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Agriculture Irrigation and Water Use

Rajinder S. Bajwa


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United States Department of Agriculture, Economic Research Service

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Agriculture
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Bulletin
Number 638

Agricultural Irrigation and Water Use

Rajinder S. Bajwa
William M. Crosswhite
John E. Hostetler
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Abstract

The 17 Western States, plus Arkansas, Florida, and Louisiana, account for 91 percent of all U.S. irrigated acreage, with the Western States alone contributing over 85 percent. This report integrates data on the distribution, characteristics, uses, and management of water resources from a wide variety of data sources. The report includes charts and tables on water use in irrigation; farm data comparing selected characteristics of irrigated and nonirrigated farms; and data on water application systems, sources of water, pump energy expenses by energy type, values of irrigated and nonirrigated land, and cash rents.

Keywords: Irrigation, irrigated farms, land values, land rent, precipitation, water use, water supply, irrigated crops, irrigation systems

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Summary

Irrigated cropland has been a major factor in the growth of U.S. agricultural productivity. According to 1987 census data, irrigated cropland amounted to 14.8 percent of harvested U.S. cropland, but accounted for 37.8 percent of the total value of crops produced. Irrigated farms tend to be larger and to have higher yields and capital investments than nonirrigated farms. On average, irrigated farms have more than twice as much invested in terms of capital, machinery, equipment, and buildings than nonirrigated farms.

The 20-inch isohyet line representing average annual precipitation runs from northwest Minnesota to southwest Texas, and divides the conterminous United States into moist, eastern America and arid, western America. In the drier regions of the West, agricultural activity depends on irrigation, while in the East's humid areas, irrigation is mostly supplementary.

Irrigated cropland in the dry regions of the West increased at a rapid pace after World War II, especially during the periods of favorable economic conditions with higher commodity prices. Improvements in deep-well water technology and adoption of center-pivot water delivery systems stimulated growth in privately developed ground water. This growth was especially pronounced in the Great Plains States, where the Ogallala Aquifer provided sufficient ground water for nearly two decades. However, the Ogallala Aquifer is experiencing varying degrees of depletion and irrigation is declining, particularly in the Texas High Plains region.

Increasing competition from urban and industrial water uses for declining supplies of ground water makes it unlikely that irrigation will expand much in the West. Efficiency improvements in water delivery and application systems appear to be the only option that will provide additional water for irrigation in the arid regions. However, some of these water-conserving technologies are expensive at present and cheaper costs in the future may allow only modest expansion in irrigation land use in the West.

Irrigation in humid regions has been increasing consistently during the last 10 years. The Northeast has had a 20-percent increase; the Lake States, a 10.75-percent increase; and the Southeast, a 5.2-percent increase between 1982 and 1987. Irrigation in the 31 humid States, while still a small proportion of humid area agriculture, has grown steadily. Since irrigation in humid areas is supplementary and uses far less water per acre than in the dry regions, it is likely to expand. Irrigation is not essential for most crops in humid areas, but it can improve yields and help mitigate the effects of drought.

Glossary

Commercial water use--Water used for motels, hotels, restaurants, office buildings, and other commercial facilities and institutions, both civilian and military. The water may be obtained from a public supply or may be self-supplied.

Consumptive use--That part of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment. Also referred to as water consumed or water depletion.

Conveyance loss--Water that is lost in transit from a pipe, canal, conduit, or ditch by leakage or evaporation. The water generally is not available for further use; however, leakage from an irrigation ditch, for example, may percolate to a ground-water source and be available for further use.

Domestic water use--Water used for household purposes, such as drinking, preparing food, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Also called residential water use. The water may be obtained from a public supply or may be self-supplied.

Evapotranspiration--A collective term that includes water discharged to the atmosphere as a result of evaporation from the soil and surface-water bodies and by plant transpiration.

Ground water--Generally all subsurface water as distinct from surface water; specifically, that part of the subsurface water in the saturated zone (a zone in which all voids are filled with water) where the water is under pressure greater than atmospheric.

Hydroelectric power water use--Water used for the generation of electricity at plants where the turbine generators are driven by falling water; an instream use.

Industrial water use--Water used for industrial purposes, such as fabrication, processing, washing, and cooling, and includes use in such industries as steel, chemical and allied products, paper and allied products, mining, and petroleum refining. The water may be obtained from a public supply or may be self-supplied.

Instream use--Water use taking place within the stream channel for such purposes as hydroelectric power generation, navigation, water-quality

improvement, fish propagation, and recreation. Sometimes called nonwithdrawal use or in-channel use.

Irrigation return flow--The part of irrigation water that is not consumed by evapotranspiration and that migrates to an aquifer or surface-water body.

Irrigation systems--Generally, the controlled application of water to arable lands to supply water requirements of crops not satisfied by rainfall. Systems used include the following:

Center-pivot--Automated sprinkler irrigation achieved by rotating the sprinkler pipe or boom that supplies water to the sprinkler heads or nozzles at a radius from the center of the circular field to be irrigated. The pipe is supported above the crop by towers at fixed spacings and propelled by pneumatic, mechanical, hydraulic, or electric power on wheels or skids in fixed circular paths at uniform angular speeds. Water, which is delivered to the center or pivot point of the system, is applied at a uniform rate by a progressive increase of nozzle size from the pivot to the end of the line. The depth of water applied is determined by the rate of travel of the system. Single units are ordinarily about 1,250 to 1,300 feet long and irrigate about a 130-acre circular area.

Drip--An irrigation system in which water is applied directly to the root zone of plants by means of applicators (orifices, emitters, porous tubing, perforated pipe, and so forth) operated under low pressure. The applicators can be placed on or below the surface of the ground or can be suspended from supports.

Flood--An irrigation system in which the entire surface of the soil is covered by ponded water.

Furrow--An irrigation system of partial surface flooding normally used with clean-tilled crops where water is applied in furrows or rows of sufficient capacity to contain the flow.

Gravity--An irrigation system in which the water is not pumped but flows in ditches or pipes and is distributed by gravity.

Source: Compiled from Wayne B. Solley, Charles F. Merk, Robert R. Pierce, *Estimated Use of Water in the United States in 1985*, Circular 1004, U.S. Geological Survey, 1988, and U.S. Geological Survey, *National Water Summary, 1987: Hydrologic Events and Water Supply and Use*, Water Supply Paper 2350, 1990.

Sprinkler--An irrigation system in which water is applied by means of perforated pipes or nozzles operated under pressure so as to form a spray pattern.

Subirrigation--An irrigation system in which water is applied below the ground surface either by raising the water table within or near the root zone or by using a buried perforated or porous pipe system that discharges directly into the root zone.

Traveling gun--A sprinkler irrigation system consisting of a single large nozzle that rotates and is self-propelled. "Traveling" refers to the fact that the base is on wheels and can be moved by the irrigator or affixed to a guide wire.

Irrigation water use--Artificial application of water on lands to assist in the growing of crops and pastures or to maintain vegetative growth in recreational lands, such as parks and golf courses.

Livestock water use--Water used for stock watering, feed lots, dairy operations, fish farming, and other onfarm needs. Livestock as used here includes cattle, sheep, goats, hogs, and poultry. Also included are such animal specialties as horses, rabbits, bees, pets, furbearing animals in captivity, and fish in captivity.

Return flow--Water that reaches a ground- or surface-water source after release from the point of use and thus becomes available for further use.

Rural water use--Water used in suburban or farm areas for domestic and livestock needs. The water generally is self-supplied, and includes domestic use, drinking water for livestock, and other uses such as dairy sanitation, evaporation from stock-watering ponds, and cleaning and waste disposal.

Surface water--An open body of water, such as a stream or lake.

Transpiration--Process by which water that is absorbed by plants, usually through the roots, is evaporated into the atmosphere from the plant surface.

Conversion Factors

Land Area and Water Flow

Multiply	By	To obtain
<i>Area</i>		
Acre	43,560	Square foot
	4,047	Square meter
	0.001562	Square mile
<i>Flow</i>		
Million gallons per day	1,121	1,000 acre-feet per year
	0.6944	1,000 gallons per minute
	0.003785	Million cubic meters per day
1,000 acre-feet per year	0.8921	Million gallons per day
	0.001380	1,000 cubic feet per second
	0.6195	1,000 gallons per minute
	0.003377	Million cubic meters per day

Water Relations in Depth-Volume Units

Unit	Approximations
1 million gallons	= 3.07 acre-feet
1 cubic foot	= 7.48 gallons
1 acre-foot	= 325,851 gallons
	= 43,560 cubic feet
1 cubic mile	= 1.1 trillion gallons
	= 3,379,200 acre-feet
1 inch of rain	= 17.4 million gallons per square mile
	= 27,200 gallons per acre

Abbreviations

AF	=	Acre-foot	ME	=	Maine
Bgd	=	Billion gallons per day	MI	=	Michigan
(D)	=	Disclosure problem	MN	=	Minnesota
Ft ²	=	Square foot	MO	=	Missouri
LP gas	=	Liquefied petroleum gas	MS	=	Mississippi
m ²	=	Square meter	MT	=	Montana
M.a.f.	=	Million acre-feet	NC	=	North Carolina
Mgd	=	Million gallons per day	ND	=	North Dakota
mi ²	=	Square mile	NE	=	Nebraska
NA	=	Not applicable	NH	=	New Hampshire
NR	=	Not reported	NJ	=	New Jersey
T.a.f	=	Thousand acre-feet	NM	=	New Mexico
AL	=	Alabama	NV	=	Nevada
AR	=	Arkansas	NY	=	New York
AZ	=	Arizona	OH	=	Ohio
CA	=	California	OK	=	Oklahoma
CO	=	Colorado	OR	=	Oregon
CT	=	Connecticut	PA	=	Pennsylvania
DE	=	Delaware	RI	=	Rhode Island
FL	=	Florida	SC	=	South Carolina
GA	=	Georgia	SD	=	South Dakota
IA	=	Iowa	TN	=	Tennessee
ID	=	Idaho	TX	=	Texas
IL	=	Illinois	UT	=	Utah
IN	=	Indiana	VA	=	Virginia
KS	=	Kansas	VT	=	Vermont
KY	=	Kentucky	WA	=	Washington
LA	=	Louisiana	WI	=	Wisconsin
MA	=	Massachusetts	WV	=	West Virginia
MD	=	Maryland	WY	=	Wyoming

Agricultural Irrigation and Water Use

Rajinder S. Bajwa
William M. Crosswhite
John E. Hostetler
Olivia W. Wright*

Introduction

Irrigated agriculture plays a major role in the economies of many Western States, where 85 to 90 percent of the available water supply is used for irrigation. Irrigated land accounts for nearly 15 percent of harvested cropland acreage nationwide but contributes about 38 percent of the value of all crops produced, much of this from fruits, vegetables, and other specialty crops. Although irrigated cropland provided a substantial portion of farm income in 1987, there were only about 292,000 individual irrigators, 14 percent of all farmers. Four-fifths of the irrigators were located in the 17 Western States.

Purpose of the Bulletin

The bulletin updates AIB-532, *Agriculture Irrigation and Water Supply, 1987*, and presents new data on irrigation and water use recently made available from several sources. Since AIB-532 was published in October 1987, new information from the four major sources of irrigation and water use data has become available and is summarized in this bulletin. Annual and multiyear data are presented in tables and charts to show the status and trends in irrigation and water use.

Data Sources¹

The U.S. Department of Commerce, Bureau of the Census, formerly published special irrigation summaries for each major census of agriculture. The special summaries for 1982 and 1987 were not published, but selected characteristics of irrigated farms were made part of the census for those years.

Since 1978, the agricultural census has been supplemented by a special survey of irrigators. The 1988 Farm and Ranch Irrigation Survey, published in 1990, is the most recent in that series. It is the only data source that relates irrigation water use to crops produced, sources of water, and types of technology used to apply irrigation water.

The Economic Research Service, U.S. Department of Agriculture, conducts and reports an annual survey of rural land sales. That survey provides consistent data on the value of dry and irrigated cropland, in addition to average rental rates for such land.

The U.S. Geological Survey publishes National Water Summary reports on numerous facets of water resources for each State and the Nation. Availability of these data on the distribution, characteristics, uses, and management of the Nation's water resources is not yet widely known. The 1987 report, published in 1990, focuses on water supply and use and is the most recent and last annual volume. Because of the large amount of data contained and the summary nature of the report, subsequent National Water Summary reports will be published every other year.

*The authors are listed alphabetically and senior authorship is not assigned. Rajinder S. Bajwa, William M. Crosswhite, and John E. Hostetler are agricultural economists, and Olivia W. Wright is a graphics specialist, with the Resources and Technology Division, Economic Research Service, U.S. Department of Agriculture.

¹Detailed information on data sources is presented in appendix A.

Use of the Bulletin

Irrigation and agricultural water use data are presented in charts and tables for each of the 48 conterminous States and the United States.² A series of three charts and a table present information on (1) the extent and distribution of irrigated land in farms in 1987; (2) population distribution in 1985, which can be compared with the location of irrigation to anticipate future competition and conflict over limited water supplies; (3) water sources, use, and disposition in 1985, which compares agricultural water use with total water use in each State; and (4) acreage of principal irrigated crops and the proportion of the total crop being irrigated in 1987.

The series of charts and a full-page table on the facing page allow the reader to (1) compare trends in irrigated farms, cropland, and irrigated land; (2) identify each State's top five irrigated counties and their three major irrigated crops; (3) compare selected economic characteristics for average irrigated and nonirrigated farms from 1982 to 1987; (4) compare water application methods, sources of water, use of alternative energy sources for pumping, and costs of ground and off-farm surface water in 1984 and 1988; and (5) assess the difference in land value and rents paid for dry, irrigated, and grazing land.

Highlights

Irrigation in the United States takes place mainly in the 17 Western States, plus Arkansas, Florida, and Louisiana. These 20 States account for 91 percent of all U.S. irrigated acreage and 82 percent of all irrigated farms. The 17 Western States alone contribute over 81 percent of the total irrigated land. Since 1982, irrigated acreage has increased 23 percent in the humid States, excluding Arkansas, Florida, and Louisiana.

In 1959, 9 percent of all farms reported some irrigated land. By 1987, that share had risen to 14 percent. During the same period, average area of irrigated land per farm had increased from 108 acres in 1959 to 159 acres, 20 acres below the all-time high of 179 acres in 1978. During the 1980's, the total number of irrigated acres and irrigated acres per farm fluctuated considerably due to the temporary idling of land associated with annual acreage reduction programs. Most of the Nation's irrigated land (90 percent) is harvested cropland, but many of the Mountain States

have irrigated pasture and land from which wild hay is cut to sustain livestock herds through the winter. This roughage never enters the market and, therefore, may appear unimportant, but without irrigation, neither it nor much of the livestock industry in these States would exist.

Irrigated farms tend to be more highly capitalized than nonirrigated farms (table 1). They produce significantly more crop and livestock value per farm and have higher expenditures for agricultural chemicals, energy, and labor. The average irrigated farm has over twice as much invested in land and buildings and twice the value of machinery and equipment, compared with nonirrigated farms. Farmland values declined significantly during the mid-1980's due to the financial crisis in agriculture brought on by crop surpluses, falling commodity prices, and bank foreclosures on overextended operations. Asset values of irrigated farms declined more than on nonirrigated farms.

An average irrigated farm produces 4-1/2 times the value of crops as average nonirrigated farms, but only 2-1/3 times the value of livestock and livestock product sales. An average irrigated farm uses more than twice the fertilizer and three times the pesticides used on nonirrigated farms. Energy expenditures per irrigated farm were more than three times as large as those for nonirrigated farms in 1982 and 1987, although energy use on both types of farms declined during this period. Irrigated farms generally produce more per acre than nonirrigated farms and account for most of the U.S. fruit and vegetable production. Irrigated farms tend to require more labor, hiring more than five times the general labor and specialized contract labor as nonirrigated farms.

Although the 17 Western States account for 81 percent of all irrigated land, the top 5 irrigation States (California, Nebraska, Texas, Idaho, and Colorado) contain over half of all irrigated acreage. They contain 46 percent of the irrigated farms, and 51 percent of the irrigated acreage, and they account for about 32 percent of the market value of sales from all U.S. farms. On a national basis, hay, corn, and wheat are the principal irrigated crops in terms of acreage. The top five irrigation States account for 43 percent of the

²U.S. data for 1987 represent all 50 States; that for 1984 and 1988 cover only the 48 conterminous States.

Table 1--Selected characteristics of irrigated farms

United States

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	1,848,574	2,010,609	2,081,604	2,157,511	2,521,659	2,907,265
Harvested cropland	<i>do.</i>	1,643,633	1,809,756	1,904,602	1,954,700	2,219,631	2,701,694
Irrigated land	<i>do.</i>	291,628	278,277	280,779	236,733	257,147	297,387
Harvested cropland	<i>do.</i>	269,131	256,463	259,651	NA	NA	NA
Total cropland	<i>1,000 acres</i>	443,318	445,362	453,874	440,039	458,990	434,232
Harvested cropland	<i>do.</i>	282,224	326,306	317,146	303,002	273,016	286,892
Irrigated land	<i>No. of acres</i>	46,386,201	49,002,433	50,349,906	41,243,023	39,121,693	37,056,083
Harvested cropland	<i>do.</i>	41,767,756	44,433,008	43,679,819	NA	NA	NA

States with the largest irrigated acreage, 1987

Item	Unit	U.S.	California	Nebraska	Texas	Idaho	Colorado
Irrigated land	<i>No. of farms</i>	291,628	58,868	22,596	19,806	16,620	14,913
Irrigated land	<i>No. of acres</i>	46,386,201	7,596,091	5,681,835	4,271,043	3,219,192	3,013,733
Major irrigated crops:							
Hay	<i>do.</i>	8,594,701	1,279,364	346,791	182,165	846,194	1,055,673
Corn	<i>do.</i>	8,003,163	151,253	4,143,223	522,359	47,493	647,205
Wheat	<i>do.</i>	3,731,218	418,181	109,274	652,746	587,736	195,472

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	289,387	345,869	546,007	716,248	247,676	293,669
Machinery and equipment	41,227	41,919	68,790	72,354	36,752	37,648
Farm products sold	65,165	58,858	153,417	142,713	50,836	46,969
Crops, nursery, and greenhouse	48,149	45,863	128,961	123,627	29,172	31,175
Livestock and poultry	55,920	45,914	113,727	95,166	49,931	41,017
Selected production expenses:						
Commercial fertilizers	4,846	5,326	9,371	10,454	3,963	4,474
Other agricultural chemicals	3,715	3,805	8,298	8,229	2,706	2,921
Energy and petroleum products	3,820	4,483	9,364	11,349	2,917	3,517
Hired labor	13,278	9,704	38,642	29,380	7,062	5,516
Contract labor	6,773	7,922	16,274	18,815	2,891	2,820

Irrigation methods, water sources, and pumping energy use

Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	110,981	18,423,869	1.3	104,641	16,877,412	1.3
Center pivot	52,798	11,441,405	1.2	32,442	9,370,614	1.2
Mechanical move	22,768	3,110,359	1.2	25,475	3,355,164	1.2
Hand move	38,803	2,743,900	1.6	46,885	2,918,241	1.6
Solid set and permanent	15,864	1,128,205	1.9	19,694	1,233,393	2.5
All gravity systems	126,457	27,414,720	2.1	126,827	27,457,244	2.0
Gated pipe	46,003	8,460,705	1.6	42,826	8,363,825	1.4
Ditch with siphon tube	51,824	9,229,405	2.4	59,255	10,051,246	2.3
Flooding	46,594	9,724,610	2.2	45,045	9,042,173	2.2
Drip or trickle	15,155	866,731	1.8	11,651	837,624	1.9
Subirrigation	2,571	581,940	3.0	2,905	623,013	3.8
Sources:						
Wells	111,682	26,774,017	1.4	100,703	24,286,826	1.4
Onfarm surface sources	41,753	5,975,185	1.5	35,982	5,886,832	1.8
Off-farm water suppliers	93,754	15,004,525	2.4	98,672	15,647,770	2.3
	<i>Number</i>			<i>Number</i>		
	<i>\$/acre</i>			<i>\$/acre</i>		
Onfarm energy use for pumping	148,713	33,801,311	31	135,319	31,067,689	32
Electricity	105,227	18,991,265	38	96,324	18,106,589	35
Natural gas	17,296	5,657,430	28	15,519	5,800,547	34
LP gas, propane, butane	13,906	1,874,920	19	12,668	1,804,629	22
Diesel fuel	33,784	7,040,733	18	30,339	5,193,599	24
Gasoline and gasohol	7,940	236,963	18	6,057	162,325	23
Off-farm water supply	93,754	15,004,525	34	98,672	15,647,770	26

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	726	743	1,000	42	48	NR
Irrigated cropland	1,573	1,648	2,138	83	83	NR
Grazing land	316	349	376	7	8	NR

Main Features of Irrigation Systems and Practices

Sprinkler Systems

Solid Set is a stationary sprinkler system often used in orchards. Supply pipelines are fixed, usually below the surface, and sprinkler nozzles are elevated above the surface.

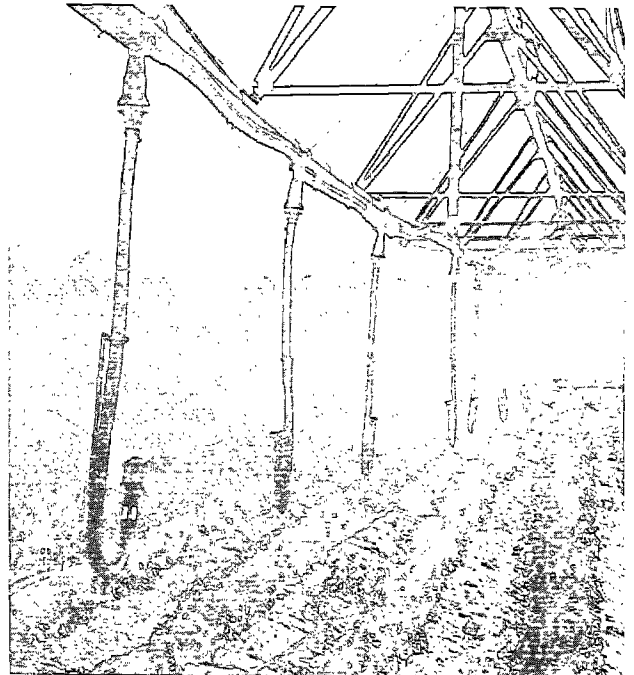
Hand Move is a portable sprinkler system in which the irrigator moves the supply pipelines in sections from one position to the next.

