1,500	28,818
South Dakota	17,313	1,909	2,542	21,765
Nebraska	20,314	1,299	1,942	23,555
Kansas	26,955	2,964	3,789	33,708
Appalachian	16,919	2,130	8,943	27,992
Virginia	2,572	242	1,526	4,340
West Virginia	664	50	697	1,411
North Carolina	4,487	476	927	5,890
Kentucky	4,889	766	3,205	8,860
Tennessee	4,307	596	2,587	7,491
Southeast	11,624	1,889	4,468	17,982
South Carolina	1,660	335	538	2,532
Georgia	5,200	733	1,395	7,329
Florida	2,465	288	896	3,650
Alabama	2,298	533	1,639	4,471

See footnotes at end of table.

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Appendix table 2—Major uses of cropland, by region and State, 1997[1] —continued

Region and State	Crops[2]	Idle	Pasture	Total
		1,000 acres		
Delta States	16,290	1,653	4,087	22,031
Mississippi	4,602	677	1,184	6,464
Arkansas	7,635	413	2,034	10,082
Louisiana	4,053	563	869	5,485
Southern Plains	32,406	6,276	17,695	56,377
Oklahoma	9,793	1,184	5,360	16,336
Texas	22,613	5,092	12,335	40,040
Mountain	33,749	6,115	5,562	45,426
Montana	14,527	2,374	1,672	18,573
Idaho	4,197	753	816	5,766
Wyoming	2,064	257	759	3,080
Colorado	8,899	1,780	736	11,415
New Mexico	1,313	474	639	2,427
Arizona	951	187	116	1,254
Utah	1,252	234	558	2,045
Nevada	546	56	265	867
Pacific	19,384	2,290	2,693	24,367
Washington	6,854	1,018	528	8,400
Oregon	3,853	566	919	5,338
California	8,676	706	1,246	10,628
48 States	348,566	38,663	67,462	454,691
Alaska	34	26	8	68
Hawaii	101	150	42	293
United States	348,701	38,839	67,512	455,052

[1]Estimates are based on NASS, 1999a, 1999b.
[2]Includes cropland harvested, crop failure, and cultivated summer fallow.

Appendix table 3—Pasture and range, by region and State, 1997

Region and State	Grassland pasture and range			Forest land grazed[3]	Total pasture and range
	Cropland pasture[1]	Grassland and other pasture and range[2]	Total		
			1,000 acres		
Northeast	1,847	2,827	4,674	1,348	6,021
Maine	65	37	102	40	142
New Hampshire	22	40	62	33	95
Vermont	132	212	344	198	542
Massachusetts	39	35	74	36	110
Rhode Island	6	3	9	4	13
Connecticut	27	30	58	30	88
New York	633	1,314	1,947	452	2,399
New Jersey	68	29	97	13	110
Pennsylvania	695	910	1,605	436	2,041
Delaware	11	8	19	7	26
Maryland	149	208	357	97	454
District of Columbia	0	0			0
Lake States	2,500	4,995	7,495	2,782	10,277
Michigan	500	1,606	2,107	378	2,485
Wisconsin	959	1,844	2,804	1,284	4,087
Minnesota	1,041	1,544	2,585	1,120	3,705
Corn Belt	9,894	11,579	21,472	6,553	28,026
Ohio	895	1,376	2,271	607	2,877
Indiana	658	1,158	1,816	520	2,336
Illinois	853	1,559	2,412	843	3,256
Iowa	2,074	1,477	3,551	978	4,529
Missouri	5,413	6,010	11,423	3,605	15,028
Northern Plains	9,773	68,311	78,084	1,972	80,056
North Dakota	1,500	11,329	12,829	232	13,061
South Dakota	2,542	22,594	25,136	875	26,011
Nebraska	1,942	21,828	23,770	445	24,215
Kansas	3,789	12,560	16,349	420	16,769
Appalachian	8,943	5,442	14,385	4,827	19,212
Virginia	1,526	1,533	3,059	777	3,836
West Virginia	697	481	1,178	697	1,876
North Carolina	927	814	1,741	627	2,368
Kentucky	3,205	1,491	4,697	1,466	6,163
Tennessee	2,587	1,123	3,710	1,259	4,970
Southeast	4,468	9,117	13,585	6,149	19,734
South Carolina	538	465	1,003	377	1,380
Georgia	1,395	1,336	2,732	964	3,696
Florida	896	5,455	6,352	3,500	9,852
Alabama	1,639	1,860	3,499	1,307	4,806

See footnotes at end of table.

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Appendix table 3—Pasture and range, by region and State, 1997—continued

Region and State	Grassland pasture and range			Forest land grazed[3]	Total pasture and range
	Cropland pasture[1]	Grassland and other pasture and range [2]	Total		
			1,000 acres		
Delta States	4,087	5,533	9,620	14,354	23,974
Mississippi	1,184	1,946	3,130	5,004	8,133
Arkansas	2,034	2,006	4,040	4,331	8,371
Louisiana	869	1,582	2,450	5,020	7,470
Southern Plains	17,695	115,373	133,067	9,251	142,318
Oklahoma	5,360	17,314	22,674	3,630	26,304
Texas	12,335	98,059	110,393	5,621	116,014
Mountain	5,562	302,658	308,220	66,385	374,605
Montana	1,672	46,039	47,711	7,284	54,995
Idaho	816	21,165	21,982	4,432	26,413
Wyoming	759	44,873	45,633	3,543	49,176
Colorado	736	27,867	28,603	11,987	40,590
New Mexico	639	52,188	52,827	9,237	62,064
Arizona	116	40,509	40,625	12,914	53,539
Utah	558	23,737	24,296	9,972	34,268
Nevada	265	46,278	46,544	7,016	53,560
Pacific	2,693	52,144	54,837	26,751	81,588
Washington	528	7,406	7,934	3,292	11,226
Oregon	919	22,395	23,314	11,699	35,013
California	1,246	22,343	23,589	11,761	35,349
48 States	67,462	577,977	645,440	140,372	785,812
Alaska	8	1,226	1,234	88	1,322
Hawaii	42	961	1,003	316	1,320
United States	67,512	580,165	647,677	140,777	788,453

[1]Estimates are based on NASS, 1999a.

[2]Grassland and other nonforested pasture and range in farms (NASS, 1999a) plus estimates of open or nonforested grazing land not in farms.

[3]Woodland grazed in farms (NASS, 1999a) plus an approximation of forested grazing land not in farms.

Appendix table 4—Land in special-use areas, by region and State, 1997

Region and State	Rural transportation areas[1]	Rural parks[2]	Wildlife areas[3]	Defense and industrial areas[4]	Farmsteads, farm roads, and lanes[5]	Total
			1,000 acres			
Northeast	1,875	5,243	2,010	421	289	9,837
Maine	169	248	74	15	14	520
New Hampshire	90	195	24	1	7	317
Vermont	79	147	86	11	14	337
Massachusetts	121	335	67	16	13	553
Rhode Island	15	9	32	3	2	61
Connecticut	82	184	23	2	8	299
New York	467	2,957	144	157	84	3,810
New Jersey	93	386	165	66	19	728
Pennsylvania	637	402	1,210	31	98	2,379
Delaware	26	17	50	4	6	102
Maryland	97	362	135	114	23	731
District of Columbia	0	0	0	0	0	
Lake States	2,961	2,737	2,591	89	669	9,048
Michigan	873	1,076	343	17	159	2,468
Wisconsin	918	303	662	69	230	2,182
Minnesota	1,170	1,358	1,586	4	280	4,398
Corn Belt	3,638	1,217	912	353	1,326	7,446
Ohio	524	238	132	38	220	1,153
Indiana	475	206	57	173	190	1,102
Illinois	1,072	427	97	57	249	1,901
Iowa	875	65	261	20	329	1,550
Missouri	693	281	365	65	337	1,740
Northern Plains	3,467	658	956	192	834	6,107
North Dakota	803	93	406	4	183	1,489
South Dakota	736	377	298	3	160	1,575
Nebraska	839	147	160	53	224	1,423
Kansas	1,089	41	92	132	266	1,620
Appalachian	2,053	2,245	1,840	918	574	7,630
Virginia	316	503	276	275	98	1,468
West Virginia	192	367	79	2	59	699
North Carolina	621	652	544	323	123	2,264
Kentucky	458	154	62	166	156	996
Tennessee	465	569	879	152	138	2,203
Southeast	2,271	3,701	1,412	1,197	404	8,985
South Carolina	458	127	92	292	64	1,032
Georgia	513	248	465	536	92	1,854
Florida	720	3,223	425	201	105	4,676
Alabama	580	103	430	167	143	1,423