Side Roll is a portable sprinkler system in which the pipeline acts as an axle for a series of large diameter wheels. An engine mounted in the center of the pipeline moves the system across the field.

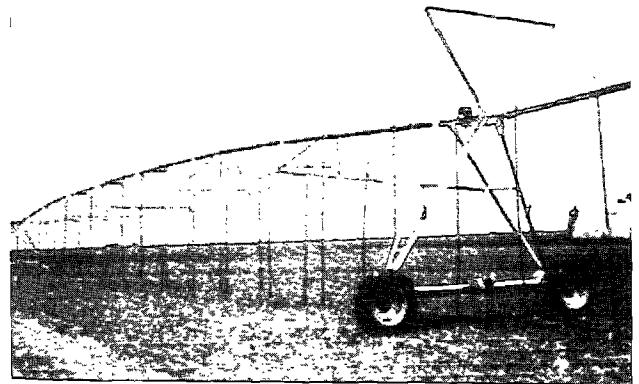
Center Pivot is a self-propelled sprinkler system in which the pipeline is suspended above the field on a row of mobile towers. Water is pumped into the pipe at the center of the field, and the towers rotate slowly around the pivot point. Sprinkler nozzles mounted on the pipeline distribute water under pressure to the field as the pipeline rotates. This basic system has been adapted to both high (45 to 100 pounds per square inch) and low (15 to 45 pounds per square inch) pressure systems.

LEPA (Low Energy Precision Application) is an adaptation of the center pivot system that uses tubes extending down from the pipeline to apply water at low pressure below the plant canopy. Emitting the water close to the ground cuts water loss from evaporation and wind and increases application uniformity.

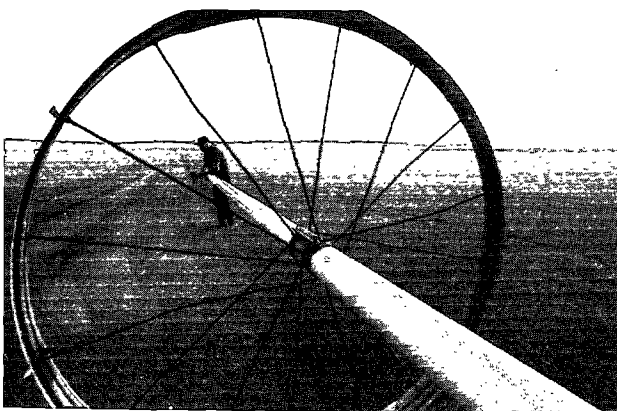
Drip or Trickle Irrigation uses small-diameter tubes placed above or below the field's surface near the plant's root zone. Water emitters in the tubes dispense water directly to the root zone, precluding runoff or deep percolation and minimizing evaporation.



Low-pressure center pivot



LEPA



Side roll



Drip-trickle

Gravity Systems

Ditch with Siphon Tubes supplies water by siphoning water from the irrigation ditch to the field.

Gated Pipe supplies water through a series of openings in a supply pipe. This system has been improved to allow irrigators more control over timing and quantity of water flows.

Surge Flow delivers water to the furrow in timed releases. After a surge the soil forms a water seal permitting the next surge of water to travel further down the furrow. This technique significantly reduces the time needed for irrigation water to be distributed the full length of the field, reducing deep percolation and results in higher water application efficiency.

Cablegation delivers water to furrows automatically and sequentially using a plug attached to a cable inside the supply pipe. The water savings is based on the same principle as surge flow.

Water Management Practices

Precision Field Leveling (also called laser leveling) grades a field so there is little variation in field contour. Precise leveling promotes uniform water application across the field.

Limited Irrigation-Dryland Farming irrigates only the upper end of the field leaving the lower end of the field solely dependent on rainfall. This technique minimizes or eliminates field runoff and reduces deep percolation and evaporative losses.

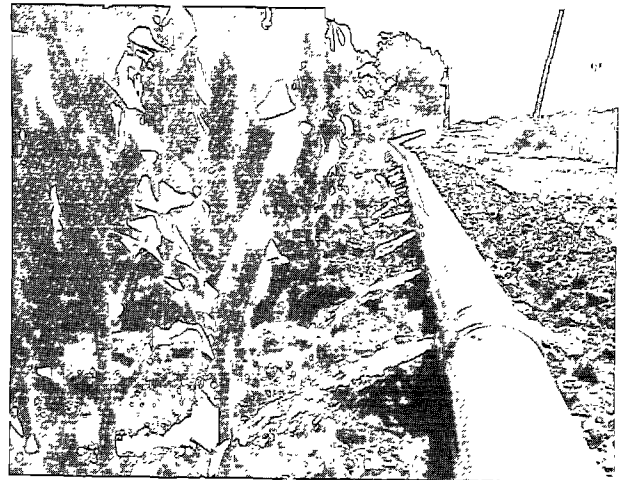
Irrigation Scheduling monitors soil moisture and climate to precisely regulate water applications. Monitoring soil moisture involves precision instruments (such as tensiometers, gypsum blocks, and neutron probes) which accurately measure the moisture available for plant growth. The operator delivers water to the field during critical crop growth stages in precise quantities.

Furrow Diking places dikes in the furrows to capture additional rainfall.

Tailwater Reuse captures field runoff in pits dug in low-lying areas of the farm and recirculates the water to the top of the field. Rising water costs have made tailwater reuse a popular conservation measure.



Ditch with siphon tubes



Gated pipe



Furrow diking

irrigated hay, 69 percent of the irrigated corn, and 53 percent of the irrigated wheat acreage. Nebraska alone contributes 52 percent of all irrigated acreage of corn, and the three crops (hay, corn, and wheat) occupy about 81 percent of all irrigated land in the State. Significant irrigated acreage in Idaho and Colorado is also committed to the top three irrigated crops, 46 percent and 63 percent, respectively. On the other hand, California and Texas have a much larger portion of their irrigated acreage devoted to fruit, vegetable, cotton, and hay production.

U.S. farmers use two major types of irrigation water application systems: sprinkler systems and gravity systems. Sprinkler systems tend to be more expensive but also generally are more efficient, in terms of water applied, than gravity systems. The acreage of sprinkler irrigation increased by 9 percent from 1984 to 1988 (table 1). Gravity irrigation acreage remained almost level during the same period, which allowed sprinkler systems to increase from 37 percent of all systems in 1984 to 39 percent in 1988. A relatively new, highly efficient, but very expensive application system--drip or trickle irrigation--expanded by 3-1/2 percent during the same period but still occupies less than a million acres.

Irrigation water comes from wells, surface sources on or adjacent to the farm, and off-farm suppliers such as irrigation districts. The principal source of water in the United States is from wells, at 56 percent, while the remaining 44 percent from surface sources comes from both onfarm sources (12 percent) and off-farm sources (32 percent). The Great Plains States depend more heavily on wells, while the remaining 11 Western States depend on off-farm surface sources.

Since both wells and onfarm surface water supplies must be pumped to deliver and apply water to crops, energy expenses for irrigation pumping can be quite large. Total energy expenses for irrigation pumping reached \$1.05 billion in 1988, up 5 percent from 1984. Average expenditures per acre were slightly lower in 1988 than in 1984, reflecting shifts to more efficient application systems and changes in the mix of irrigated crops. Of the five types of energy used for pumping irrigation water--electricity, natural gas, liquefied petroleum (LP) gas, diesel, and gasoline--electricity with 56 percent, diesel with 21 percent, and natural gas with 17 percent dominated in 1988. Electricity and natural gas declined in importance, while the use of diesel grew by 4 percent between 1984 and 1988.

Seven of the top 10 States in market value of products sold per irrigated farm were Eastern States, due to the significant number of irrigated farms growing high-valued crops (tables 2 and 3). Land values also tend to be much higher in Eastern States where demand for land for urban and other nonagricultural uses bids up land prices. The top 10 States, in terms of most of the other irrigation characteristics reported in this bulletin, turn out more as expected, with California, Texas, and Nebraska frequently at the top of the list.

Total Water Use in the United States

Offstream water withdrawals in the United States increased from 180 billion gallons per day (bgd) in 1950 to a high of 440 bgd in 1980 (table 4). Total withdrawals declined in 1985 to 400 bgd. Large amounts of water were withdrawn in 1985 for industrial uses (216 bgd) and irrigation (140 bgd).

Total withdrawals of fresh water in the United States for all uses amounted to 338 bgd in 1985, 78 percent from surface sources (265 bgd) and 22 percent from ground water (73 bgd). Domestic and commercial uses took 10 percent, industrial and mining uses took another 9 percent, and thermoelectric power took 39 percent of total freshwater withdrawals. Nearly 73 percent of all withdrawals were returned for reuse, with the remaining 27 percent consumed. Agricultural uses accounted for 83 percent of the consumptive use of water in the United States in 1985.

Water use in agriculture includes the water applied in the irrigation of crops and the water used in livestock production. In 1985, agriculture accounted for 42 percent of all freshwater withdrawals in the United States, or a total of 141 billion gallons per day, of which 97 percent was for irrigation and 3 percent was for livestock production.

Availability of low-cost water has been a major factor in developing a productive agriculture in arid areas of the United States. In the West, public development of surface water supplies encouraged the growth of irrigated agriculture, while in the Plains States, private development of ground water provided the principal source of water for irrigation. In the humid East, irrigation of a small but growing acreage prevents crop losses from drought and frosts, improves productivity of sandy soils in the coastal plain, and increases the production and quality of high-value fruit, vegetable, and specialty crops.

Table 2--Top 10 States in irrigated agriculture in selected categories, 1987

Item	Unit	Ranking by State									
		1	2	3	4	5	6	7	8	9	10
Number of farms:											
All farms	Thousands	TX 188.8	MO 106.1	IA 105.2	KY 92.5	IL 88.8	MN 85.1	CA 83.2	TN 79.7	OH 79.3	WI 75.1
Irrigated farms	do.	CA 58.9	NE 22.6	TX 19.8	ID 16.6	WA 15.4	CO 14.9	OR 14.4	FL 12.0	UT 11.1	MT 9.5
Percentage of farms with irrigated land	Percent	UT 79.2	NV 73.4	CA 70.7	ID 68.8	WY 56.7	AZ 55.3	CO 54.7	NM 49.3	WA 46.0	OR 45.0
Irrigated land	Million acres	CA 7.6	NE 5.7	TX 4.3	ID 3.2	CO 3.0	KS 2.5	AR 2.4	MT 2.0	OR 1.6	FL 1.6
Percentage of harvested cropland irrigated	Percent	NV 99.6	AZ 99.3	CA 90.7	UT 77.0	WY 65.9	ID 64.6	FL 62.3	NM 61.3	CO 44.2	OR 43.4
Market value of agricultural products sold:											
All farms	Billion dollars	CA 13.9	TX 10.5	IA 8.9	NE 6.7	KS 6.5	IL 6.4	MN 5.7	WI 4.9	FL 4.4	IN 4.1
Irrigated farms	do.	CA 11.6	NE 3.9	TX 3.3	FL 3.3	KS 1.9	WA 1.9	ID 1.7	CO 1.5	OR 1.3	AR 1.2
Percentage of crops sold from irrigated farms	Percent	NV 100.0	AZ 99.9	CA 98.8	NM 93.7	FL 92.7	UT 92.5	ID 87.4	WY 86.8	OR 80.3	WA 79.8
Market value of products sold per farm:											
Nonirrigated farms	1,000 dollars	CO 135	DE 119	AZ 112	CA 97	IA 84	KS 74	NE 72	NM 70	ID 70	CT 70
Irrigated farms	do.	DE 355	CT 319	AZ 293	FL 277	KS 264	MS 243	PA 237	WI 224	IL 207	SD 205
Major irrigated crops:											
Corn	1,000 acres	NE 4,143	KS 817	CO 647	TX 522	SD 189	MO 169	MN 160	CA 151	GA 147	MI 135
Wheat	do.	TX 653	KS 636	ID 588	CA 418	WA 256	CO 195	MT 167	OK 143	OR 122	NE 109
Hay	do.	CA 1,279	CO 1,056	MT 999	WY 848	ID 846	OR 637	UT 581	NV 477	WA 382	NE 347

Source: 1987 Census of Agriculture.

∞ Table 3--Top 10 States in Irrigated agriculture in selected categories, 1988

Item	Unit	Ranking by State									
		1	2	3	4	5	6	7	8	9	10
Energy expense for onfarm pumping of irrigation water:											
Total	Million dollars	CA	TX	NE	ID	KS	AR	CO	AZ	WA	FL
		282.7	130.4	118.5	64.3	64.1	50.0	49.4	49.0	32.1	23.9
Electricity	do.	CA	ID	TX	NE	AZ	CO	WA	AR	OR	KS
		266.4	63.1	53.1	52.7	42.6	41.6	32.0	28.5	20.2	13.8
Natural gas	do.	TX	KS	NE	OK	AZ	NM	CO	LA	AR	CA
		68.4	40.9	20.2	7.2	6.0	5.6	4.7	2.7	2.1	1.8
Acreage irrigated by source of water:											
Wells	1,000 acres	NE	CA	TX	KS	AR	CO	ID	MS	FL	MO
		4,901	3,798	3,490	2,494	2,401	1,214	1,211	717	699	509
Onfarm surface	do.	CA	MT	WY	OR	CO	AR	ID	TX	GA	WA
		679	583	470	448	397	355	286	249	227	218
Off-farm suppliers	do.	CA	CO	ID	MT	WA	WY	UT	TX	NE	OR
		3,880	1,762	1,689	1,217	905	853	770	765	650	648
Water applied in irrigation by source:											
Total	Million acre-feet	CA	NE	TX	ID	CO	AR	AZ	WA	KS	MT
		23.3	6.5	6.3	6.1	5.6	3.8	3.7	3.5	3.5	2.9
Wells	do.	CA	NE	TX	KS	AR	ID	CO	AZ	FL	MS
		10.0	5.4	4.3	3.3	3.3	2.0	1.8	1.5	1.1	.9
Onfarm surface	do.	CA	MT	OR	WY	CO	AR	WA	LA	TX	NV
		1.5	.8	.8	.7	.6	.56	.5	.33	.32	.28
Off-farm suppliers	do.	CA	ID	CO	WA	AZ	MT	TX	UT	WY	FL
		11.8	3.6	3.2	2.3	2.1	1.9	1.7	1.6	1.5	1.4
Irrigation water applied per acre	Acre-feet	AZ	CA	NV	WA	UT	NM	OR	FL	ID	CO
		4.4	3.1	2.3	2.3	2.2	2.1	1.9	1.9	1.9	1.7
Average land value per acre:											
Dry land	Dollar per acre	RI	MA	CT	NJ	NH	FL	MD	CA	AZ	PA
		67,612	14,488	7,585	6,855	3,404	2,299	2,023	2,000	1,586	1,507
Irrigated cropland	do.	RI	MA	NY	CT	FL	AZ	NJ	MD	CA	DE
		70,000	41,747	13,446	10,000	8,544	3,256	2,863	2,857	2,643	2,500

Source: 1987 Census of Agriculture.

Table 4--Estimated U.S. water use at 5-year Intervals, 1950-85

Item	1950 ¹	1955 ¹	1960 ²	1965 ²	1970 ³	1975 ⁴	1980 ⁴	1985 ⁴
	<i>Millions</i>							
Population	150.7	164.0	179.3	193.8	205.9	216.4	229.6	242.4
	<i>Billion gallons per day</i>							
Offstream use:								
Total withdrawals	180.0	240.0	270.0	310.0	370.0	420.0	440.0	400.0
Public supply	14.0	17.0	21.0	24.0	27.0	29.0	34.0	37.0
Rural domestic and livestock	3.6	3.6	3.6	4.0	4.5	5.9	5.6	7.8
Irrigation	89	110	110	120	130	140	150	140
Industrial--								
Thermoelectric power	40	72	100	130	170	200	210	190
Other industrial	37	39	38	46	47	45	45	31
Source of water:								
Ground--								
Fresh	34	47	50	60	68	82	83 ⁵	73
Saline	---	.6	.4	.5	1	1	.9	.7
Surface--								
Fresh	140	180	190	210	250	260	290	265
Saline	10	18	31	43	53	69	71	60
Reclaimed sewage	---	.2	.6	.7	.5	.5	.5	.6
Consumptive use	---	---	61	77	87 ⁶	96 ⁶	100 ⁶	92 ⁶
Instream use:								
Hydroelectric power	1,100	1,500	2,000	2,300	2,800	3,300	3,300	3,100

--- = Not available.

¹48 States and District of Columbia.

²50 States and District of Columbia.

³50 States, District of Columbia, and Puerto Rico.

⁴50 States, District of Columbia, Puerto Rico, and Virgin Islands.

⁵Revised.

⁶Freshwater only.

Source: Wayne B. Solley, Charles F. Merk, and Robert R. Pierce, *Estimated Use of Water in the United States in 1985*, Circular 1004, U.S. Geological Survey, 1988.

Agricultural Water Use in the United States

Water use in agriculture includes the water applied in the irrigation of crops and water used in beef, dairy, poultry, and other livestock production. Agriculture accounted for about two-fifths (42 percent) of all freshwater withdrawals in the United States in 1985. Figure 1 provides an overview of the sources, use, and disposition of freshwater withdrawals for agricultural use in the United States in 1985.

Freshwater withdrawals for agriculture are used mainly for crop production, with 98.4 percent of surface water

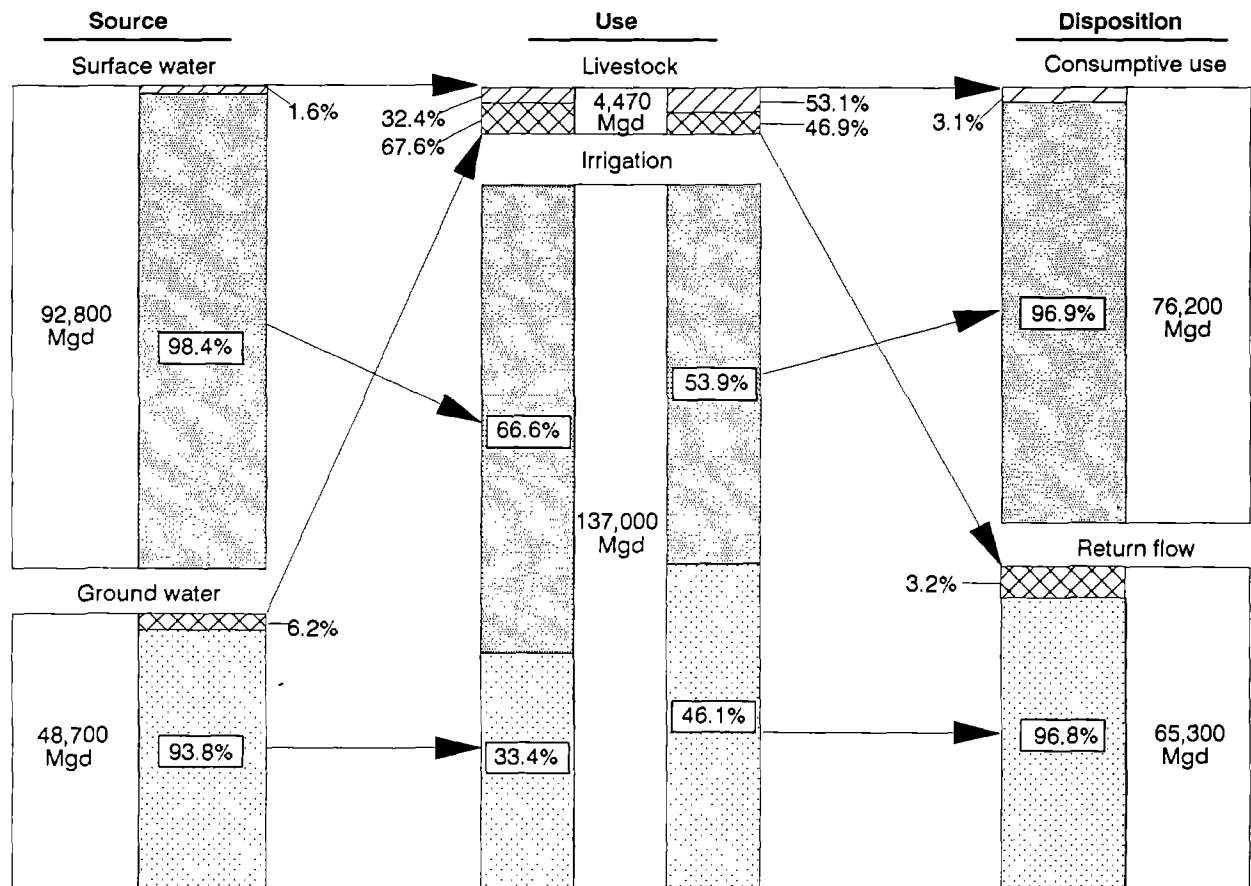
and 93.8 percent of ground water used in irrigating cropland. Agricultural uses are highly consumptive, with 53.9 percent of the water used in agriculture consumed through evaporation, transpiration, or incorporation in crops and other agricultural products.

Figure 2 highlights trends in irrigation water use. Total water use in irrigated agriculture increased during the period 1950-80, but declined by 7 percent in 1985. While surface water use increased slightly in 1985, declines in ground water use were more than offsetting.