See footnotes at end of table.

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Appendix table 4—Land in special-use areas, by region and State, 1997—continued

Region and State	Rural transportation areas[1]	Rural parks[2]	Wildlife areas[3]	Defense and industrial areas[4]	Farmsteads, farm roads, and lanes[5]	Total
			1,000 acres			
Delta States	1,283	488	1,293	228	401	3,693
Mississippi	405	147	156	18	122	848
Arkansas	479	272	432	88	178	1,450
Louisiana	400	69	704	122	101	1,395
Southern Plains	2,389	1,999	842	645	964	6,840
Oklahoma	629	96	297	192	263	1,477
Texas	1,760	1,903	546	453	701	5,363
Mountain	3,288	31,169	7,913	8,001	575	50,946
Montana	556	4,702	1,026	10	120	6,414
Idaho	278	4,110	160	630	88	5,266
Wyoming	406	5,635	227	20	44	6,332
Colorado	658	4,158	306	444	135	5,699
New Mexico	378	2,015	523	3,389	55	6,360
Arizona	347	5,632	2,836	1,222	55	10,092
Utah	313	3,214	474	1,001	57	5,058
Nevada	354	1,704	2,361	1,286	21	5,726
Pacific	1,950	24,692	1,491	2,592	503	31,228
Washington	467	4,807	473	788	103	6,639
Oregon	454	2,369	600	44	126	3,593
California	1,029	17,516	417	1,761	274	20,996
48 States	25,176	74,148	21,262	14,637	6,539	141,761
Alaska	206	63,685	77,441	1,679	2	143,013
Hawaii	39	275	308	128	19	769
United States	25,420	138,108	99,011	16,443	6,560	285,544

[1]Includes rural highways, railroads, and airports. Estimates for highways were derived by applying average right-of-way widths to the mileage in highway systems reported by the Federal Highway Administration. Estimates of railroad acreage rights-of-way are based on State-by-State changes in mileage reported by the Association of American Railroads. Estimates of acreage in airports is based on information on airports by the Federal Aviation Administration.

[2]Areas in national and State park systems and national forest wilderness and primitive areas plus about 2.5 million acres in New York classified as State forest preserves. Excludes parks in urban places and large water bodies. Based on data from reports and records of the National Park Service, Forest Service, and State agencies.

[3]Areas administered by the U.S. Fish and Wildlife Service and State agencies. Does not include Federal areas under the primary jurisdiction of another agency or areas leased. Federal data are from U.S. Fish and Wildlife Service reports.

[4]As reported by the U.S. General Services Administration, 1997. Includes land administered by the U.S. Department of Defense (13 million acres), land administered by the U.S. Department of Energy (2 million acres), and other related land (1.5 million acres)

[5] Estimates calculated on the basis of State-by-State number of farms and acreage of unclassified land in farms.