Figure 1

Source, use, and disposition of livestock and irrigation freshwater withdrawals in the United States, 1985

Explanation: Surface sources provided 92,800 Mgd of water for agriculture, while ground water sources contributed 48,700 Mgd of water used in agriculture. Of the surface water, 98.4 percent went to irrigation and the remaining 1.6 percent was used by livestock. Total irrigation water use amounted to 137,000 Mgd, of which over one-half (53.9 percent) was consumptive use and the remaining 46.1 percent was return flow to ground water, streams, lakes, and oceans.



Source: U.S. Geological Survey, *National Water Summary, 1987: Hydrologic Events and Water Supply and Use*, Water Supply Paper 2350, 1990.

Figure 3 spotlights the high percentage of irrigation water coming from surface sources and the high consumption of water used for irrigation. Conveyance losses are also high because of the long distances large amounts of irrigation water are moved.

Irrigation in the United States

Irrigation agriculture makes up 4.8 percent of the land in farms, includes 14.8 percent of the harvested cropland, and produces 37.8 percent of the value of crops (fig. 4). Higher yields for irrigated crops, irrigation of high valued and/or specialty crops, and improved product quality with irrigation explain much of the relatively large economic contribution of irrigated agriculture.

The line of 20 inches of average annual rainfall that runs from northwest Minnesota to southwest Texas divides the conterminous United States about equally between irrigated and rainfed agriculture (fig. 5). Much of irrigated agriculture is located west of the line of 20 inches of average annual rainfall (fig. 6). Major irrigated States in the rainfed areas include Arkansas, Florida, and Louisiana.

Irrigated harvested cropland makes up a large percentage of the total harvested cropland in most Western States, Arkansas, and Florida (fig. 7). However, in recent years irrigated acreage has been increasing at a higher rate in the rainfed area than in much of the irrigated region (fig. 8).

Most major crops are irrigated to some degree, but the number of acres and percentage of acres irrigated vary widely from crop to crop (fig. 9). A summary of freshwater use and total water use by State is displayed in fig. 10.

Figure 2
Trends in Irrigation water use, 1950-85, by source

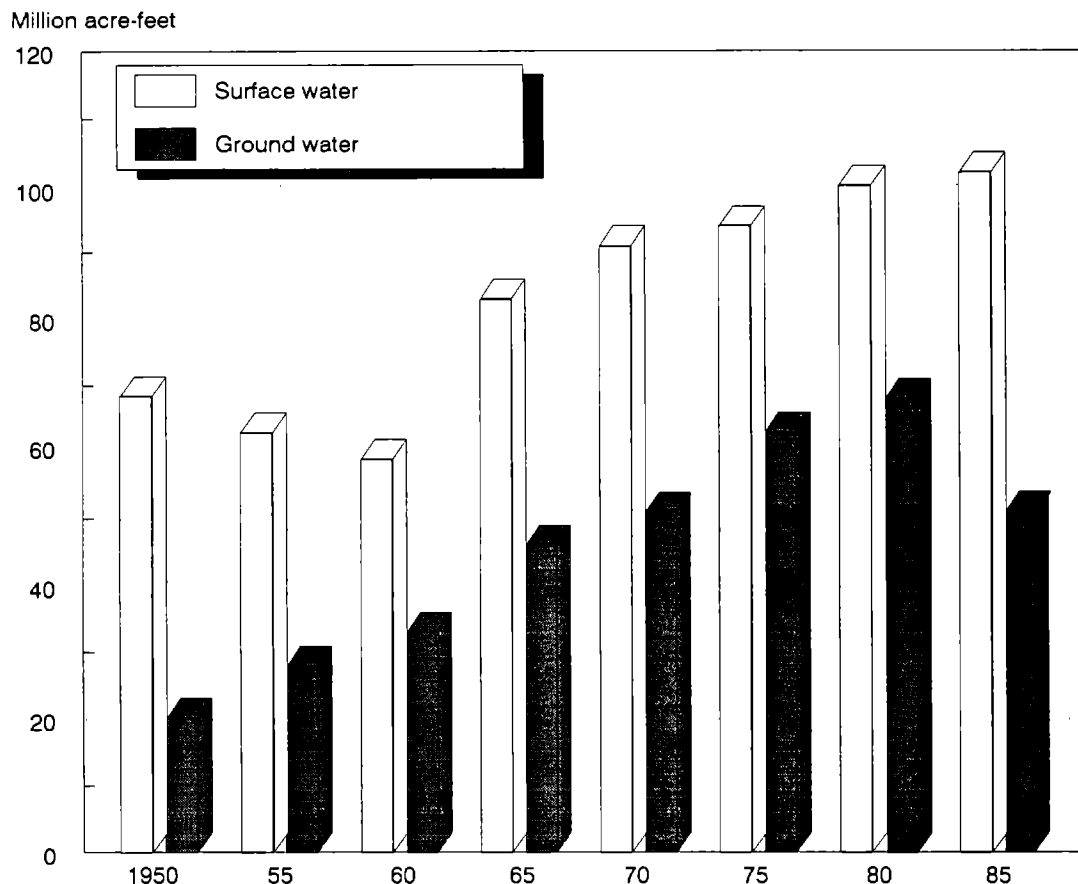
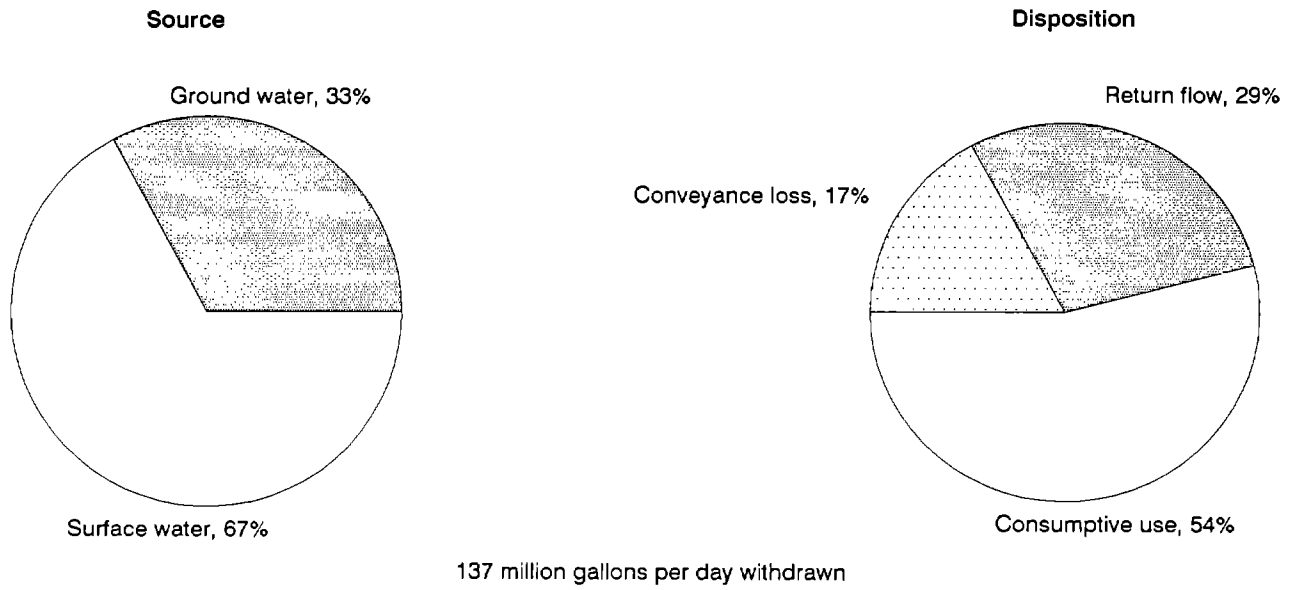


Figure 3

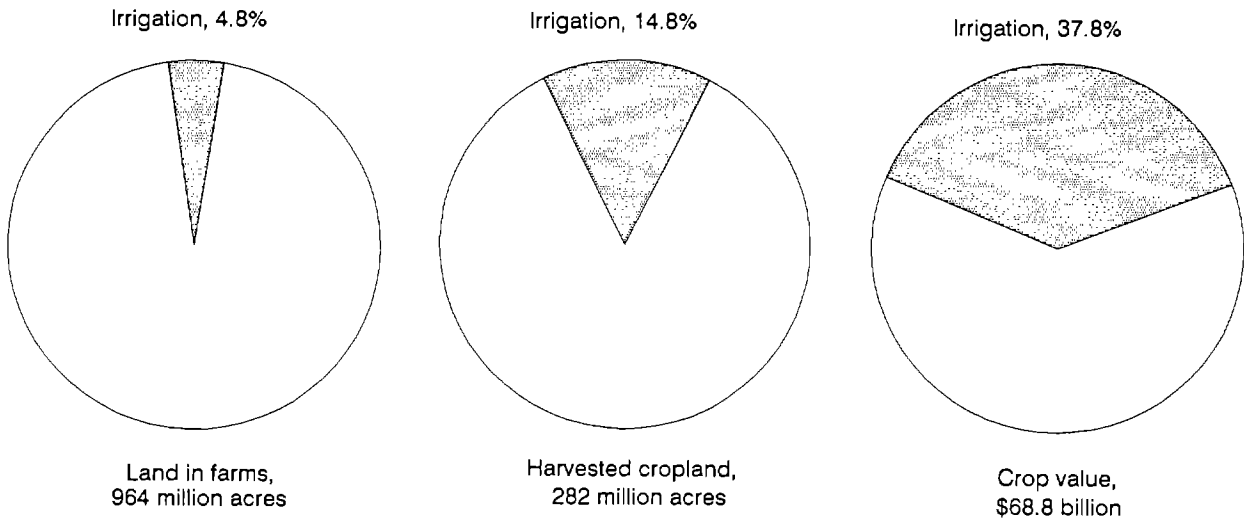
Irrigation water source and disposition, 1985



Source: Wayne B. Solley, Charles F. Merk, and Robert R. Pierce, *Estimated Use of Water in the United States in 1985*, Circular 1004, U.S. Geological Survey, 1988, p. 22.

Figure 4

Irrigation and farm production, 1987



Source: 1987 Census of Agriculture.

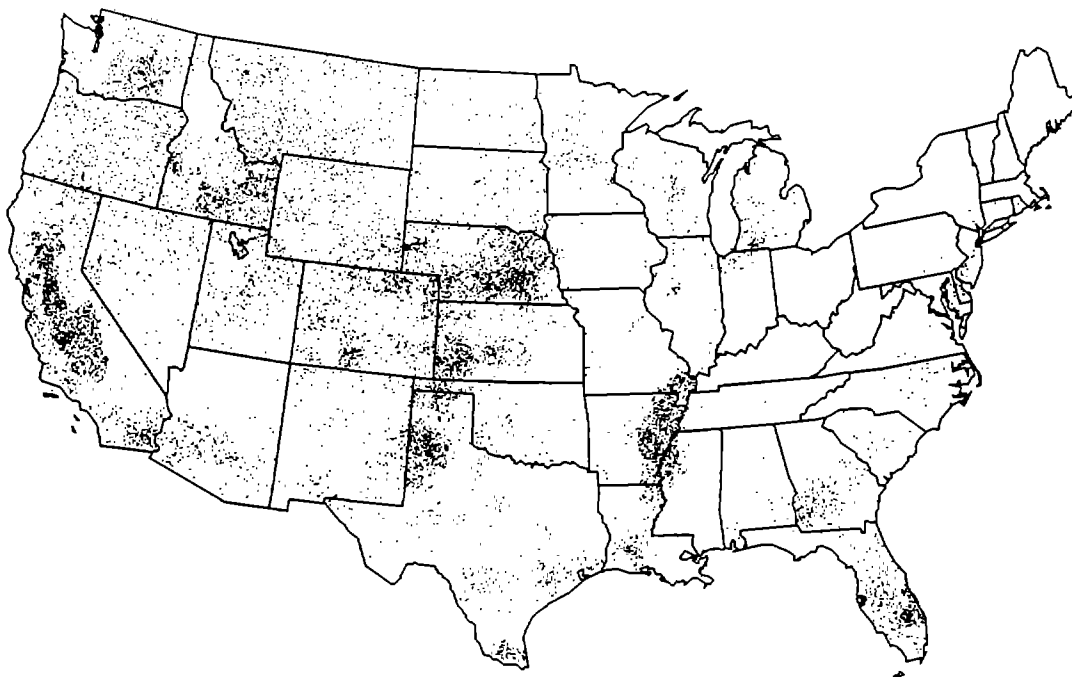
Figure 5
Humid and dry regions



-- 20'' -- = Line of equal average annual precipitation, in inches, 1951-80.
The line of 20 inches of average annual rainfall is the boundary between the humid region and the dry region.

Source: Wayne B. Solley, Charles F. Merk, and Robert R. Pierce, *Estimated Use of Water in the United States in 1985*, Circular 1004, U.S. Geological Survey, 1988.

Figure 6
Distribution of irrigated acreage in the conterminous United States, 1987

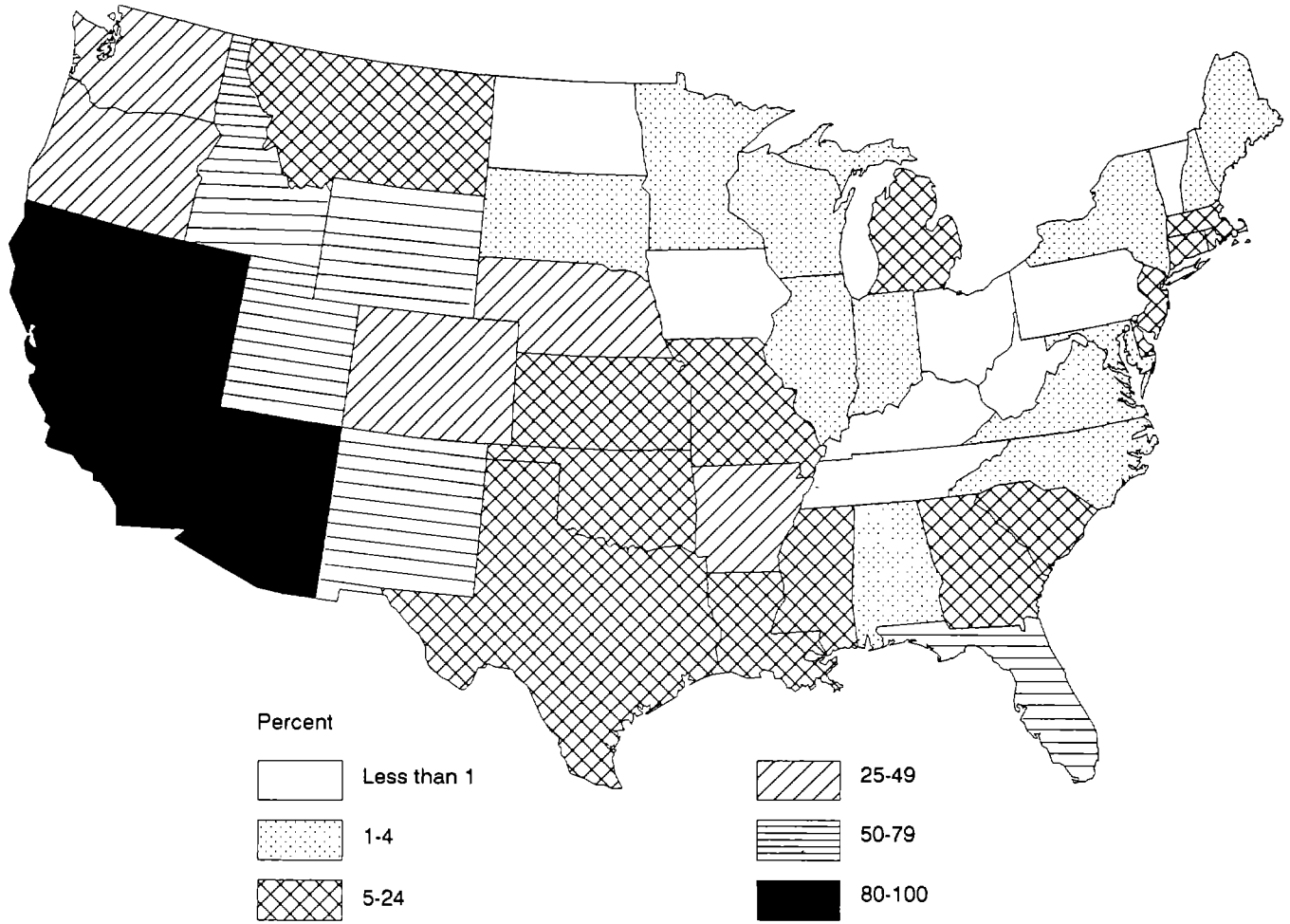


Each dot = 5,000 acres

Source: 1987 Census of Agriculture.

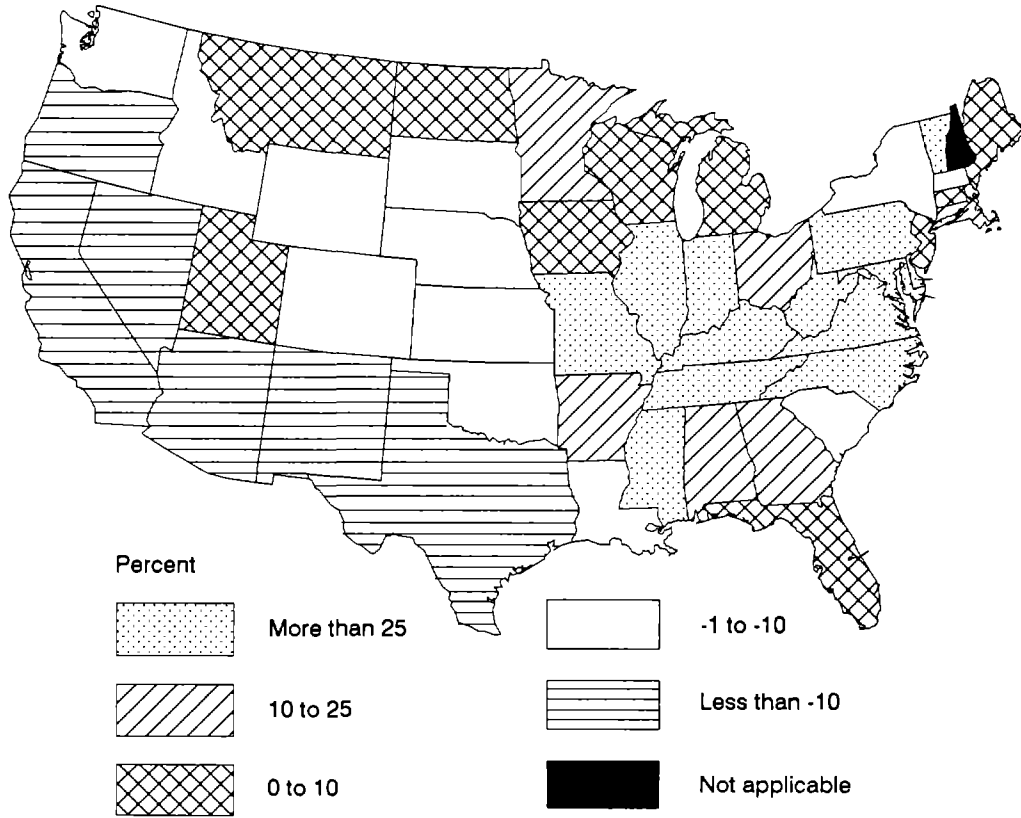
Figure 7

Percentage of Irrigated harvested cropland in the conterminous United States, 1987



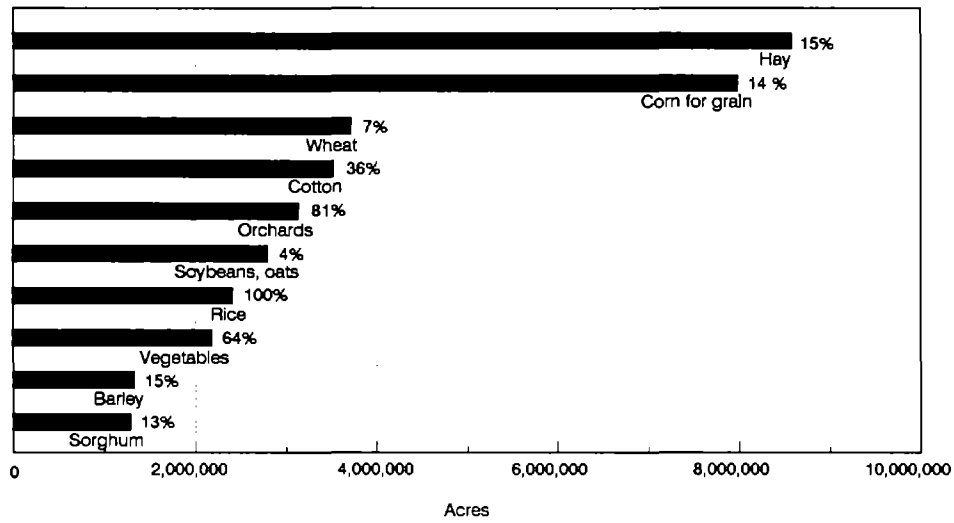
Source: Data from U.S. Bureau of the Census, 1987.

Figure 8
Change in Irrigated acreage, 1982-87



Source: Census of Agriculture, 1982-87.

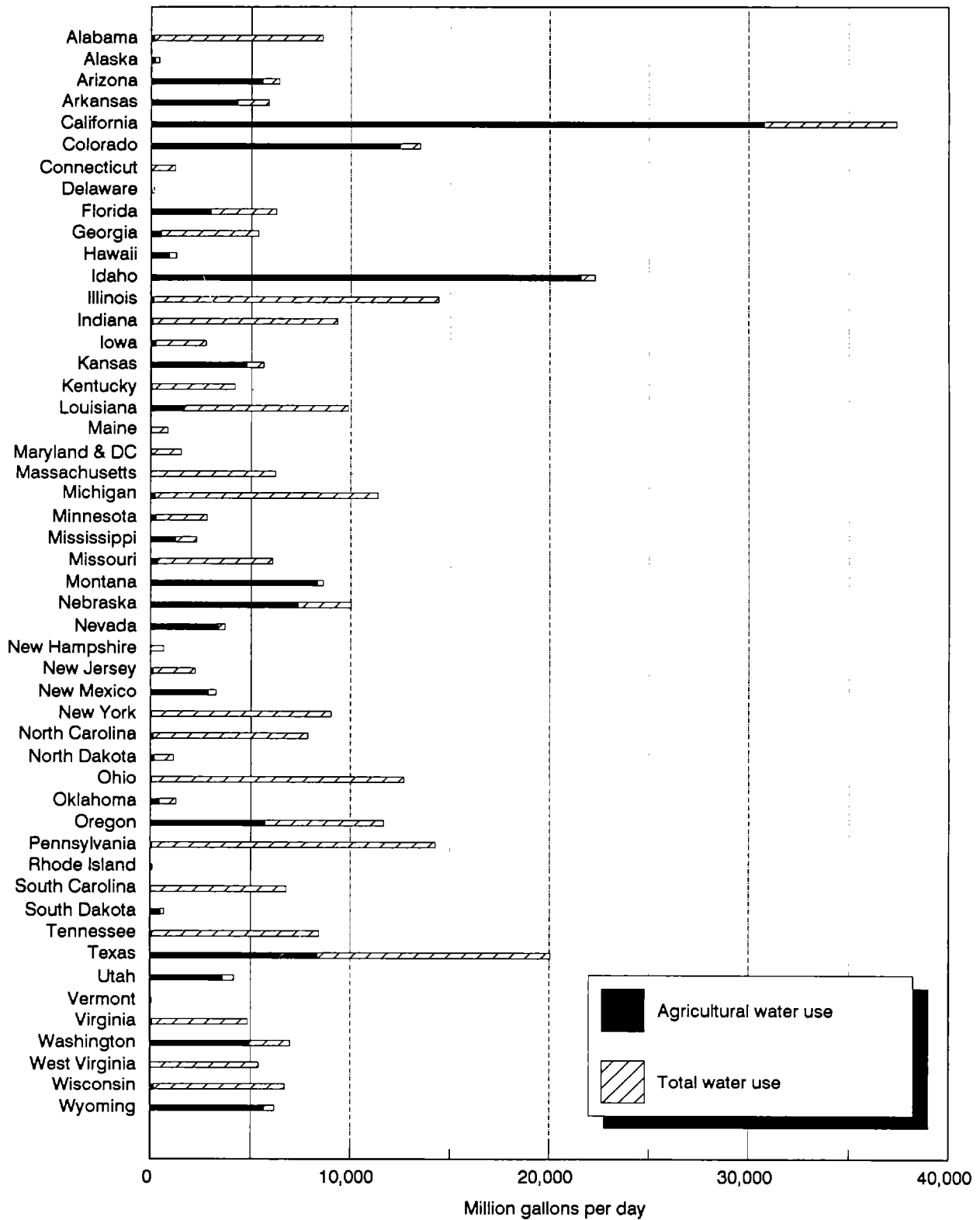
Figure 9
Acreage of principal irrigated crops and percentage irrigated, 1987



Source: 1987 Census of Agriculture.

Figure 10

State summaries of freshwater use, 1985

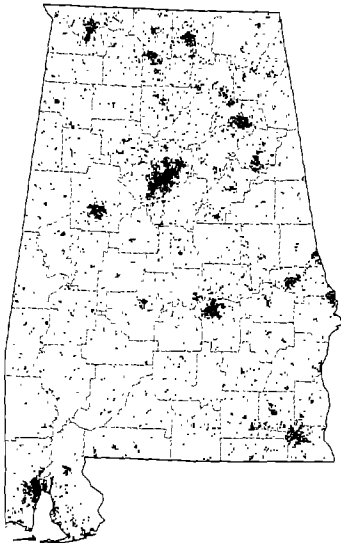


Source: U. S. Geological Survey, *National Water Summary, 1987: Hydrologic Events and Water Supply and Use*, Water Supply Paper 2350, 1990.

State Summaries

Alabama

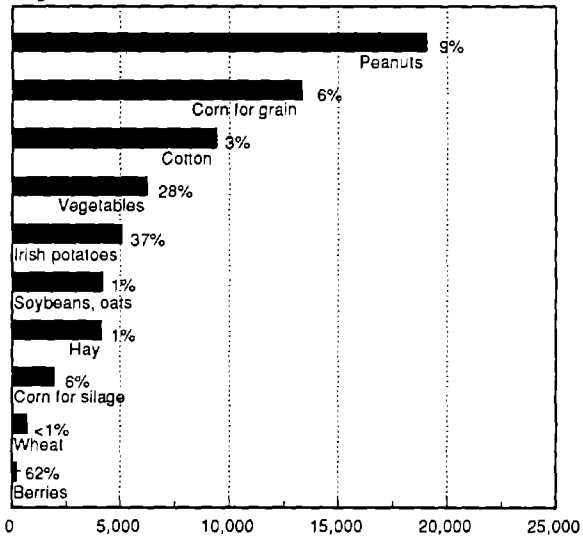
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
Sources:			
Surface	9.2	96	1
Ground	0.4	4	25
Total	9.6	100	2
Agriculture:			
Sources—			
Surface	89.6	49	NA
Ground	95.2	51	NA
Total	184.8	100	NA
Use—			
Irrigation	77.3	42	NA
Other farm uses	107.5	58	NA
Disposition—			
Consumptive use	122.5	66	NA
Return flow	62.3	34	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Alabama

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	37,148	41,975	45,443	51,252	66,580	83,918
Harvested cropland	do.	28,509	33,351	37,301	40,969	52,444	74,409
Irrigated land	do.	1,344	1,040	994	427	337	318
Harvested cropland	do.	1,255	1,004	916	NA	NA	NA
Total cropland	1,000 acres	4,497	5,106	5,449	5,296	5,789	5,119
Harvested cropland	do.	2,232	3,265	3,364	2,794	2,706	2,990
Irrigated land	No. of acres	84,054	66,020	58,581	13,909	11,058	11,768
Harvested cropland	do.	75,894	63,448	54,960	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Baldwin	Houston	Coffee	Geneva	Henry
Irrigated land	No. of farms	1,344	109	64	60	65	26
Irrigated land	No. of acres	84,057	13,596	7,276	4,701	4,114	4,082
Major irrigated crops:							
Peanuts	do.	19,060	NA	3,477	3,261	3,066	2,734
Corn	do.	13,351	1,510	2,391	1,309	627	919
Cotton	do.	9,427	NA	NA	NA	NA	301

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	168,161	171,210	414,658	409,869	161,005	165,487
Machinery and equipment	25,831	24,151	86,157	70,733	24,075	23,032
Farm products sold	44,053	35,175	165,506	134,812	40,169	32,989
Crops, nursery, and greenhouse	32,856	30,938	146,756	124,149	23,522	26,415
Livestock and poultry	41,755	30,161	88,321	52,638	40,897	29,834
Selected production expenses:						
Commercial fertilizers	3,187	3,641	11,036	10,835	2,860	3,402
Other agricultural chemicals	3,651	4,220	10,923	8,279	3,181	3,944
Energy and petroleum products	2,105	2,359	9,478	10,125	1,886	2,172
Hired labor	7,821	5,366	47,198	30,481	5,907	4,353
Contract labor	4,123	3,043	13,926	11,156	3,370	2,151

Irrigation methods, water sources, and pumping energy use: Water Resources Region 03, South Atlantic Gulf

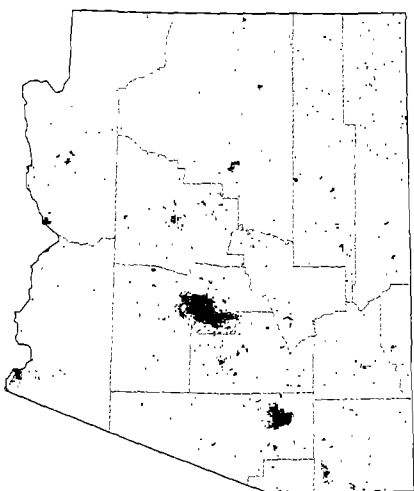
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	13,837	1,265,350	0.8	8,887	904,024	0.7
Center pivot	6,322	661,593	0.9	1,938	380,757	0.7
Mechanical move	2,432	296,183	0.5	2,723	241,098	0.5
Hand move	3,635	119,964	0.6	20,352	56,675	0.6
Solid set and permanent	2,583	187,610	1.5	2,788	225,495	1.4
All gravity systems	1,556	777,181	1.6	1,447	620,636	1.8
Gated pipe	211	21,326	0.9	137	25,028	1.3
Ditch with siphon tube	520	149,441	1.2	553	161,804	1.9
Flooding	836	606,414	1.7	789	433,804	1.9
Drip or trickle	2,751	327,958	1.6	1,989	243,723	1.3
Subirrigation	148	220,468	4.1	100	246,712	4.6
Sources:						
Wells	8,864	1,281,282	1.2	7,391	1,093,214	1.2
Onfarm surface sources	8,119	630,540	0.8	4,146	410,299	0.9
Off-farm water suppliers	1,247	556,348	3.1	290	478,335	3.5
<i>-----Number----- \$/acre -----Number----- \$/acre</i>						
Onfarm energy use for pumping						
Electricity	13,818	2,210,114	18	10,142	1,815,951	22
Natural gas	6,309	733,196	22	5,134	658,340	25
LP gas, propane, butane	4	287	56	64	7,335	47
Diesel fuel	1,628	91,982	24	607	51,882	32
Gasoline and gasohol	5,945	1,358,762	16	4,862	1,072,794	19
Off-farm water supply	1,850	25,887	35	907	25,600	18
Off-farm water supply	1,247	556,348	27	290	478,335	22

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	684	624	731	36	31	33
Irrigated cropland	765	599	1,239	77	40	45
Grazing land	461	430	491	16	12	14

Arizona

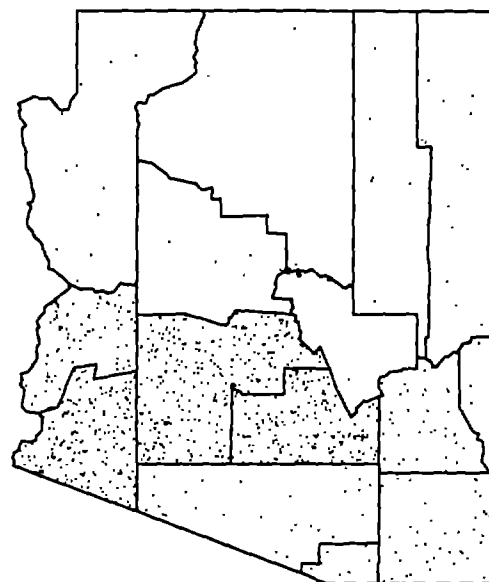
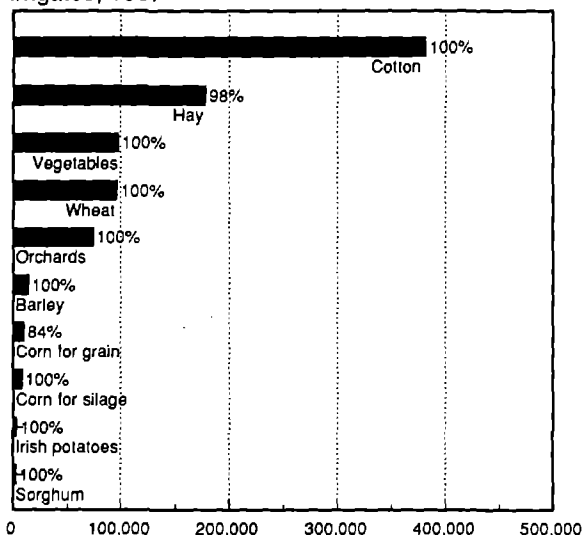
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	3.7	52	92
Ground	3.5	48	82
Total	7.2	100	87
Agriculture:			
Sources—			
Surface	3.4	55	NA
Ground	2.8	45	NA
Total	6.3	100	NA
Use—			
Irrigation	6.2	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	3.6	57	NA
Return flow	2.7	43	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Arizona

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	4,840	4,948	4,472	4,244	4,189	4,890
Harvested cropland	<i>do.</i>	3,646	3,838	3,579	3,533	3,354	4,191
Irrigated land	<i>do.</i>	4,241	4,437	4,185	3,828	3,709	4,697
Harvested cropland	<i>do.</i>	3,585	3,767	3,515	NA	NA	NA
Total cropland	<i>1,000 acres</i>	1,454	1,480	1,544	1,505	1,631	1,590
Harvested cropland	<i>do.</i>	866	1,047	1,107	1,097	1,079	1,025
Irrigated land	<i>No. of acres</i>	913,841	1,097,825	1,195,727	1,153,478	1,177,618	1,125,376
Harvested cropland	<i>do.</i>	859,654	1,042,527	1,102,502	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Maricopa	Yuma	Pinal	La Paz	Cochise
Irrigated land	<i>No. of farms</i>	4,241	1,442	548	562	92	357
Irrigated land	<i>No. of acres</i>	913,841	275,592	192,452	189,691	82,345	49,012
Major irrigated crops:							
Cotton	<i>do.</i>	381,733	144,219	34,849	127,639	16,361	17,206
Hay	<i>do.</i>	178,577	47,239	42,840	14,584	42,630	7,044
Vegetables	<i>do.</i>	98,138	22,683	49,796	5,613	12,401	2,690

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	1,317,765	1,496,334	1,509,676	1,697,688	1,077,848	1,191,333
Machinery and equipment	55,702	56,069	80,002	78,392	25,418	22,803
Farm products sold	212,354	208,197	293,370	240,336	112,125	158,926
Crops, nursery, and greenhouse	305,097	278,415	307,849	282,296	28,966	20,744
Livestock and poultry	162,853	160,371	216,226	131,525	133,029	183,147
Selected production expenses:						
Commercial fertilizers	16,804	20,103	17,339	20,522	1,359	210
Other agricultural chemicals	18,557	25,575	21,574	26,224	561	458
Energy and petroleum product	12,013	15,259	17,639	22,751	4,321	3,935
Hired labor	57,981	44,724	71,467	55,650	27,434	19,875
Contract labor	23,352	30,270	28,850	36,009	4,238	3,106

Irrigation methods, water sources, and pumping energy use

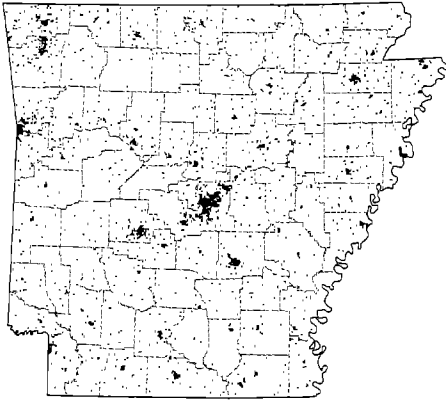
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	524	73,196	3.3	529	74,140	4.3
Center pivot	129	27,012	2.8	134	28,387	4.5
Mechanical move	34	18,232	NA	120	25,058	4.6
Hand move	367	22,066	3.0	236	14,970	2.4
Solid set and permanent	26	5,886	2.8	134	5,725	3.9
All gravity systems	3,050	762,687	4.5	2,937	776,363	4.5
Gated pipe	232	44,945	4.7	297	42,146	4.8
Ditch with siphon tube	1,766	603,783	4.6	1,896	611,993	4.6
Flooding	1,182	113,959	4.5	951	122,224	3.8
Drip or trickle	132	14,211	2.2	201	50,561	1.6
Subirrigation	7	1,816	3.3	NA	NA	NA
Sources:						
Wells	1,170	404,455	4.0	1,520	523,871	4.3
Onfarm surface sources	444	71,361	2.1	177	23,384	4.4
Off-farm water suppliers	2,364	472,238	4.6	1,994	374,556	4.6
	<i>Number</i>		<i>\$/acre</i>	<i>Number</i>		<i>\$/acre</i>
Onfarm energy use for pumping	1,328	465,613	105	1,611	578,302	107
Electricity	1,100	388,749	110	1,320	474,502	104
Natural gas	160	59,712	100	211	77,467	151
LP gas, propane, butane	24	2,720	21	73	7,026	31
Diesel fuel	109	12,316	23	187	18,475	39
Gasoline and gasohol	124	2,116	13	30	832	26
Off-farm water supply	2,364	472,238	89	1,994	374,556	47

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	1,586	1,494	1,726	49	NA	NA
Irrigated cropland	3,256	2,881	2,884	113	126	92
Grazing land	287	321	182	4	4	1

Arkansas

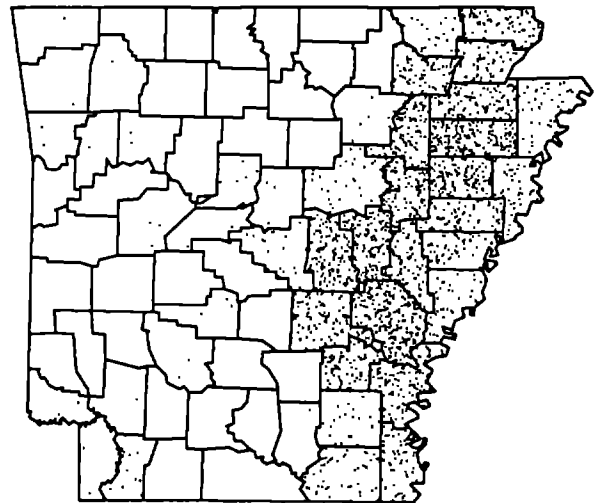
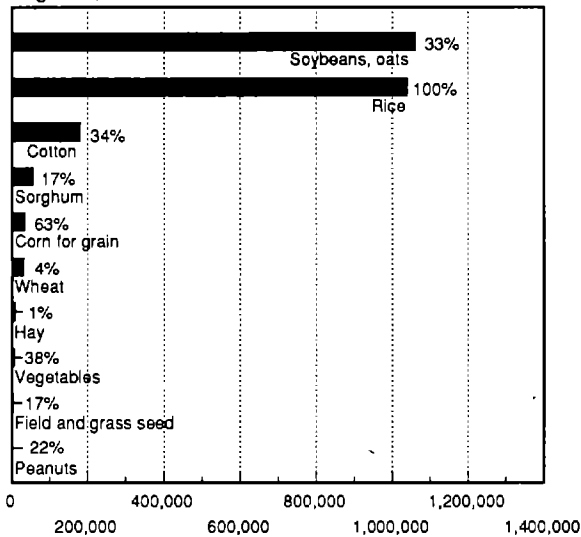
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	2.3	36	35
Ground	4.3	64	94
Total	6.6	100	73
Agriculture:			
Sources—			
Surface	0.8	17	NA
Ground	4.0	83	NA
Total	4.8	100	NA
Use—			
Irrigation	4.3	90	NA
Other farm uses	0.5	10	NA
Disposition—			
Consumptive use	3.5	72	NA
Return flow	1.3	28	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Arkansas

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	40,536	43,228	45,552	45,524	54,236	66,591
Harvested cropland	<i>do.</i>	32,248	34,725	37,245	35,362	40,952	55,518
Irrigated land	<i>do.</i>	7,269	6,678	6,302	4,673	5,728	6,220
Harvested cropland	<i>do.</i>	7,187	6,621	6,190	NA	NA	NA
Total cropland	<i>1,000 acres</i>	9,950	10,043	10,330	9,652	9,987	8,525
Harvested cropland	<i>do.</i>	6,477	7,484	7,572	6,639	6,805	6,088
Irrigated land	<i>No. of acres</i>	2,406,338	2,022,695	1,683,413	948,910	1,010,200	974,297
Harvested cropland	<i>do.</i>	2,396,987	2,019,406	1,673,595	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Arkansas	Poinsett	Lonoke	Prairie	Cross
Irrigated land	<i>No. of farms</i>	7,269	493	439	404	352	344
Irrigated land	<i>No. of acres</i>	2,406,338	245,006	190,500	166,708	143,336	136,927
Major irrigated crops:							
Rice	<i>do.</i>	1,041,433	88,193	90,102	60,118	51,356	64,080
Soybeans	<i>do.</i>	1,060,054	145,613	92,939	87,422	85,447	69,079
Cotton	<i>do.</i>	182,103	NA	3,256	15,518	849	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	225,604	286,402	637,770	937,554	155,672	187,797
Machinery and equipment	34,505	35,483	107,401	126,830	22,129	21,642
Farm products sold	68,825	55,943	150,920	160,145	54,261	40,072
Crops, nursery, and greenhouse	78,152	77,650	148,791	157,444	22,705	30,467
Livestock and poultry	58,695	39,733	45,649	36,489	59,141	39,851
Selected production expenses:						
Commercial fertilizers	4,877	5,372	13,113	13,932	1,870	2,326
Other agricultural chemicals	5,956	7,813	13,549	13,982	2,014	3,741
Energy and petroleum products	4,073	4,598	14,397	19,727	2,239	2,290
Hired labor	11,479	9,336	19,646	19,754	8,208	5,536
Contract labor	3,749	2,540	5,396	5,251	3,381	2,159