Appendix table 5—Forest land by major class, by region and State, 1997

Region and State	Timberland			Reserved timberland and other forest land[2]	Total forest land		
	Federal	Non-Federal	Total[1]		Federal	Non-Federal	Total[1]
				1,000 acres			
Northeast	1,460	65,563	67,023	6,357	2,157	71,223	73,380
Maine	52	16,900	16,952	759	125	17,586	17,711
New Hampshire	439	4,112	4,551	404	730	4,225	4,955
Vermont	252	4,210	4,462	146	348	4,260	4,608
Massachusetts	48	2,918	2,966	299	69	3,196	3,265
Rhode Island	5	351	356	54	5	405	410
Connecticut	10	1,805	1,815	49	13	1,851	1,864
New York	86	15,319	15,405	3,175	108	18,472	18,580
New Jersey	49	1,815	1,864	127	96	1,895	1,991
Pennsylvania	497	15,355	15,852	1,053	587	16,318	16,905
Delaware	0	376	376	14	2	388	390
Maryland	22	2,402	2,424	277	74	2,627	2,701
District of Columbia	0	0	0	0	0	0	0
Lake States	6,278	42,910	49,188	2,905	7,699	44,394	52,093
Michigan	2,643	16,024	18,667	668	2,987	16,348	19,335
Wisconsin	1,520	14,181	15,701	261	1,643	14,319	15,962
Minnesota	2,115	12,705	14,820	1,976	3,069	13,727	16,796
Corn Belt	2,564	28,758	31,322	1,425	2,914	29,833	32,747
Ohio	220	7,347	7,567	288	241	7,614	7,855
Indiana	373	3,969	4,342	158	425	4,075	4,500
Illinois	320	3,738	4,058	237	344	3,951	4,295
Iowa	44	1,900	1,944	106	74	1,976	2,050
Missouri	1,607	11,804	13,411	636	1,830	12,217	14,047
Northern Plains	1,076	3,242	4,318	482	1,324	3,476	4,800
North Dakota	28	413	441	233	198	476	674
South Dakota	946	540	1,486	146	1,008	624	1,632
Nebraska	49	850	899	49	53	895	948
Kansas	53	1,439	1,492	54	65	1,481	1,546
Appalachian	5,956	65,539	71,495	2,243	7,567	66,171	73,738
Virginia	1,586	13,759	15,345	701	2,211	13,835	16,046
West Virginia	1,032	10,867	11,899	209	1,165	10,943	12,108
North Carolina	1,448	17,190	18,638	659	2,000	17,297	19,297
Kentucky	863	11,485	12,348	337	1,103	11,582	12,685
Tennessee	1,027	12,238	13,265	337	1,088	12,514	13,602
Southeast	4,640	68,090	72,730	2,551	6,242	69,039	75,281
South Carolina	867	11,551	12,418	234	981	11,671	12,652
Georgia	1,380	22,416	23,796	616	1,915	22,497	24,412
Florida	1,570	13,035	14,605	1,649	2,477	13,777	16,254
Alabama	823	21,088	21,911	52	869	21,094	21,963