Irrigation methods, water sources, and pumping energy use

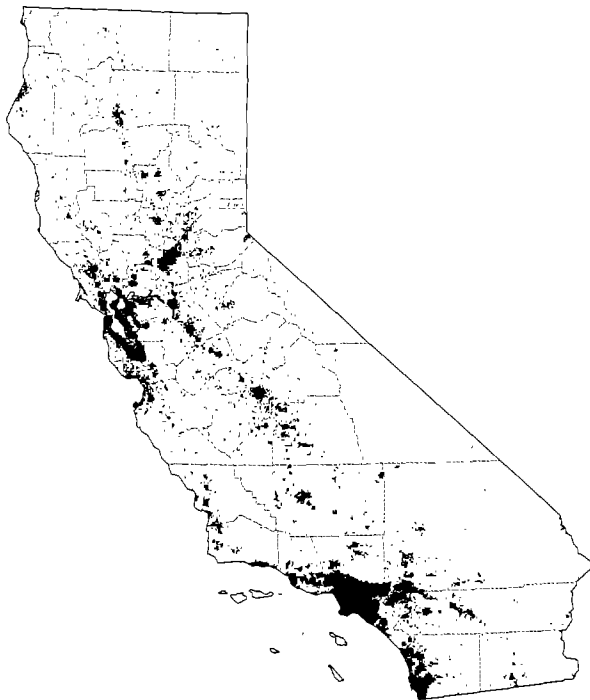
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	739	330,534	0.7	725	159,546	0.9
Center pivot	485	244,195	0.6	214	79,735	0.8
Mechanical move	65	18,985	NA	128	16,940	2.3
Hand move	64	12,570	NA	198	7,728	1.5
Solid set and permanent	173	54,784	0.7	214	55,143	0.7
All gravity systems	5,387	2,403,929	1.5	4,154	1,726,932	1.4
Gated pipe	1,525	512,665	1.8	828	228,301	0.6
Ditch with siphon tube	782	213,298	2.0	725	181,838	2.0
Flooding	4,598	1,677,966	1.4	3,458	1,316,793	1.5
Drip or trickle	33	2,805	NA	235	2,311	0.5
Subirrigation	79	41,402	0.7	66	10,300	2.2
Sources:						
Wells	4,747	2,401,084	1.3	4,231	1,666,365	1.4
Onfarm surface sources	1,281	354,529	2.3	967	215,311	1.6
Off-farm water suppliers	711	47,026	0.5	83	11,903	2.2
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	4,913	2,735,539	18	4,736	1,845,881	21
Electricity	3,696	1,170,583	24	3,360	951,228	23
Natural gas	468	113,914	18	397	94,833	18
LP gas, propane, butane	1,462	273,050	16	1,259	188,597	25
Diesel fuel	2,739	1,161,955	13	2,237	611,170	18
Gasoline and gasohol	83	16,037	7	53	53	35
Off-farm water supply	711	47,026	1	83	11,903	34

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	599	633	891	36	39	45
Irrigated cropland	802	870	1,233	67	64	70
Grazing land	436	438	529	15	13	13

California

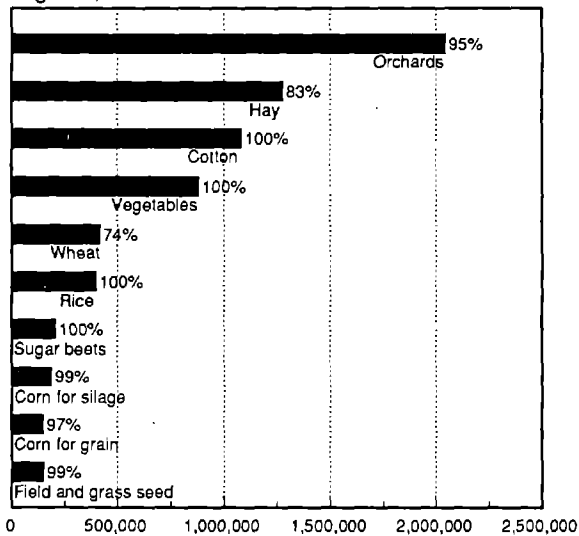
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	25.3	60	90
Ground	16.6	40	70
Total	41.9	100	82
Agriculture:			
Sources—			
Surface	22.8	66	NA
Ground	11.7	34	NA
Total	34.5	100	NA
Use—			
Irrigation	34.3	99	NA
Other farm uses	0.2	1	NA
Disposition—			
Consumptive use	21.8	63	NA
Return flow	12.7	37	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 2,000 acres

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	68,266	67,916	63,663	59,192	66,016	69,386
Harvested cropland	<i>do.</i>	59,259	59,048	56,253	52,754	56,677	62,078
Irrigated land	<i>do.</i>	58,868	58,389	55,627	47,160	51,050	59,429
Harvested cropland	<i>do.</i>	52,780	51,431	49,181	NA	NA	NA
Total cropland	<i>1,000 acres</i>	10,895	11,257	11,455	10,630	11,245	11,815
Harvested cropland	<i>do.</i>	7,676	8,765	8,804	8,307	7,649	7,846
Irrigated land	<i>No. of acres</i>	7,596,091	8,460,508	8,505,824	7,748,709	7,240,131	7,598,698
Harvested cropland	<i>do.</i>	6,964,100	7,787,078	7,637,056	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	Slate	Fresno	Kern	Tulare	Kings	San Joaquin
Irrigated land	<i>No. of farms</i>	58,868	6,597	1,581	5,196	997	3,697
Irrigated land	<i>No. of acres</i>	7,596,091	1,011,320	747,022	596,761	476,037	448,511
Major irrigated crops:							
Orchards	<i>do.</i>	2,045,346	343,939	218,478	262,681	24,617	141,855
Hay	<i>do.</i>	1,279,364	91,526	95,095	92,683	38,474	70,680
Cotton	<i>do.</i>	1,083,811	306,603	275,404	131,758	234,104	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	583,668	746,577	640,476	846,339	442,462	506,603
Machinery and equipment	49,223	47,361	59,158	58,403	24,509	20,966
Farm products sold	167,300	151,479	196,379	175,909	96,998	92,227
Crops, nursery, and greenhouse	181,344	168,665	195,424	184,445	25,486	23,242
Livestock and poultry	151,860	129,504	179,161	139,076	130,667	120,750
Selected production expenses:						
Commercial fertilizers	9,577	10,208	10,094	10,781	2,295	2,181
Other agricultural chemicals	10,354	10,862	11,603	11,616	1,550	1,510
Energy and petroleum products	9,179	9,091	11,233	11,621	3,681	2,999
Hired labor	60,173	45,418	67,433	52,297	25,979	16,419
Contract labor	21,921	22,798	24,171	25,376	5,862	3,932

Irrigation methods, water sources, and pumping energy use

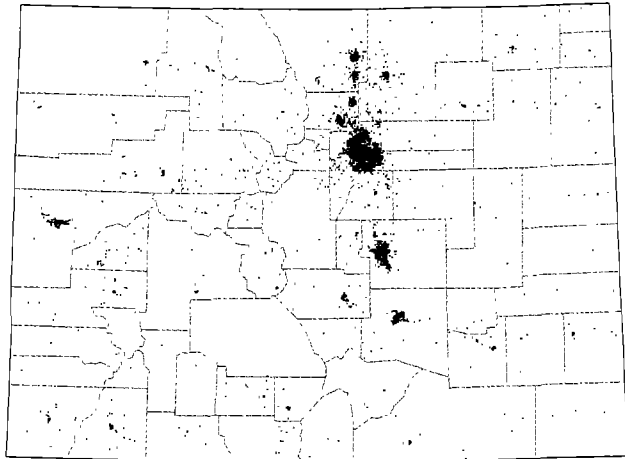
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	16,698	1,747,231	2.5	19,858	1,901,576	2.5
Center pivot	6,509	336,176	2.4	1,982	81,764	2.2
Mechanical move	1,550	229,332	3.1	1,594	256,359	2.8
Hand move	5,253	711,368	2.4	9,961	953,678	2.7
Solid set and permanent	5,458	470,355	2.4	8,935	609,755	2.7
All gravity systems	27,306	5,594,321	3.3	27,759	5,773,788	3.3
Gated pipe	4,251	812,467	3.6	5,492	902,710	3.6
Ditch with siphon tube	8,694	2,070,118	3.2	8,080	2,180,165	3.2
Flooding	17,311	2,711,736	3.2	17,244	2,690,913	3.2
Drip or trickle	8,759	359,843	2.2	6,812	449,604	2.3
Subirrigation	616	75,515	3.0	134	13,645	3.3
Sources:						
Wells	28,092	3,798,095	2.8	25,120	3,113,085	2.8
Onfarm surface sources	2,819	678,595	2.2	3,448	684,855	2.4
Off-farm water suppliers	23,487	3,879,664	3.5	27,931	4,620,677	3.2
	<i>Number</i>			<i>Number</i>		
	<i>\$/acre</i>			<i>\$/acre</i>		
Onfarm energy use for pumping	32,170	5,149,173	55	29,966	4,751,117	48
Electricity	31,425	4,568,367	58	28,180	4,245,221	50
Natural gas	126	33,251	53	185	76,007	75
LP gas, propane, butane	136	53,648	22	239	54,434	22
Diesel fuel	1,385	479,733	27	1,958	364,078	27
Gasoline and gasohol	106	14,174	33	616	11,337	43
Off-farm water supply	23,487	3,879,664	72	27,931	4,620,677	50

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	2,000	1,541	2,648	30	29	40
Irrigated cropland	2,643	2,944	4,093	130	123	154
Grazing land	1,005	1,097	1,352	12	11	14

Colorado

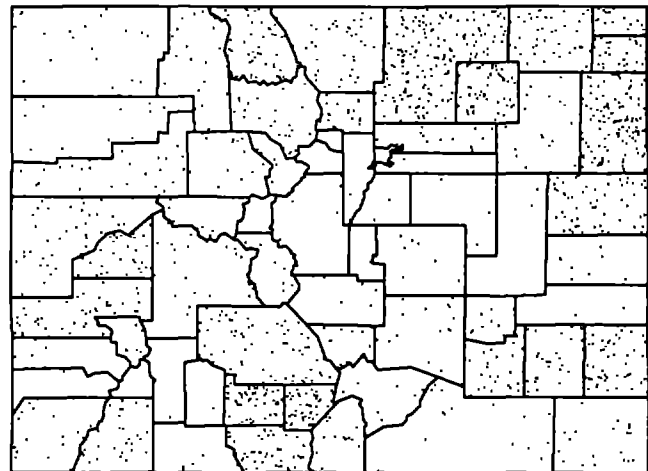
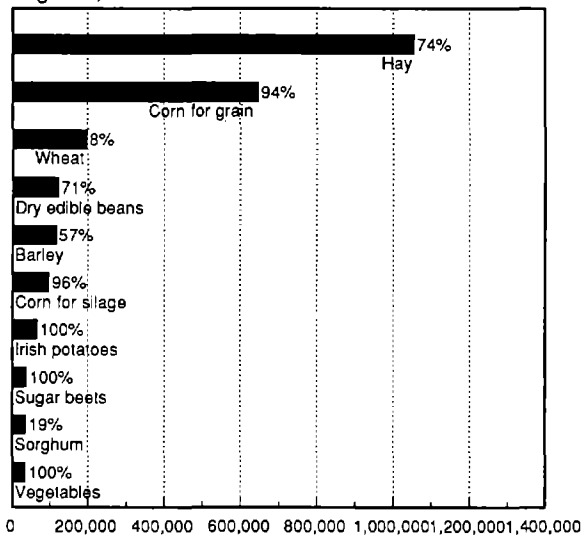
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water <i>M.a.f.</i>	Share of total <i>Percent</i>	Agriculture's share
Sources:			
Surface	12.5	83	92
Ground	2.6	17	93
Total	15.1	100	92
Agriculture:			
Sources—			
Surface	11.6	83	NA
Ground	2.4	17	NA
Total	14.0	100	NA
Use—			
Irrigation	13.9	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	5.2	37	NA
Return flow	8.8	63	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 2,000 acres

Selected Characteristics of Irrigated Farms

Colorado

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	22,334	22,421	23,341	22,792	24,754	27,103
Harvested cropland	<i>do.</i>	19,446	20,061	21,217	21,049	22,476	24,938
Irrigated land	<i>do.</i>	14,913	15,232	16,016	14,687	15,567	18,317
Harvested cropland	<i>do.</i>	13,557	14,080	14,941	NA	NA	NA
Total cropland	<i>1,000 acres</i>	10,989	10,552	10,607	10,513	10,773	10,740
Harvested cropland	<i>do.</i>	5,522	6,037	5,845	5,957	5,266	4,726
Irrigated land	<i>No. of acres</i>	3,013,773	3,200,942	3,430,860	2,873,692	2,894,984	2,690,018
Harvested cropland	<i>do.</i>	2,442,358	2,656,328	2,726,221	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Weld	Yuma	Saguache	Kil Carson	Morgan
Irrigated land	<i>No. of farms</i>	14,913	1,860	494	209	320	500
Irrigated land	<i>No. of acres</i>	3,013,773	358,565	246,116	136,553	124,475	119,494
Major irrigated crops:							
Hay	<i>do.</i>	1,055,673	84,038	10,061	51,915	7,906	19,164
Corn	<i>do.</i>	647,205	117,941	167,668	NA	56,775	60,155
Wheat for grain	<i>do.</i>	195,472	11,531	16,856	12,382	35,483	6,578

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	458,906	562,479	525,320	672,542	375,965	425,751
Machinery and equipment	49,534	51,457	56,208	60,883	41,209	39,788
Farm products sold	115,201	108,476	98,868	112,775	134,889	102,964
Crops, nursery, and greenhouse	52,734	56,791	62,470	66,414	33,006	37,683
Livestock and poultry	132,920	112,612	90,931	104,107	180,046	122,884
Selected production expenses:						
Commercial fertilizers	6,051	6,672	6,473	7,332	4,767	4,106
Other agricultural chemicals	3,559	3,426	3,649	3,728	3,365	2,394
Energy and petroleum products	5,903	6,792	7,190	8,849	4,215	4,253
Hired labor	17,321	12,577	16,642	13,874	18,724	9,831
Contract labor	5,068	4,413	5,361	4,858	4,426	3,162

Irrigation methods, water sources, and pumping energy use

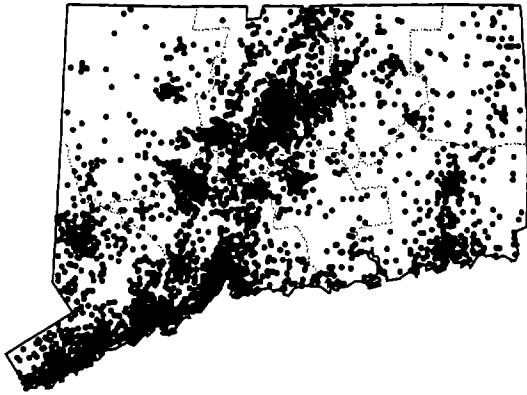
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	3,057	921,385	1.5	3,584	1,110,300	1.5
Center pivot	2,110	813,762	1.5	1,979	925,950	1.5
Mechanical move	324	22,326	1.5	831	115,895	0.8
Hand move	893	82,333	1.1	895	47,840	1.6
Solid set and permanent	232	2,964	NA	221	20,615	1.4
All gravity systems	10,739	2,316,841	1.9	11,740	2,082,242	1.7
Gated pipe	2,441	295,056	1.5	3,349	417,063	1.5
Ditch with siphon tube	7,382	1,228,504	1.8	8,730	1,245,417	1.6
Flooding	2,884	793,281	2.0	2,225	419,762	1.9
Drip or trickle	44	264	NA	96	3,567	NA
Subirrigation	276	33,378	1.0	134	13,645	3.3
Sources:						
Wells	3,835	1,214,415	1.6	4,338	1,397,906	1.4
Onfarm surface sources	1,903	396,636	1.5	1,337	427,493	1.7
Off-farm water suppliers	8,654	1,761,971	1.9	9,629	1,435,616	1.8
	<i>-----Number-----</i>		<i>\$/acre</i>	<i>-----Number-----</i>		<i>\$/acre</i>
Onfarm energy use for pumping	4,723	1,445,164	34	5,631	1,572,532	36
Electricity	4,157	1,239,603	34	4,371	1,279,053	36
Natural gas	385	124,231	38	405	193,755	39
LP gas, propane, butane	371	37,054	52	263	37,026	22
Diesel fuel	354	34,741	30	868	58,581	27
Gasoline and gasohol	149	9,535	12	230	4,117	15
Off-farm water supply	8,654	1,761,971	10	9,629	1,435,616	9

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	298	319	407	15	13	12
Irrigated cropland	1,136	1,340	1,578	62	63	85
Grazing land	183	228	252	5	4	4

Connecticut

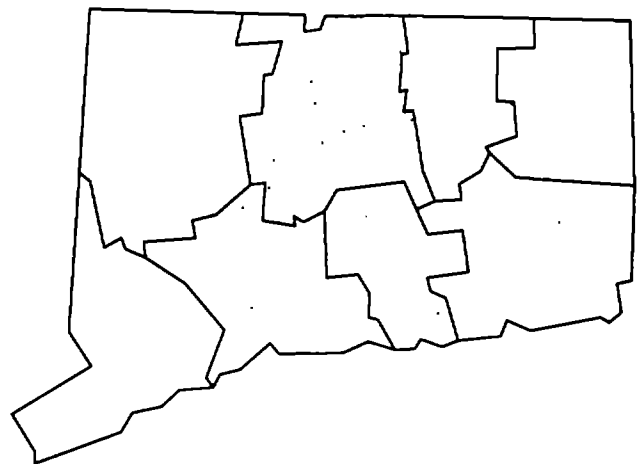
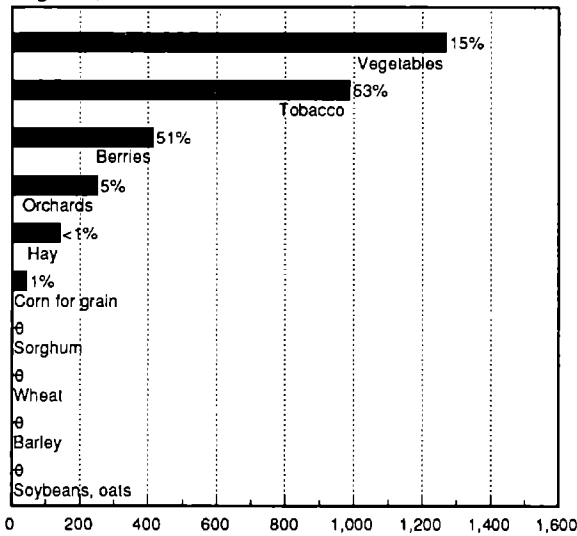
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		<i>M.a.f.</i>	—-Percent—-
Sources:			
Surface	1.2	88	0
Ground	0.1	12	5
Total	1.3	100	1
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	5.1	41	NA
Ground	7.2	59	NA
Total	12.3	100	NA
Use—			
Irrigation	3.0	25	NA
Other farm uses	9.3	75	NA
Disposition—			
Consumptive use	5.0	41	NA
Return flow	7.3	59	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Connecticut

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	3,163	3,326	3,226	3,139	3,907	5,263
Harvested cropland	<i>do.</i>	2,876	3,062	3,009	2,959	3,444	4,833
Irrigated land	<i>do.</i>	430	367	298	319	243	381
Harvested cropland	<i>do.</i>	423	359	295	NA	NA	NA
Total cropland	<i>1,000 acres</i>	210	225	232	227	252	288
Harvested cropland	<i>do.</i>	154	171	170	159	162	206
Irrigated land	<i>No. of acres</i>	7,245	6,695	6,927	7,474	8,937	14,452
Harvested cropland	<i>do.</i>	6,840	6,650	6,854	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Hartford	New Haven	Middlesex	New London	Tolland
Irrigated land	<i>No. of farms</i>	430	139	82	22	41	41
Irrigated land	<i>No. of acres</i>	7,245	4,656	777	619	443	294
Major irrigated crops:							
Vegetables	<i>do.</i>	1,270	423	586	NA	104	77
Tobacco	<i>do.</i>	989	D	NA	NA	NA	NA
Berries	<i>do.</i>	415	178	92	D	24	53

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	467,677	316,317	757,936	449,350	428,994	302,345
Machinery and equipment	36,996	33,925	64,287	73,594	33,359	29,759
Farm products sold	99,917	76,005	319,099	217,217	69,997	60,704
Crops, nursery, and greenhouse	85,451	53,828	320,495	222,028	20,342	15,482
Livestock and poultry	94,766	79,062	46,357	30,686	96,489	80,151
Selected production expenses:						
Commercial fertilizers	3,430	3,345	7,621	6,695	2,630	2,809
Other agricultural chemicals	2,717	2,028	7,282	4,617	1,618	1,429
Energy and petroleum products	4,825	5,521	14,299	22,563	3,440	3,721
Hired labor	47,890	26,949	165,036	108,504	22,147	12,999
Contract labor	14,565	8,077	37,643	13,417	8,581	6,150

Irrigation methods, water sources, and pumping energy use: Water Resources Region 01, New England

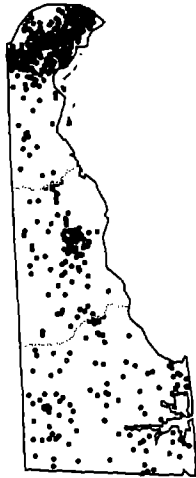
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	967	24,233	0.8	886	24,127	1.1
Center pivot	611	11,411	1.3	196	5,039	1.1
Mechanical move	13	1,046	0.3	36	2,548	0.4
Hand move	95	2,325	0.3	373	6,670	0.5
Solid set and permanent	258	9,421	0.5	335	9,870	1.7
All gravity systems	188	11,714	NA	87	2,683	1.5
Gated pipe	23	391	NA	6	174	0.0
Ditch with siphon tube	26	2,928	NA	41	1,455	1.5
Flooding	139	8,395	NA	44	1,054	1.2
Drip or trickle	0	0	0.0	75	679	0.6
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	324	3,698	0.5	178	2,966	0.9
Onfarm surface sources	844	21,566	3.9	731	21,261	1.0
Off-farm water suppliers	26	102	NA	76	869	0.5
	-----Number-----			-----Number-----		
			<i>\$/acre</i>			<i>\$/acre</i>
Onfarm energy use for pumping	942	24,312	48	789	22,988	54
Electricity	273	5,958	68	279	5,612	94
Natural gas	0	0	0	9	174	87
LP gas, propane, butane	310	7,418	53	147	6,203	51
Diesel fuel	130	6,599	35	190	6,392	29
Gasoline and gasohol	444	4,337	29	379	4,607	44
Off-farm water supply	26	102	84	76	869	36