See footnotes at end of table. —continued

Appendix table 5—Forest land by major class, by region and State, 1997—continued

Region and State	Timberland			Reserved timberland and other forest land[2]	Total forest land		
	Federal	Non-Federal	Total[1]		Federal	Non-Federal	Total[1]
				1,000 acres			
Delta States	5,046	45,626	50,672	495	5,391	45,776	51,167
Mississippi	1,526	17,063	18,589	8	1,534	17,063	18,597
Arkansas	2,813	15,579	18,392	397	3,059	15,730	18,789
Louisiana	707	12,984	13,691	90	798	12,983	13,781
Southern Plains	1,096	16,904	18,000	8,021	1,279	24,742	26,021
Oklahoma	435	5,798	6,233	1,432	491	7,174	7,665
Texas	661	11,106	11,767	6,589	788	17,568	18,356
Mountain	45,999	20,700	66,699	71,746	97,373	41,072	138,445
Montana	12,485	6,680	19,165	4,067	16,215	7,017	23,232
Idaho	12,895	4,227	17,122	4,815	17,356	4,581	21,937
Wyoming	3,438	1,647	5,085	5,859	8,689	2,255	10,944
Colorado	7,968	3,587	11,555	9,716	14,735	6,536	21,271
New Mexico	2,777	2,055	4,832	10,672	8,571	6,933	15,504
Arizona	2,763	1,309	4,072	15,853	10,534	9,391	19,925
Utah	3,603	1,097	4,700	11,004	11,941	3,763	15,704
Nevada	70	98	168	9,760	9,332	596	9,928
Pacific	30,746	28,374	59,120	31,039	48,017	42,142	90,159
Washington	6,209	11,209	17,418	4,473	9,540	12,351	21,891
Oregon	14,218	9,531	23,749	5,972	17,822	11,899	29,721
California	10,319	7,634	17,953	20,594	20,655	17,892	38,547
48 States	104,861	385,706	490,567	127,264	179,963	437,868	617,831
Alaska	4,306	8,089	12,395	114,984	66,748	60,631	127,379
Hawaii	0	700	700	1,048	12	1,736	1,748
United States[1]	109,167	394,495	503,662	243,296	246,723	500,235	746,958

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

[2]Includes 105 million acres of forest land in parks, wildlife areas, and other special uses.

Source: Published (FS, 1999) and unpublished materials provided by the Forest Service, USDA.

Appendix table 6—Cropland used for crops, 48 contiguous States, 1910-2000

Year	Cropland harvested[1]	Crop failure	Cultivated summer fallow	Total	Index[2]
		Million acres			*1977 = 100*
1910	317	9	4	330	87
1911	322	10	5	337	89
1912	320	12	5	337	89
1913	324	11	5	340	90
1914	326	11	5	342	90
1915	332	11	5	348	92
1916	332	11	5	348	92
1917	341	11	5	357	94
1918	353	12	5	370	98
1919	355	14	5	374	99
1920	351	12	5	368	97
1921	350	12	6	368	97
1922	346	13	6	365	97
1923	345	14	6	365	97
1924	346	13	6	365	97
1925	351	12	7	370	98
1926	350	14	8	372	98
1927	349	15	9	373	99
1928	352	14	10	376	99
1929	356	13	10	379	100
1930	360	11	11	382	101
1931	356	17	11	384	101
1932	361	11	12	384	102
1933	331	33	14	378	100
1934	296	64	15	375	99
1935	336	25	16	377	100
1936	314	43	18	375	99
1937	338	21	20	379	100
1938	340	13	19	372	98
1939	321	21	21	363	96
1940	331	16	21	368	97
1941	335	12	20	367	97
1942	339	11	20	370	98
1943	348	12	17	377	100
1944	353	10	16	379	100
1945	345	9	18	372	98
1946	343	8	18	369	98
1947	346	8	19	373	99
1948	348	9	21	378	100
1949	352	9	26	387	102
1950	336	12	29	377	100
1951	336	17	28	381	102
1952	341	11	28	380	100
1953	341	13	26	380	100
1954	339	13	28	380	100
1955	333	16	29	378	100
1956	317	22	30	369	98
1957	316	12	30	358	95
1958	316	9	30	355	94
1959	318	10	31	359	95

See footnotes at end of table.

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Appendix table 6—Cropland used for crops, 48 contiguous States, 1910-2000—continued

Year	Cropland harvested[1]	Crop failure	Cultivated summer fallow	Total	Index[2]
		Million acres			*1977 = 100*
1960	317	6	32	355	94
1961	296	11	33	340	90
1962	287	10	34	331	88
1963	291	10	36	337	89
1964	292	6	37	335	89
1965	292	6	38	336	89
1966	289	5	38	332	88
1967	301	7	32	340	90
1968	296	6	33	335	89
1969	286	6	41	333	88
1970	289	5	38	332	88
1971	300	6	34	340	90
1972	289	7	38	334	88
1973	316	5	31	352	93
1974	322	8	31	361	96
1975	330	6	31	367	97
1976	330	8	31	369	98
1977	338	9	31	378	100
1978	330	7	32	369	97
1979	340	6	32	378	100
1980	341	11	30	382	101
1981	351	6	30	387	102
1982	347	5	31	383	101
1983	294	5	34	333	88
1984	337	6	30	373	99
1985	334	7	31	372	98
1986	316	9	32	357	94
1987	293	6	32	331	88
1988	287	10	30	327	87
1989	306	8	27	341	90
1990	310	6	25	341	90
1991	306	7	24	337	89
1992	305	8	24	337	89
1993	297	11	22	330	87
1994	310	7	22	339	90
1995	302	8	22	332	88
1996	314	10	22	346	92
1997	321	7	21	349	92
1998	315	10	20	345	91
1999	316	8	20	344	91
2000[3]	312	10	21	343	91

[1]Land from which one or more crops were harvested.

[2]Computed from unrounded data.

[3]Preliminary.

Sources: Estimates for 1910-97 are from (Daugherty, 1995, 1997); 1998-99 are unpublished revisions.

Appendix table 7—Urban area, by region and State, 1960-97

Region and State	1960[1]	1970[1]	1980[1]	1990[2]	1992[3]	1997[3]
			1,000 acres			
Northeast	6,573	7,445	9,438	10,085	10,597	11,407
Maine	556	471	581	463	476	581
New Hampshire	310	323	359	328	329	376
Vermont	51	41	78	91	103	120
Massachusetts	909	1,027	1,286	1,376	1,422	1,515
Rhode Island	123	172	182	191	202	214
Connecticut	574	578	745	802	850	910
New York	1,353	1,570	2,058	2,167	2,282	2,431
New Jersey	1,129	1,212	1,392	1,554	1,636	1,712
Pennsylvania	1,186	1,450	1,770	1,930	2,018	2,146
Delaware	53	79	111	134	146	154
Maryland	290	483	836	1,010	1,094	1,208
District of Columbia[4]	39	39	40	39	39	39
Lake States	2,340	2,957	3,741	3,892	4,010	4,428
Michigan	1,017	1,286	1,540	1,705	1,760	1,896
Wisconsin	616	766	902	1,010	1,053	1,113
Minnesota	707	905	1,299	1,177	1,197	1,419
Corn Belt	3,861	5,416	6,521	7,302	7,626	8,290
Ohio	1,415	1,816	2,093	2,309	2,415	2,559
Indiana	520	829	1,012	1,140	1,179	1,325
Illinois	992	1,400	1,730	1,941	2,022	2,215
Iowa	416	573	666	704	712	801
Missouri	518	798	1,020	1,208	1,298	1,390
Northern Plains	463	697	938	1,087	1,127	1,266
North Dakota	39	62	95	108	111	129
South Dakota	62	81	106	130	138	150
Nebraska	121	178	232	252	264	294
Kansas	241	376	505	597	614	693
Appalachian	1,851	2,850	4,395	5,276	5,552	6,192
Virginia	486	768	1,183	1,401	1,471	1,654
West Virginia	138	150	200	242	254	288
North Carolina	488	688	1,164	1,448	1,562	1,760
Kentucky	247	404	570	675	693	793
Tennessee	492	840	1,278	1,510	1,572	1,695
Southeast	2,463	3,953	6,311	7,708	8,042	9,136
South Carolina	267	408	757	912	982	1,102
Georgia	612	920	1,454	1,800	1,923	2,132
Florida	881	1,573	2,617	3,282	3,358	3,902
Alabama	703	1,052	1,483	1,714	1,779	2,000

See footnotes at end of table.