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	7,585	4,402	4,474	46	56	40
Irrigated cropland	10,000	NR	NR	50	50	NR
Grazing land	5,141	1,928	1,746	21	18	16

Delaware

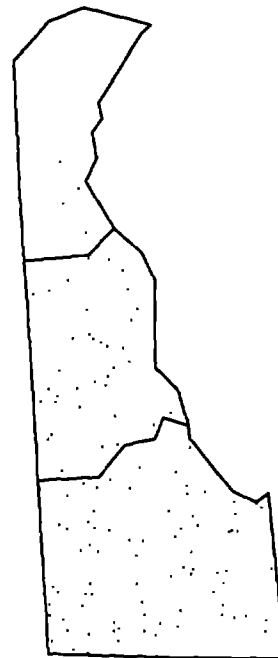
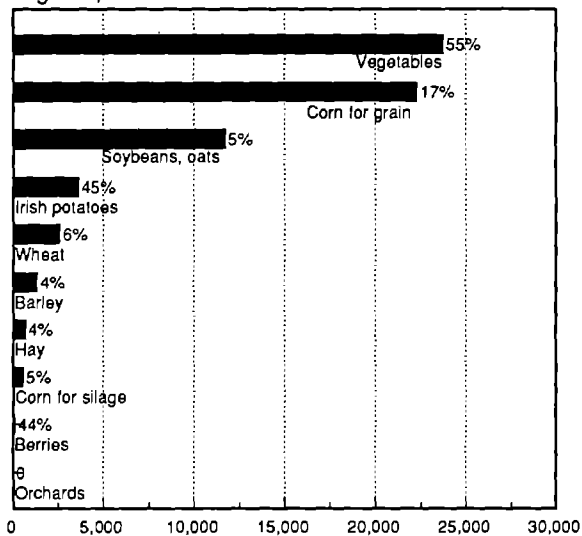
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	0.1	43	13
Ground	0.1	57	26
Total	0.2	100	21
Agriculture:			
<i>Sources—</i>			
Surface	8.8	28	NA
Ground	22.5	72	NA
Total	31.3	100	NA
<i>Use—</i>			
Irrigation	30.2	96	NA
Other farm uses	1.1	4	NA
<i>Disposition—</i>			
Consumptive use	31.3	100	NA
Return flow	0.0	0	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Delaware

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	2,397	2,843	2,929	2,912	3,249	3,845
Harvested cropland	<i>do.</i>	2,172	2,700	2,806	2,792	3,052	3,646
Irrigated land	<i>do.</i>	384	323	255	154	164	158
Harvested cropland	<i>do.</i>	375	318	252	NA	NA	NA
Total cropland	<i>1,000 acres</i>	501	521	530	486	505	500
Harvested cropland	<i>do.</i>	442	500	497	452	423	419
Irrigated land	<i>No. of acres</i>	60,812	44,168	33,725	19,879	20,421	17,542
Harvested cropland	<i>do.</i>	60,744	44,014	33,429	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Sussex	Kent	New Castle
Irrigated land	<i>No. of farms</i>	384	227	113	44
Irrigated land	<i>No. of acres</i>	60,812	40,228	18,521	2,063
Major irrigated crops:					
Vegetables	<i>do.</i>	23,775	11,162	11,796	817
Corn	<i>do.</i>	22,314	18,250	NA	NA
Soybeans	<i>do.</i>	11,763	9,603	1,860	300

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	369,751	364,843	803,602	944,350	295,759	312,402
Machinery and equipment	53,447	46,012	128,590	138,860	40,591	37,609
Farm products sold	149,553	111,013	355,023	295,552	118,995	91,243
Crops, nursery, and greenhouse	48,252	44,093	164,935	151,120	21,459	28,614
Livestock and poultry	209,563	150,194	438,439	338,362	183,243	133,528
Selected production expenses:						
Commercial fertilizers	8,745	9,125	18,565	25,473	5,953	7,142
Other agricultural chemicals	5,675	5,281	13,343	15,522	3,713	3,992
Energy and petroleum products	5,070	5,436	12,310	17,065	3,725	4,380
Hired labor	18,172	12,239	43,723	39,088	10,520	8,155
Contract labor	15,929	7,240	36,508	25,436	6,057	2,171

Irrigation methods, water sources, and pumping energy use: Water Resources Region 02, Mid-Atlantic

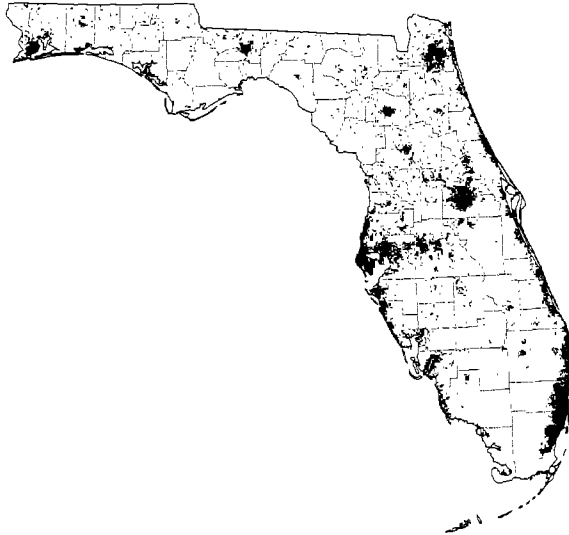
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	2,482	255,416	0.6	2,209	183,188	0.5
Center pivot	817	105,830	0.6	403	70,560	0.6
Mechanical move	672	94,424	0.4	525	56,114	0.3
Hand move	1,235	46,357	0.4	1,399	49,996	0.5
Solid set and permanent	86	8,805	0.8	179	6,428	1.4
All gravity systems	19	1,660	0.9	38	6,228	0.0
Gated pipe	0	0	0.0	29	3,510	0.0
Ditch with siphon tube	10	1,390	0.9	0	0	0.0
Flooding	9	270	NA	9	2,718	0.0
Drip or trickle	209	NA	1.1	156	2,646	0.5
Subirrigation	2	NA	NA	10	1,515	0.0
Sources:						
Wells	762	126,525	0.8	1,065	106,936	0.6
Onfarm surface sources	1,920	137,469	0.5	1,288	76,946	0.6
Off-farm water suppliers	67	4,076	0.3	149	2,075	0.6
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	2,440	246,466	19	2,097	175,259	20
Electricity	537	49,109	21	496	41,735	25
Natural gas	0	0	0	0	0	0
LP gas, propane, butane	51	6,729	13	103	11,538	19
Diesel fuel	1,460	167,116	18	831	90,185	16
Gasoline and gasohol	868	23,512	28	990	31,801	25
Off-farm water supply	67	4,076	21	149	2,075	56

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	1,152	1,029	1,430	44	67	NR
Irrigated cropland	2,500	NR	NR	95	110	NR
Grazing land	1,500	593	NR	45	35	NR

Florida

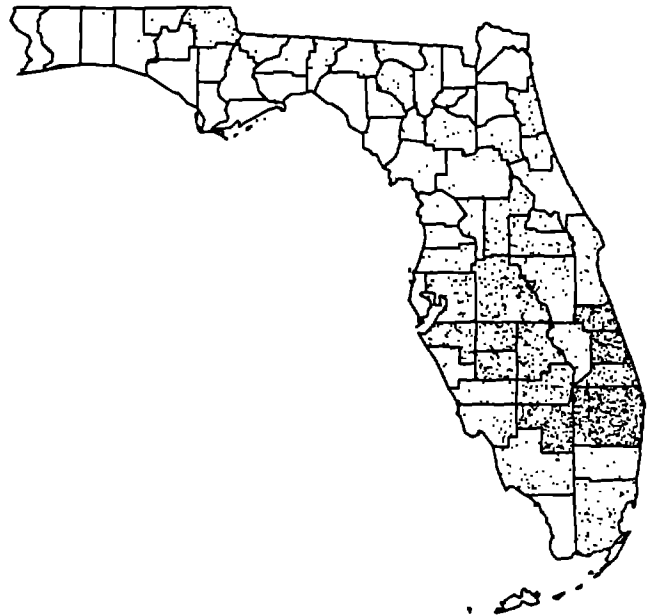
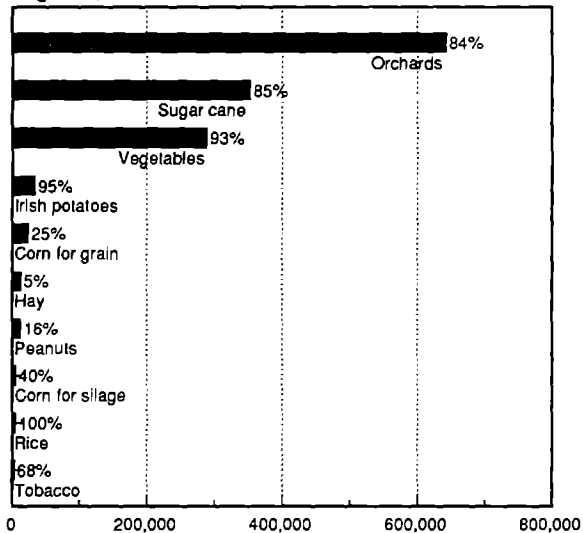
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	2.5	35	60
Ground	4.5	65	41
Total	7.0	100	48
Agriculture:			
Sources—			
Surface	1.5	45	NA
Ground	1.8	55	NA
Total	3.3	100	NA
Use—			
Irrigation	3.2	98	NA
Other farm uses	0.1	2	NA
Disposition—			
Consumptive use	2.3	70	NA
Return flow	1.0	30	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Florida

Land in farms

Item	Unit*	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	29,386	30,565	31,548	28,658	30,921	35,478
Harvested cropland	<i>do.</i>	22,677	24,396	26,212	23,620	25,139	32,425
Irrigated land	<i>do.</i>	11,981	10,550	10,358	7,749	7,373	8,129
Harvested cropland	<i>do.</i>	11,515	10,052	9,702	NA	NA	NA
Total cropland	<i>1,000 acres</i>	3,791	4,094	4,299	3,722	3,774	3,581
Harvested cropland	<i>do.</i>	2,241	2,643	2,706	2,304	2,234	2,204
Irrigated land	<i>No. of acres</i>	1,622,750	1,585,080	1,979,814	1,558,735	1,365,206	1,217,192
Harvested cropland	<i>do.</i>	1,395,612	1,303,315	1,336,725	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Palm Beach	Hendry	Polk	St. Lucie	Indian River
Irrigated land	<i>No. of farms</i>	11,981	567	189	1,369	355	405
Irrigated land	<i>No. of acres</i>	1,622,750	422,619	144,808	114,996	109,809	83,771
Major irrigated crops:							
Orchards	<i>do.</i>	642,496	12,814	57,271	103,966	84,732	65,948
Sugarcane	<i>do.</i>	343,167	303,800	23,825	NA	NA	NA
Vegetables	<i>do.</i>	288,498	84,996	8,175	885	359	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	543,830	552,586	920,409	1,056,665	353,455	346,188
Machinery and equipment	34,799	30,895	64,055	61,840	20,344	18,393
Farm products sold	119,033	96,889	277,388	235,851	41,831	40,070
Crops, nursery, and greenhouse	187,299	130,078	292,058	240,965	33,892	27,894
Livestock and poultry	51,880	50,452	100,882	94,447	44,945	43,684
Selected production expenses:						
Commercial fertilizers	8,451	8,478	14,917	16,281	2,948	3,736
Other agricultural chemicals	11,055	9,920	18,134	15,510	2,815	3,413
Energy and petroleum products	4,883	4,936	10,411	11,608	2,061	2,196
Hired labor	55,929	36,994	98,566	74,105	16,135	10,906
Contract labor	32,151	35,882	50,340	60,588	4,833	5,588

Irrigation methods, water sources, and pumping energy use

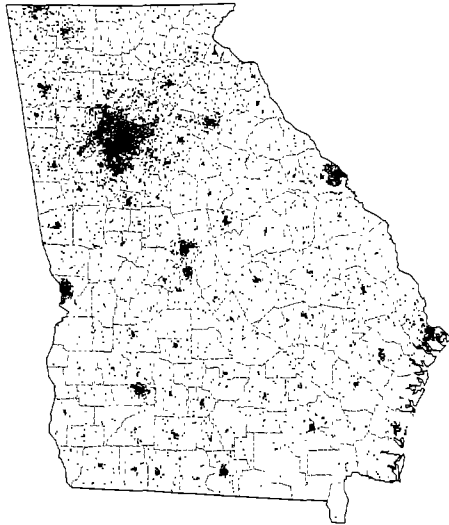
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	4,817	382,950	1.3	3,870	394,527	1.0
Center pivot	2,094	127,407	1.4	548	58,277	1.0
Mechanical move	610	81,222	0.8	702	103,450	0.6
Hand move	414	13,244	1.6	553	26,672	1.1
Solid set and permanent	1,982	161,077	1.4	2,365	206,128	1.4
All gravity systems	1,060	758,702	1.6	1,228	619,723	1.8
Gated pipe	77	12,016	1.2	137	25,028	1.3
Ditch with siphon tube	260	148,701	1.2	425	160,982	1.9
Flooding	734	597,985	1.7	698	433,713	1.9
Drip or trickle	1,956	272,212	1.7	1,670	220,304	1.0
Subirrigation	136	217,993	4.2	99	245,462	4.6
Sources:						
Wells	5,735	769,846	1.4	5,361	789,307	1.4
Onfarm surface sources	1,352	188,427	1.4	521	182,272	1.5
Off-farm water suppliers	457	543,257	3.1	289	477,185	3.5
	<i>Number</i>		<i>\$/acre</i>	<i>Number</i>		<i>\$/acre</i>
Onfarm energy use for pumping	6,308	1,349,225	18	5,641	1,333,188	22
Electricity	3,458	476,744	22	3,738	522,361	26
Natural gas	1	NA	NA	64	7,335	47
LP gas, propane, butane	477	24,540	30	407	35,717	29
Diesel fuel	2,408	839,543	15	2,046	754,297	19
Gasoline and gasohol	811	8,291	43	359	13,480	20
Off-farm water supply	457	543,257	28	289	477,185	22

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	2,299	2,197	2,400	45	35	39
Irrigated cropland	8,544	7,212	9,114	200	211	178
Grazing land	1,659	1,651	1,773	15	17	16

Georgia

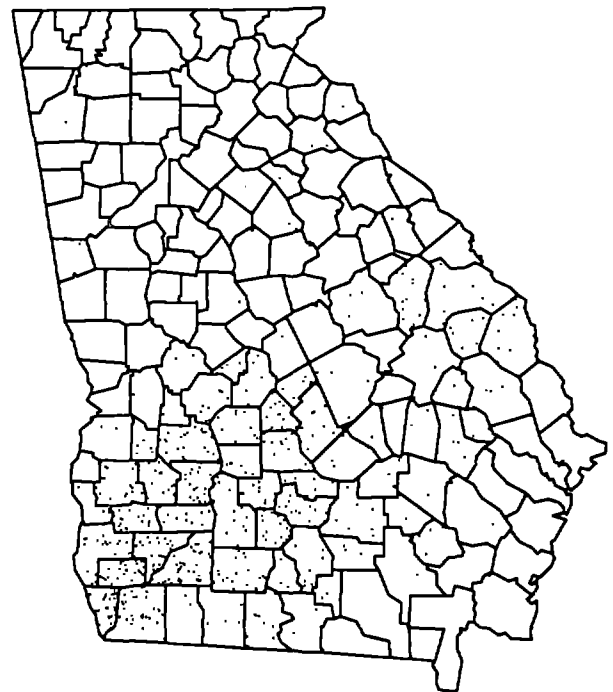
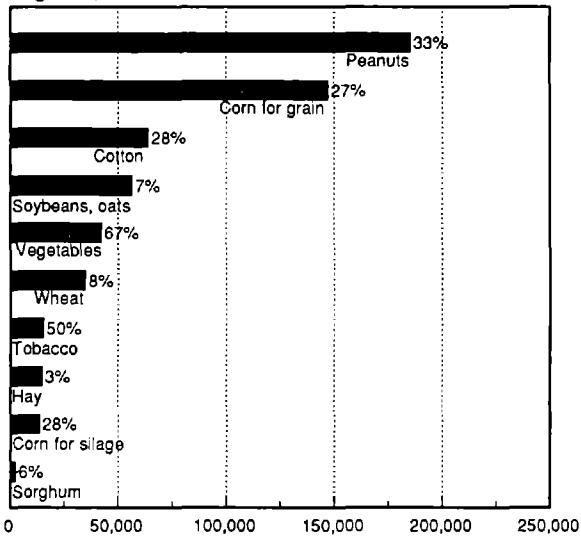
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	Percent	
Sources:			
Surface	4.9	81	4
Ground	1.1	19	33
Total	6.0	100	9
Agriculture:			
<i>Sources—</i>			
Surface	186.9	33	NA
Ground	374.3	67	NA
Total	561.2	100	NA
<i>Use—</i>			
Irrigation	507.4	90	NA
Other farm uses	53.8	10	NA
<i>Disposition—</i>			
Consumptive use	560.6	100	NA
Return flow	0.6	0	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Georgia

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	37,689	43,390	46,529	49,723	61,277	74,033
Harvested cropland	do.	30,301	35,650	39,312	40,732	47,340	65,059
Irrigated land	do.	4,985	4,443	4,568	2,138	3,510	6,907
Harvested cropland	do.	4,849	4,386	4,451	NA	NA	NA
Total cropland	1,000 acres	5,780	6,531	6,828	6,475	6,835	6,367
Harvested cropland	do.	3,298	4,761	4,688	4,161	3,651	3,951
Irrigated land	No. of acres	640,256	575,306	462,850	112,271	78,630	64,112
Harvested cropland	do.	627,311	567,378	452,431	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Mitchell	Decatur	Miller	Sumter	Seminole
Irrigated land	No. of farms	4,985	193	110	154	84	78
Irrigated land	No. of acres	640,256	45,621	33,454	29,684	27,033	26,962
Major irrigated crops:							
Peanuts	do.	185,593	12,086	10,630	13,464	5,910	10,436
Corn	do.	147,208	8,926	10,607	8,024	5,186	6,790
Cotton	do.	64,116	7,402	944	967	2,069	3,381

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	226,217	225,092	494,018	604,783	192,905	188,698
Machinery and equipment	32,477	31,013	88,674	92,563	25,466	25,104
Farm products sold	64,626	55,766	162,954	160,374	51,917	45,481
Crops, nursery, and greenhouse	51,493	47,902	135,995	130,455	25,399	30,907
Livestock and poultry	58,016	44,316	76,815	66,744	56,436	42,669
Selected production expenses:						
Commercial fertilizers	5,438	6,085	15,618	17,408	3,519	4,415
Other agricultural chemicals	5,016	5,619	13,657	12,411	2,743	3,948
Energy and petroleum products	3,410	3,823	11,069	13,972	2,411	2,847
Hired labor	12,325	8,117	30,130	19,083	8,193	5,990
Contract labor	5,846	4,837	12,303	12,527	4,141	3,237

Irrigation methods, water sources, and pumping energy use: Water Resources Region 03, South Atlantic Gulf

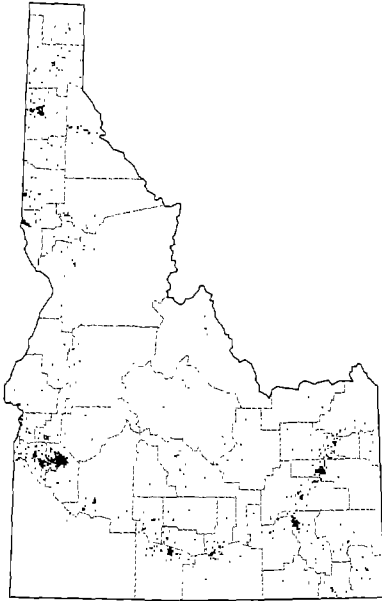
Item	1988			1984		
	Farms	Acres	AF/Acre	Farms	Acres	AF/Acre
<i>Number</i>						
Methods:						
All sprinkler systems	13,837	1,265,350	0.8	8,887	904,024	0.7
Center pivot	6,322	661,593	0.9	1,938	380,757	0.7
Mechanical move	2,432	296,183	0.5	2,723	241,098	0.5
Hand move	3,635	119,964	0.6	2,352	56,675	0.6
Solid set and permanent	2,583	187,610	1.5	2,788	225,494	1.4
All gravity systems	1,556	777,181	1.6	1,447	620,636	1.8
Gated pipe	211	21,326	0.9	137	25,028	1.3
Ditch with siphon tube	520	149,441	1.2	553	161,804	1.9
Flooding	836	606,414	1.7	789	433,804	1.9
Drip or trickle	2,751	327,958	1.6	1,989	243,723	1.3
Subirrigation	148	220,468	4.1	100	246,712	4.6
Sources:						
Wells	8,864	1,281,282	1.2	7,391	1,093,214	1.2
Onfarm surface sources	8,119	630,540	0.8	4,146	410,299	0.9
Off-farm water suppliers	1,247	556,348	3.1	290	478,335	3.5
<i>-----Number----- \$/acre -----Number----- \$/acre</i>						
Onfarm energy use for pumping	13,818	2,210,114	18	10,142	1,815,951	22
Electricity	6,309	733,196	22	5,134	658,340	25
Natural gas	4	287	56	64	7,335	47
LP gas, propane, butane	1,628	91,982	24	607	51,882	32
Diesel fuel	5,945	1,358,762	16	4,862	1,072,794	19
Gasoline and gasohol	1,850	25,887	35	907	25,600	18
Off-farm water supply	1,247	556,348	27	290	478,335	22