—continued

Appendix table 7—Urban area, by region and State, 1960-97—continued

Region and State	1960[1]	1970[1]	1980[1]	1990[2]	1992[3]	1997[3]
			1,000 acres			
Delta States	918	1,273	1,981	2,528	2,717	3,065
Mississippi	228	366	580	723	748	852
Arkansas	222	384	605	783	860	931
Louisiana	468	523	796	1,022	1,109	1,282
Southern Plains	2,593	3,684	5,153	6,077	6,403	7,170
Oklahoma	480	814	1,136	1,167	1,293	1,473
Texas	2,113	2,870	4,017	4,910	5,110	5,697
Mountain	1,133	1,800	2,871	4,245	4,509	5,435
Montana	54	76	118	158	171	196
Idaho	74	105	154	206	223	233
Wyoming	36	49	91	149	166	206
Colorado	203	343	597	843	909	1,070
New Mexico	184	255	361	510	541	636
Arizona	320	463	892	1,313	1,371	1,746
Utah	190	254	420	464	497	549
Nevada	72	255	238	602	631	801
Pacific	3,013	4,268	5,503	6,899	7,377	7,903
Washington	422	607	845	1,136	1,240	1,371
Oregon	239	333	458	531	565	610
California	2,352	3,328	4,200	5,232	5,572	5,922
48 States	25,208	34,343	46,852	55,099	57,960	64,292
Alaska	14	68	285	410	433	567
Hawaii	278	146	177	412	517	678
United States	25,500	34,557	47,314	55,921	58,910	65,537

[1]Area in the urbanized areas and places of 2,500 or more population outside urbanized areas developed by the Geography Division, Bureau of the Census (Frey, 1983).
[2]BOC, 1992.
[3]Based on trends in urban population growth and land per capita in urban areas.
[4]Minor change here reported by the Bureau of the Census represents measurement and rounding error rather than any real change.

Appendix table 8—Irrigated land in farms, by region and State, 1949-97

Region and State	1949	1954	1959	1964	1969	1974	1978	1982	1987	1992	1997
						1,000 acres					
Northeast	87	189	206	280	226	242	247	270	326	312	402
Maine	3	1	2	4	6	6	7	6	6	10	22
New Hampshire	1	1	1	3	2	2	2	1	3	2	3
Vermont	—	1	2	2	—	1	1	1	2	2	3
Massachusetts	18	23	20	24	19	19	17	17	20	20	25
Rhode Island	2	1	—	1	2	2	3	2	4	3	3
Connecticut	8	12	5	14	9	7	7	7	7	6	7
New York	19	59	58	79	55	55	56	52	51	47	69
New Jersey	28	59	74	96	72	89	77	83	91	80	93
Pennsylvania	7	18	17	23	19	18	15	18	30	23	36
Delaware	—	6	16	18	20	20	34	44	61	62	73
Maryland	1	8	11	16	22	23	28	39	51	57	69
Lake States	28	50	87	129	219	303	733	860	954	1,067	1,116
Michigan	14	23	40	49	77	97	226	286	315	366	393
Wisconsin	10	18	32	62	106	128	235	259	285	331	342
Minnesota	4	9	15	18	36	78	272	315	354	370	380
Corn Belt	16	69	87	129	284	298	651	820	1,037	1,423	1,641
Ohio	6	15	12	17	22	22	25	28	32	29	34
Indiana	5	12	17	17	34	33	75	132	170	241	250
Illinois	2	7	10	14	51	54	130	166	208	328	350
Iowa	1	2	18	22	21	39	101	91	92	116	125
Missouri	2	33	30	59	156	150	320	403	535	709	882
Northern Plains	1,128	1,631	3,004	3,354	4,590	6,200	8,845	9,253	8,675	9,550	10,171
North Dakota	35	38	48	51	63	71	141	163	168	187	180
South Dakota	78	90	116	130	148	152	335	376	362	371	344
Nebraska	876	1,171	2,078	2,169	2,857	3,967	5,683	6,039	5,682	6,312	6,939
Kansas	139	332	762	1,004	1,522	2,010	2,686	2,675	2,463	2,680	2,707
Appalachian	6	84	117	175	131	102	160	166	296	243	349
Virginia	3	22	31	51	37	28	42	43	79	62	85
West Virginia	—	1	1	2	3	2	1	1	3	3	3
North Carolina	2	25	66	97	59	51	90	81	138	113	156
Kentucky	—	13	8	14	20	11	14	23	38	28	58
Tennessee	1	23	11	11	12	10	13	18	38	37	46
Southeast	374	491	490	1,312	1,470	1,695	2,534	2,307	2,428	2,666	2,774
South Carolina	6	22	25	19	15	10	32	81	81	76	86
Georgia	3	24	34	64	79	112	463	575	640	725	749
Florida	365	428	414	1,217	1,365	1,559	1,980	1,585	1,623	1,783	1,862
Alabama	—	17	17	12	11	14	59	66	84	82	77

See footnotes at end of table.

—continued

Appendix table 8—Irrigated land in farms, by region and State, 1949-97—continued

Region and State	1949	1954	1959	1964	1969	1974	1978	1982	1987	1992	1997
						1,000 acres					
Delta States	1,004	1,698	1,297	1,678	1,862	1,813	2,673	3,147	3,690	4,483	5,736
Mississippi	5	132	100	123	150	162	309	431	637	883	1,076
Arkansas	422	858	712	974	1,010	949	1,683	2,022	2,406	2,702	3,717
Louisiana	577	708	485	581	702	702	681	694	647	898	943
Southern Plains	3,166	4,815	5,854	6,687	7,412	7,109	7,549	6,068	4,749	5,424	5,991
Oklahoma	34	108	198	302	524	515	602	492	478	512	506
Texas	3,132	4,707	5,656	6,385	6,888	6,594	6,947	5,576	4,271	4,912	5,485
Mountain	11,642	11,209	12,095	12,811	12,799	12,720	14,775	14,056	13,320	13,266	14,433
Montana	1,717	1,891	1,875	1,893	1,841	1,759	2,070	2,023	1,997	1,978	1,994
Idaho	2,137	2,325	2,577	2,802	2,761	2,859	3,475	3,450	3,219	3,260	3,494
Wyoming	1,432	1,263	1,470	1,571	1,523	1,460	1,662	1,565	1,518	1,465	1,719
Colorado	2,872	2,263	2,685	2,690	2,895	2,874	3,431	3,201	3,014	3,170	3,430
New Mexico	655	650	731	813	823	867	891	807	718	738	805
Arizona	964	1,177	1,152	1,125	1,178	1,153	1,196	1,098	914	956	1,014
Utah	1,138	1,073	1,062	1,092	1,025	970	1,169	1,082	1,161	1,143	1,212
Nevada	727	567	543	825	753	778	881	830	779	556	765
Pacific	8,334	9,316	9,787	10,357	9,983	10,619	12,026	11,907	10,763	10,834	12,367
Washington	589	778	1,007	1,150	1,224	1,309	1,639	1,638	1,519	1,641	1,705
Oregon	1,307	1,490	1,384	1,608	1,519	1,561	1,881	1,808	1,648	1,622	1,949
California	6,438	7,048	7,396	7,599	7,240	7,749	8,506	8,461	7,596	7,571	8,713
48 States[1]	25,785	29,552	33,022	36,912	38,975	41,100	50,190	48,855	46,235	49,268	54,978
Alaska	—	—	—	—	1	1	1	1	2	2	3
Hawaii	117	—	141	144	146	142	159	146	149	134	7
United States[1]	25,902	29,552	33,163	37,056	39,122	41,243	50,350	49,003	46,386	49,404	55,058

— = Fewer than 500 acres.

[1] Data by States and regions may not add to totals due to rounding.

Note: Because of changes in definition and procedures, data are not strictly comparable among census years. Data represent acres actually irrigated in the census year rather than acres that had irrigation potential.

Sources: Daugherty, 1995; NASS, 1999a.

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