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	693	643	714	31	27	29
Irrigated cropland	815	831	1,064	75	59	68
Grazing land	767	676	633	21	18	18

Idaho

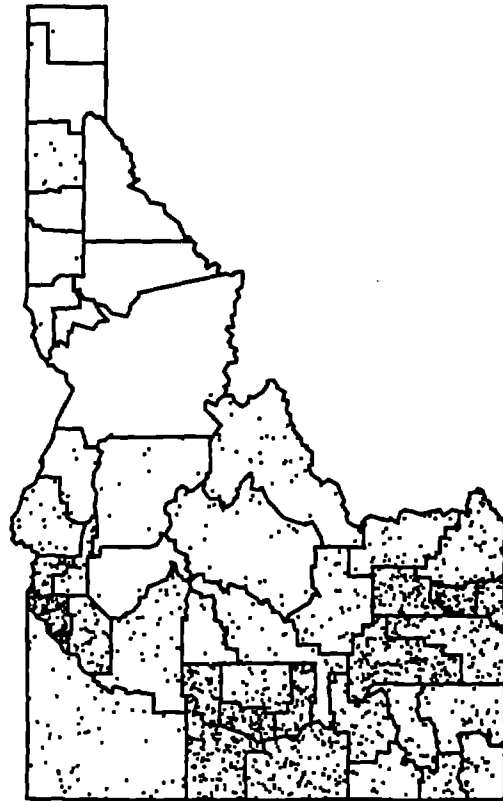
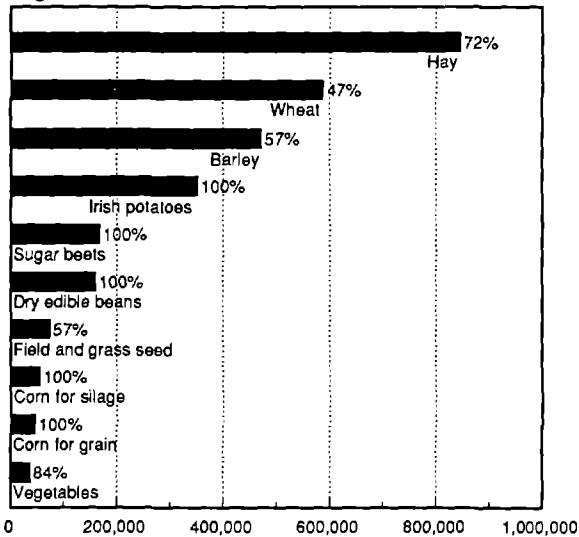
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
Sources:			
Surface	19.6	79	99
Ground	5.4	21	91
Total	25.0	100	97
Agriculture:			
Sources—			
Surface	19.3	80	NA
Ground	4.9	20	NA
Total	24.2	100	NA
Use—			
Irrigation	23.1	95	NA
Other farm uses	1.1	5	NA
Disposition—			
Consumptive use	5.9	24	NA
Return flow	18.3	76	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 2,000 acres

Selected Characteristics of Irrigated Farms

Idaho

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	21,085	22,031	22,545	22,312	23,734	27,660
Harvested cropland	<i>do.</i>	18,270	19,596	20,815	20,854	21,640	25,636
Irrigated land	<i>do.</i>	16,620	17,355	18,215	16,825	17,840	22,251
Harvested cropland	<i>do.</i>	14,308	15,470	16,523	NA	NA	NA
Total cropland	<i>1,000 acres</i>	6,742	6,484	6,540	6,248	6,172	5,878
Harvested cropland	<i>do.</i>	4,349	4,888	4,821	4,531	3,955	3,935
Irrigated land	<i>No. of acres</i>	3,219,192	3,450,443	3,475,392	2,859,047	2,760,852	2,801,500
Harvested cropland	<i>do.</i>	2,811,354	3,037,603	2,950,963	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Bingham	Twin Falls	Cassia	Canyon	Jefferson
Irrigated land	<i>No. of farms</i>	16,620	1,227	1,351	723	1,745	712
Irrigated land	<i>No. of acres</i>	3,219,192	306,187	272,367	237,169	213,013	170,453
Major irrigated crops:							
Hay	<i>do.</i>	846,194	49,214	57,495	47,389	34,550	72,101
Wheat for grain	<i>do.</i>	587,736	122,719	38,976	68,070	23,081	28,608
Barley for grain	<i>do.</i>	473,401	31,994	29,984	31,560	13,799	39,104

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	336,615	459,965	357,928	484,993	289,134	400,027
Machinery and equipment	55,327	59,016	62,368	64,524	39,582	45,894
Farm products sold	94,002	90,297	104,827	101,559	70,085	63,738
Crops, nursery, and greenhouse	78,291	77,740	85,051	83,200	50,414	55,445
Livestock and poultry	75,157	61,679	75,412	64,057	74,650	56,444
Selected production expenses:						
Commercial fertilizers	11,320	11,525	11,898	11,819	8,935	10,295
Other agricultural chemicals	4,448	4,158	4,436	3,876	4,494	5,296
Energy and petroleum products	6,440	6,988	7,726	8,290	3,379	3,878
Hired labor	16,214	12,177	17,814	13,244	11,353	8,773
Contract labor	5,516	6,363	6,112	6,914	2,725	2,647

Irrigation methods, water sources, and pumping energy use

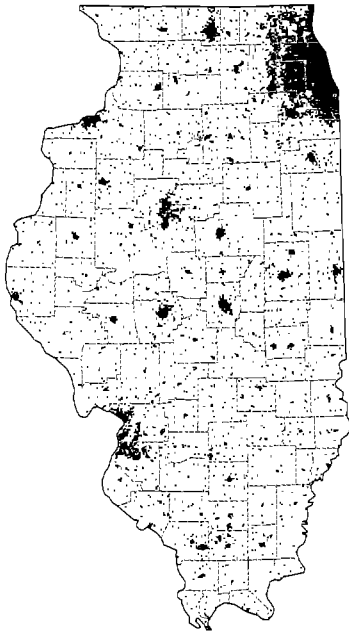
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	7,274	1,865,327	1.7	7,043	1,738,862	1.5
Center pivot	1,664	625,299	1.6	952	368,599	1.2
Mechanical move	2,464	496,244	2.1	3,286	692,228	1.2
Hand move	5,292	691,746	1.7	5,173	641,954	1.2
Solid set and permanent	984	52,038	NA	649	36,081	8.8
All gravity systems	11,079	1,288,642	2.2	11,658	1,533,421	1.8
Gated pipe	3,724	161,062	1.5	3,296	141,272	1.9
Ditch with siphon tube	7,301	733,076	2.4	8,045	919,825	1.8
Flooding	2,434	394,504	1.7	3,594	472,324	1.6
Drip or trickle	45	12,506	NA	28	4,480	NA
Subirrigation	265	32,732	3.5	215	31,105	4.7
Sources:						
Wells	2,878	1,211,033	1.6	3,095	1,060,136	1.3
Onfarm surface sources	1,353	286,495	1.6	1,756	284,293	1.5
Off-farm water suppliers	12,605	1,688,909	2.2	12,581	1,958,869	1.8
	<i>Number</i>			<i>Number</i>		
Onfarm energy use for pumping	<i>\$/acre</i>			<i>\$/acre</i>		
Electricity	6,520	1,843,381	35	6,473	1,716,175	27
Natural gas	6,022	1,754,031	36	5,598	1,621,366	27
LP gas, propane, butane	34	18,133	16	28	8,400	10
Diesel fuel	51	6,868	21	128	22,500	18
Gasoline and gasohol	491	54,763	14	751	60,759	18
Off-farm water supply	110	9,586	6	198	3,150	11
	12,605	1,688,909	19	12,581	1,958,869	14

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	464	487	620	39	31	38
Irrigated cropland	931	1,147	1,618	79	87	104
Grazing land	151	238	326	13	21	25

Illinois

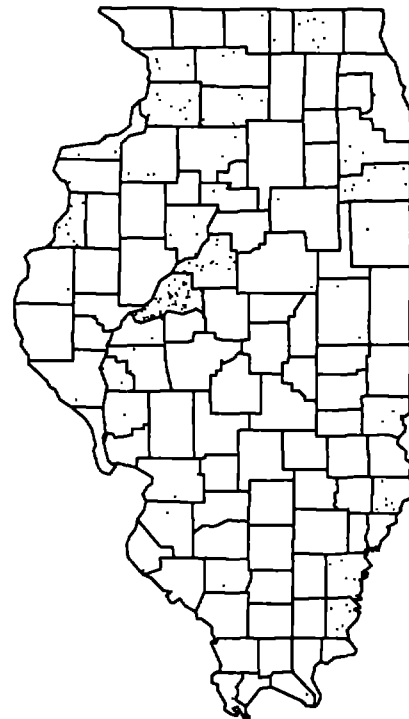
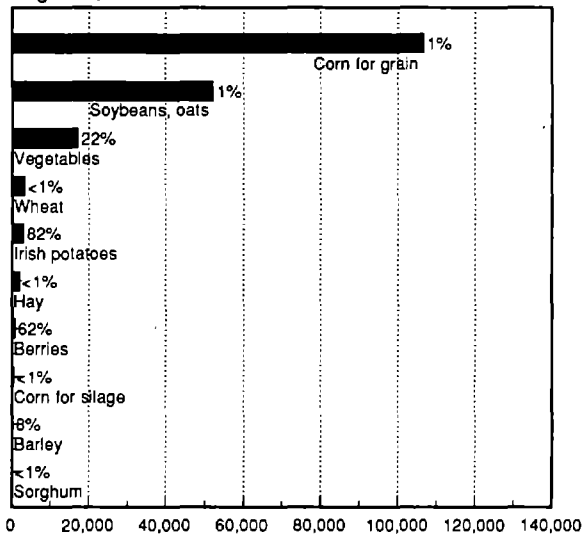
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	15.2	94	0
Ground	1.0	6	14
Total	16.2	100	1
Agriculture:			
Sources—			
Surface	0.0	0	NA
Ground	144.5	100	NA
Total	144.5	100	NA
Use—			
Irrigation	79.5	55	NA
Other farm uses	65.0	45	NA
Disposition—			
Consumptive use	134.8	93	NA
Return flow	9.7	7	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Illinois

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	83,056	92,250	99,624	106,639	117,871	127,091
Harvested cropland	<i>do.</i>	79,986	89,124	96,432	102,729	111,954	123,174
Irrigated land	<i>do.</i>	1,635	1,182	1,146	650	822	327
Harvested cropland	<i>do.</i>	1,596	1,170	1,112	NA	NA	NA
Total cropland	<i>1,000 acres</i>	25,102	24,748	25,159	24,400	24,829	23,868
Harvested cropland	<i>do.</i>	20,102	23,008	22,676	21,518	19,352	20,058
Irrigated land	<i>No. of acres</i>	208,105	166,012	129,943	53,777	50,906	14,375
Harvested cropland	<i>do.</i>	205,469	163,112	128,206	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Mason	Tazewell	Whiteside	Henderson	Kankakee
Irrigated land	<i>No. of farms</i>	1,635	215	84	97	38	56
Irrigated land	<i>No. of acres</i>	208,105	59,962	16,390	14,167	9,299	7,822
Major irrigated crops:							
Corn	<i>do.</i>	106,672	25,650	8,407	9,716	6,277	3,453
Soybeans	<i>do.</i>	52,236	20,269	5,674	3,839	2,506	308
Vegetables	<i>do.</i>	17,279	2,986	1,450	270	NA	1,812

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	402,970	538,886	674,052	1,158,233	398,053	531,631
Machinery and equipment	60,935	61,982	108,315	121,222	60,082	61,287
Farm products sold	71,822	74,262	206,689	239,676	69,292	72,252
Crops, nursery, and greenhouse	55,906	61,432	183,586	215,282	53,120	59,287
Livestock and poultry	48,767	41,531	97,099	98,635	48,256	41,118
Selected production expenses:						
Commercial fertilizers	7,910	9,423	16,268	19,839	7,743	9,280
Other agricultural chemicals	4,597	4,618	9,402	10,008	4,503	4,545
Energy and petroleum products	4,597	5,785	13,145	18,793	4,440	5,632
Hired labor	7,969	6,248	57,315	48,768	6,573	5,362
Contract labor	2,711	3,291	10,203	18,352	2,467	2,727

Irrigation methods, water sources, and pumping energy use: Water Resources Region 07, Upper Mississippi

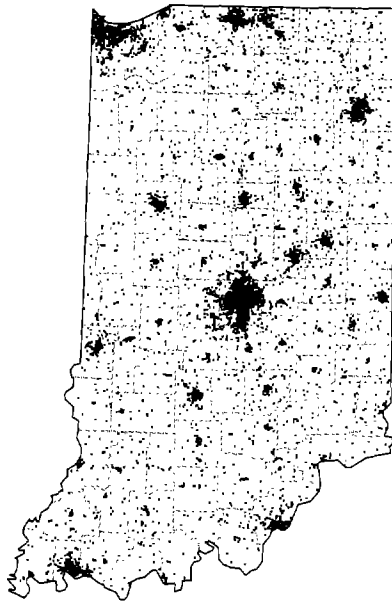
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	3,557	755,893	0.9	2,980	593,946	0.8
Center pivot	2,316	593,502	0.9	1,897	474,203	0.8
Mechanical move	952	114,128	0.7	909	83,062	0.5
Hand move	523	26,911	0.8	324	19,538	1.4
Solid set and permanent	311	21,352	1.7	399	17,143	2.3
All gravity systems	278	23,542	0.8	35	2,450	NA
Gated pipe	208	12,438	0.6	35	2,450	NA
Ditch with siphon tube	59	9,596	1.2	NA	NA	NA
Flooding	15	1,508	NA	NA	NA	NA
Drip or trickle	149	1,963	0.5	36	720	0.3
Subirrigation	36	8,092	1.1	1	D	NA
Sources:						
Wells	2,732	638,774	0.9	2,206	482,201	0.7
Onfarm surface sources	1,260	116,957	0.9	955	99,923	1.0
Off-farm water suppliers	119	19,873	0.9	108	2,016	1.4
	<i>Number</i>		<i>\$/acre</i>	<i>Number</i>		<i>\$/acre</i>
Onfarm energy use for pumping	3,581	748,931	22	2,936	569,361	19
Electricity	2,015	434,187	23	1,932	392,425	17
Natural gas	45	7,887	17	NA	NA	NA
LP gas, propane, butane	198	27,022	17	1,911	368,491	21
Diesel fuel	1,697	275,315	20	1,055	122,097	23
Gasoline and gasohol	185	4,520	33	208	15,039	40
Off-farm water supply	119	19,873	5	108	2,016	59

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	1,183	1,247	1,863	83	100	111
Irrigated cropland	843	954	1,688	102	100	108
Grazing land	332	406	644	21	22	27

Indiana

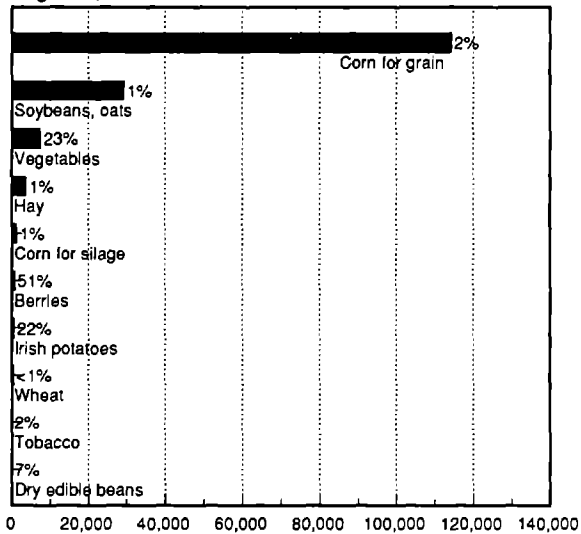
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	9.8	93	0
Ground	0.7	7	13
Total	10.5	100	1
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	12.1	11	NA
Ground	94.3	89	NA
Total	106.4	100	NA
Use—			
Irrigation	52.6	49	NA
Other farm uses	53.8	51	NA
Disposition—			
Consumptive use	98.2	92	NA
Return flow	8.2	8	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Indiana

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	65,529	71,836	78,174	84,277	96,360	102,137
Harvested cropland	do.	61,689	68,040	74,450	80,195	88,350	95,846
Irrigated land	do.	1,481	1,206	901	633	682	558
Harvested cropland	do.	1,441	1,187	856	NA	NA	NA
Total cropland	1,000 acres	13,593	13,331	13,539	13,198	13,552	13,317
Harvested cropland	do.	10,726	12,136	11,809	11,234	9,670	10,299
Irrigated land	No. of acres	169,703	131,987	75,173	33,385	33,580	16,924
Harvested cropland	do.	167,706	131,251	73,829	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Elkhart	LaGrange	La Porte	Fulton	St. Joseph
Irrigated land	No. of farms	1,481	129	81	78	57	71
Irrigated land	No. of acres	169,703	19,866	18,561	15,607	11,449	10,632
Major irrigated crops:							
Corn	do.	114,254	13,379	12,883	10,325	7,767	6,434
Soybeans	do.	29,102	3,792	3,737	2,924	2,624	2,249
Vegetables	do.	7,317	NA	NA	763	0	446

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	265,446	338,549	518,875	832,559	259,757	331,130
Machinery and equipment	44,502	45,033	100,782	117,425	43,235	43,943
Farm products sold	57,693	54,767	183,635	203,236	54,991	52,410
Crops, nursery, and greenhouse	39,334	40,568	129,044	147,840	36,909	38,456
Livestock and poultry	48,180	38,724	157,176	139,658	46,638	37,560
Selected production expenses:						
Commercial fertilizers	6,442	7,770	13,802	20,361	6,246	7,540
Other agricultural chemicals	3,450	3,316	7,861	9,308	3,331	3,209
Energy and petroleum products	3,502	4,302	11,096	17,987	3,325	4,095
Hired labor	7,808	5,747	38,256	35,328	6,644	4,937
Contract labor	3,422	3,776	5,576	25,487	3,312	2,994

Irrigation methods, water sources, and pumping energy use: Water Resources Region 05, Ohio

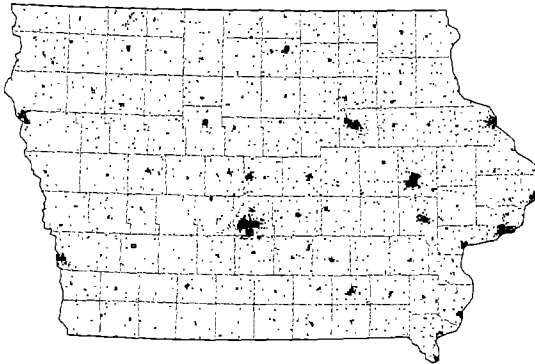
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,746	127,507	0.7	2,036	80,547	0.5
Center pivot	1,153	75,202	0.8	554	47,893	0.6
Mechanical move	155	26,644	0.4	279	17,468	0.4
Hand move	1,495	23,815	0.6	1,182	13,319	0.5
Solid set and permanent	25	1,846	0.2	151	1,867	0.6
All gravity systems	0	0	0.0	49	1,227	0.8
Gated pipe	0	0	0.0	8	300	0.5
Ditch with siphon tube	0	0	0.0	27	497	0.8
Flooding	0	0	0.0	14	430	0.7
Drip or trickle	75	1,134	0.0	28	146	0.8
Subirrigation	49	4,459	0.9	2	NA	NA
Sources:						
Wells	1,075	73,681	0.8	422	52,879	0.5
Onfarm surface sources	1,724	53,342	0.6	1,610	27,769	0.5
Off-farm water suppliers	98	4,519	0.8	108	1,083	1.1
-----Number----- \$/acre -----Number----- \$/acre						
Onfarm energy use for pumping	2,682	126,055	26	1,415	74,749	22
Electricity	961	49,059	41	353	35,830	22
Natural gas	7	1,085	16	6	496	8
LP gas, propane, butane	26	6,965	17	64	4,925	25
Diesel fuel	1,693	62,102	16	865	31,141	22
Gasoline and gasohol	335	6,844	27	232	2,402	32
Off-farm water supply	98	4,519	NA	108	1,083	39

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	977	1,044	1,514	71	87	100
Irrigated cropland	1,299	1,507	1,712	102	91	104
Grazing land	417	448	601	26	25	31

Iowa

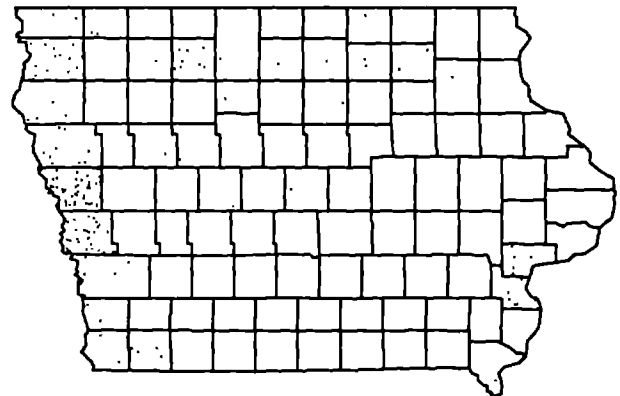
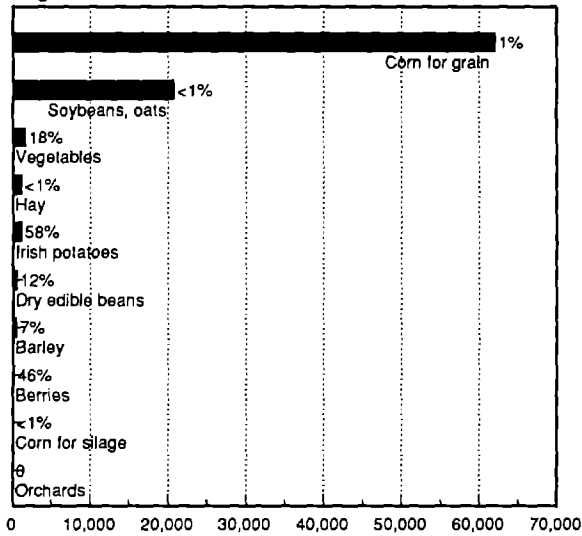
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			Percent
<i>M.a.f.</i>			
Sources:			
Surface	2.3	76	3
Ground	0.8	24	28
Total	3.1	100	9
<i>T.a.f.</i>			
Agriculture: Sources—			
Surface	57.8	22	NA
Ground	209.9	78	NA
Total	267.7	100	NA
Use—			
Irrigation	75.0	28	NA
Other farm uses	192.7	72	NA
Disposition—			
Consumptive use	267.4	99	NA
Return flow	0.3	1	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Iowa

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	96,749	106,859	114,391	120,559	134,143	148,055
Harvested cropland	<i>do.</i>	92,878	103,644	111,379	116,863	128,791	143,701
Irrigated land	<i>do.</i>	851	616	739	348	269	291
Harvested cropland	<i>do.</i>	825	608	708	NA	NA	NA
Total cropland	<i>1,000 acres</i>	27,291	27,581	28,064	27,278	27,739	26,356
Harvested cropland	<i>do.</i>	20,484	24,138	23,622	23,085	19,287	19,952
Irrigated land	<i>No. of acres</i>	92,247	91,427	100,770	39,417	20,664	21,528
Harvested cropland	<i>do.</i>	91,598	91,175	97,681	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Monona	Harrison	Sioux	Woodbury	Palo Alto
Irrigated land	<i>No. of farms</i>	851	90	78	59	25	30
Irrigated land	<i>No. of acres</i>	92,247	25,152	15,933	8,639	4,930	4,713
Major irrigated crops:							
Corn	<i>do.</i>	62,099	17,551	9,998	7,716	3,564	4,254
Soybeans	<i>do.</i>	20,304	7,140	5,260	748	1,098	436
Vegetables	<i>do.</i>	1,619	0	0	0	NA	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	283,597	471,011	442,449	780,292	282,338	469,194
Machinery and equipment	52,844	58,398	71,565	97,117	52,695	58,170
Farm products sold	84,872	85,163	162,773	231,964	84,236	84,375
Crops, nursery, and greenhouse	43,604	44,849	111,748	134,355	42,929	44,272
Livestock and poultry	72,706	66,413	141,492	219,211	72,392	65,896
Selected production expenses:						
Commercial fertilizers	5,626	6,496	8,234	11,628	5,603	6,460
Other agricultural chemicals	3,577	3,785	6,199	7,173	3,555	3,762
Energy and petroleum products	4,375	5,815	8,284	12,300	4,344	5,776
Hired labor	5,751	4,640	25,696	22,827	5,544	4,479
Contract labor	2,604	2,341	6,105	8,042	2,515	2,224

Irrigation methods, water sources, and pumping energy use: Water Resources Region 07, Upper Mississippi

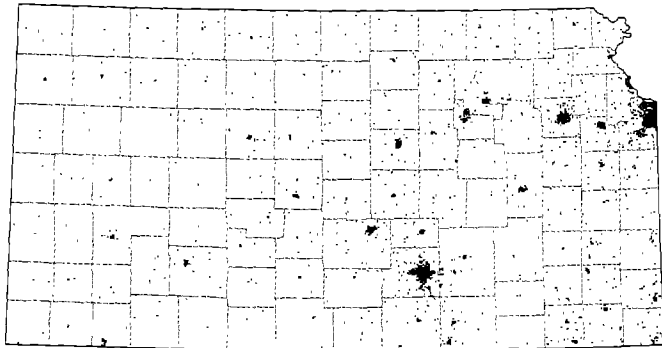
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	3,557	755,893	0.9	2,980	593,946	0.8
Center pivot	2,316	593,502	0.9	1,897	474,203	0.8
Mechanical move	952	114,128	0.7	909	83,062	0.5
Hand move	523	26,911	0.8	324	19,538	1.4
Solid set and permanent	311	21,352	1.7	399	17,143	2.3
All gravity systems	278	23,542	0.8	35	2,450	NA
Gated pipe	208	12,438	0.6	35	2,450	NA
Ditch with siphon tube	59	9,596	1.2	NA	NA	NA
Flooding	15	1,508	NA	NA	NA	NA
Drip or trickle	149	1,963	0.5	36	720	0.3
Subirrigation	36	8,092	1.1	1	NA	NA
Sources:						
Wells	2,732	638,774	0.9	2,206	482,201	0.7
Onfarm surface sources	1,260	116,957	0.9	955	99,923	1.0
Off-farm water suppliers	119	19,873	0.9	108	2,016	1.4
<i>-----Number----- \$/acre</i>						
Onfarm energy use for pumping						
Electricity	3,581	748,931	22	2,936	569,361	19
Natural gas	2,015	434,187	23	1,932	392,425	17
LP gas, propane, butane	45	7,887	17	NA	NA	NA
Diesel fuel	198	27,022	17	283	39,800	22
Gasoline and gasohol	1,697	275,315	20	1,055	122,097	23
Off-farm water supply	185	4,520	33	208	15,039	40
Off-farm water supply	119	19,873	5	108	2,016	59

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	947	922	1,621	85	88	111
Irrigated cropland	1,040	1,075	1,424	98	97	112
Grazing land	312	317	537	26	27	35

Kansas

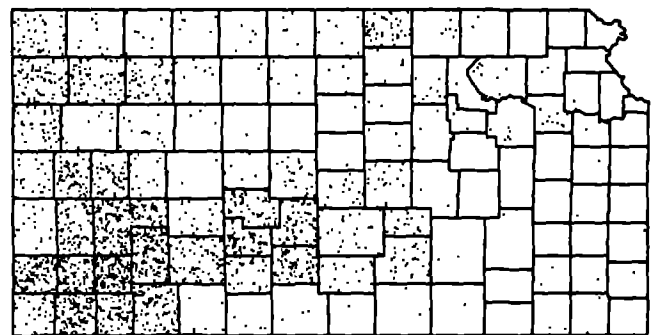
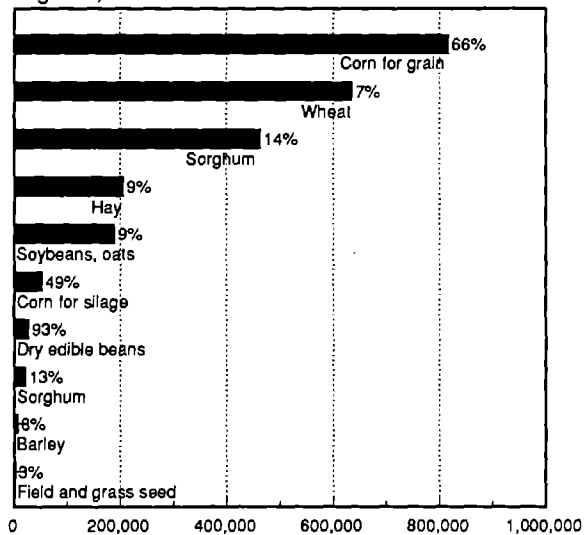
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		M.a.f.	Percent
Sources:			
Surface	1.0	15	33
Ground	5.3	85	94
Total	6.3	100	85
Agriculture:			
Sources—			
Surface	0.3	6	NA
Ground	5.1	94	NA
Total	5.4	100	NA
Use—			
Irrigation	5.3	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	5.1	94	NA
Return flow	0.3	6	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Kansas

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	61,615	66,481	68,430	74,306	80,455	86,535
Harvested cropland	<i>do.</i>	57,822	62,860	64,862	70,573	76,110	84,171
Irrigated land	<i>do.</i>	7,352	7,257	7,961	6,710	6,271	5,102
Harvested cropland	<i>do.</i>	7,268	7,211	7,827	NA	NA	NA
Total cropland	<i>1,000 acres</i>	31,385	30,599	29,843	29,984	31,768	29,421
Harvested cropland	<i>do.</i>	17,729	20,187	18,988	19,871	17,649	18,160
Irrigated land	<i>No. of acres</i>	2,463,073	2,675,167	2,685,757	2,010,385	1,522,317	1,004,210
Harvested cropland	<i>do.</i>	2,408,176	2,639,024	2,546,894	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Finney	Haskell	Gray	Stevens	Stanton
Irrigated land	<i>No. of farms</i>	7,352	283	223	304	166	168
Irrigated land	<i>No. of acres</i>	2,463,073	184,177	154,476	154,369	119,752	112,728
Major irrigated crops:							
Corn for grain	<i>do.</i>	816,992	49,215	55,319	50,995	25,408	30,360
Wheat for grain	<i>do.</i>	635,524	61,592	60,292	47,179	48,669	51,671
Sorghum for grain	<i>do.</i>	464,119	28,229	23,034	28,627	35,128	20,217

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	278,047	384,197	641,180	891,850	235,418	328,935
Machinery and equipment	50,411	52,304	118,009	125,710	42,451	44,332
Farm products sold	94,441	84,442	264,142	253,905	74,064	65,825
Crops, nursery, and greenhouse	32,712	37,736	91,061	113,228	23,340	26,956
Livestock and poultry	104,247	78,293	317,616	235,949	83,533	63,613
Selected production expenses:						
Commercial fertilizers	4,529	5,128	10,857	13,241	3,468	3,903
Other agricultural chemicals	2,699	2,787	6,333	6,641	2,085	1,999
Energy and petroleum products	4,547	5,648	13,941	18,926	3,405	4,204
Hired labor	9,147	6,070	18,761	14,801	7,075	4,327
Contract labor	3,006	2,428	4,461	4,063	2,660	2,009

Irrigation methods, water sources, and pumping energy use

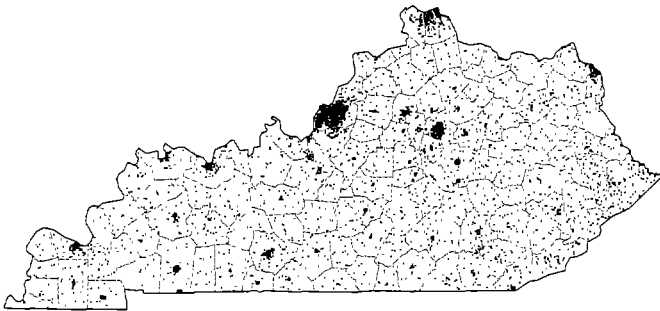
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	3,529	1,245,836	1.2	3,462	950,247	1.3
Center pivot	3,122	1,202,153	1.1	2,630	893,752	1.3
Mechanical move	139	29,290	NA	659	39,038	1.3
Hand move	405	3,970	2.0	419	15,697	0.5
Solid set and permanent	8	10,423	NA	44	1,760	NA
All gravity systems	5,297	1,424,907	1.5	4,297	1,391,282	1.3
Gated pipe	4,639	1,321,604	1.5	4,046	1,208,057	1.3
Ditch with siphon tube	819	61,452	1.2	688	119,899	1.8
Flooding	59	41,851	NA	203	63,326	1.5
Drip or trickle	7	119	NA	88	547	NA
Subirrigation	0	0	NA	0	0	0.0
Sources:						
Wells	6,315	2,493,823	1.3	5,660	2,139,026	1.4
Onfarm surface sources	255	51,656	1.2	462	45,508	0.9
Off-farm water suppliers	739	70,466	1.3	536	138,206	1.3
<i>-----Number----- \$/acre -----Number----- \$/acre</i>						
Onfarm energy use for pumping						
Electricity	6,565	2,604,096	25	5,966	2,263,244	22
Natural gas	1,848	471,850	29	2,284	478,783	28
LP gas, propane, butane	4,260	1,753,671	23	2,819	1,392,685	19
Diesel fuel	1,103	105,512	22	1,413	139,278	26
Gasoline and gasohol	1,037	270,822	26	1,286	244,498	26
Off-farm water supply	85	2,241	16	227	8,000	15
Off-farm water supply	739	70,466	17	536	138,206	12

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	370	382	573	29	27	32
Irrigated cropland	548	592	781	58	55	59
Grazing land	184	193	295	10	10	11

Kentucky

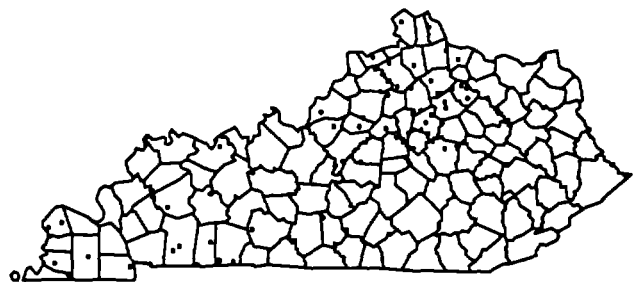
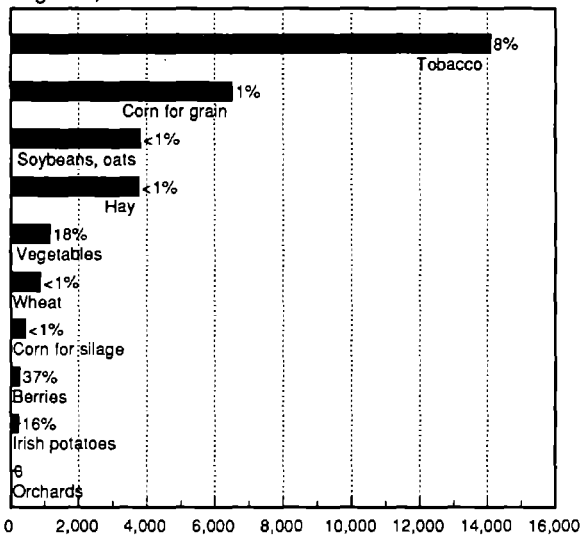
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	4.5	95	1
Ground	0.2	5	1
Total	4.7	100	1
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	61.8	95	NA
Ground	3.1	5	NA
Total	65.0	100	NA
Use—			
Irrigation	8.6	13	NA
Other farm uses	56.3	87	NA
Disposition—			
Consumptive use	64.6	99	NA
Return flow	0.4	1	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Kentucky

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	88,664	98,331	99,347	99,168	119,145	130,723
Harvested cropland	<i>do.</i>	83,097	93,082	94,497	92,468	106,561	123,100
Irrigated land	<i>do.</i>	3,733	2,815	2,137	1,910	4,467	2,708
Harvested cropland	<i>do.</i>	3,624	2,782	2,078	NA	NA	NA
Total cropland	<i>1,000 acres</i>	8,900	8,960	9,298	8,803	9,443	9,364
Harvested cropland	<i>do.</i>	4,250	4,836	4,512	3,701	3,128	3,473
Irrigated land	<i>No. of acres</i>	37,693	22,707	13,770	10,920	19,587	14,405
Harvested cropland	<i>do.</i>	31,903	21,503	12,345	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Nicholas	Scott	Fayette	Harrison	Owen
Irrigated land	<i>No. of farms</i>	3,733	61	212	76	299	216
Irrigated land	<i>No. of acres</i>	37,693	1,945	1,820	1,786	1,672	1,172
Major irrigated crops:							
Tobacco	<i>do.</i>	14,087	324	1,555	811	1,367	855
Corn for grain	<i>do.</i>	6,517	NA	26	NA	NA	73
Soybeans	<i>do.</i>	3,840	NA	NA	NA	NA	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	135,696	144,427	251,852	255,336	130,595	141,105
Machinery and equipment	22,670	22,001	37,921	34,683	21,999	21,621
Farm products sold	22,450	23,385	58,341	52,164	20,940	22,565
Crops, nursery, and greenhouse	12,286	16,086	30,356	36,000	11,335	15,408
Livestock and poultry	20,743	16,680	44,685	27,309	19,687	16,373
Selected production expenses:						
Commercial fertilizers	1,653	1,613	2,445	1,861	1,612	1,604
Other agricultural chemicals	893	1,181	1,328	1,294	867	1,176
Energy and petroleum products	1,302	1,630	2,651	3,149	1,241	1,585
Hired labor	3,534	3,325	11,552	8,031	3,060	3,141
Contract labor	1,921	2,118	3,643	4,717	1,770	1,961

Irrigation methods, water sources, and pumping energy use: Water Resources Region 05, Ohio

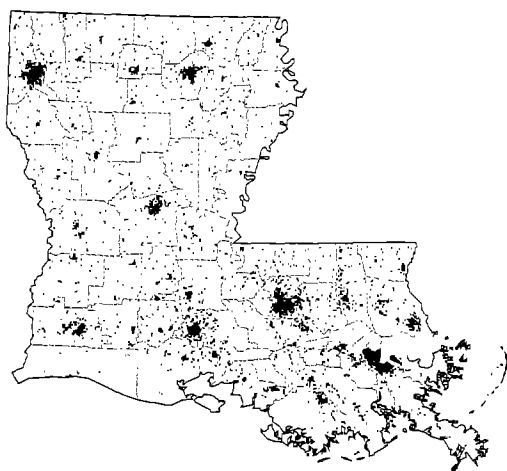
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,746	127,507	0.7	2,036	80,547	0.5
Center pivot	1,153	75,202	0.8	554	47,893	0.6
Mechanical move	155	26,644	0.4	279	17,468	0.4
Hand move	1,495	23,815	0.6	1,182	13,319	0.5
Solid set and permanent	25	1,846	0.2	151	1,867	0.6
All gravity systems	0	0	0.0	49	1,227	0.8
Gated pipe	0	0	0.0	8	300	0.5
Ditch with siphon tube	0	0	0.0	27	497	0.8
Flooding	0	0	0.0	14	430	0.7
Drip or trickle	75	1,134	0.0	28	146	0.8
Subirrigation	49	4,459	0.9	2	D	NA
Sources:						
Wells	1,075	73,681	0.8	422	52,879	0.5
Onfarm surface sources	1,724	53,342	0.6	1,610	27,769	0.5
Off-farm water suppliers	98	4,519	0.8	108	1,083	1.1
-----Number----- \$/acre -----Number----- \$/acre						
Onfarm energy use for pumping	2,682	126,055	26	1,415	74,749	22
Electricity	961	49,059	41	353	35,830	22
Natural gas	7	1,085	16	6	496	8
LP gas, propane, butane	26	6,965	17	64	4,925	25
Diesel fuel	1,693	62,102	16	865	31,141	22
Gasoline and gasohol	335	6,844	27	232	2,402	32
Off-farm water supply	98	4,519	NA	108	1,083	39

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	841	876	1,199	49	50	56
Irrigated cropland	1,000	1,217	NR	100	NR	NR
Grazing land	496	493	666	21	21	22

Louisiana

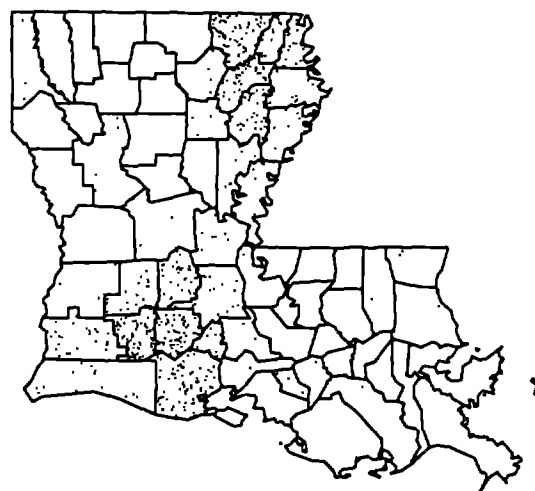
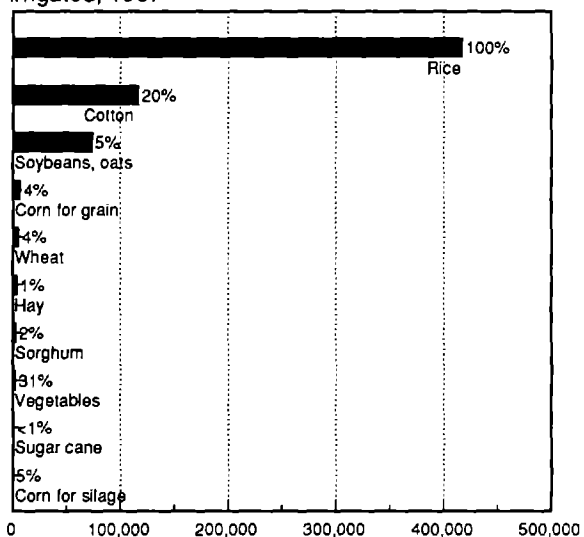
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
<i>M.a.f.</i>			
Sources:			
Surface	9.5	86	11
Ground	1.6	14	55
Total	11.1	100	17
Agriculture:			
Sources—			
Surface	1.0	53	NA
Ground	0.9	47	NA
Total	1.9	100	NA
Use—			
Irrigation	1.7	88	NA
Other farm uses	0.2	12	NA
Disposition—			
Consumptive use	1.8	94	NA
Return flow	0.1	6	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Louisiana

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	23,273	27,424	28,351	30,067	37,921	50,000
Harvested cropland	<i>do.</i>	18,644	21,991	23,528	23,525	29,210	41,419
Irrigated land	<i>do.</i>	3,929	3,693	3,799	3,777	4,611	4,844
Harvested cropland	<i>do.</i>	3,846	3,644	3,710	NA	NA	NA
Total cropland	<i>1,000 acres</i>	5,563	6,093	6,344	5,590	5,842	4,864
Harvested cropland	<i>do.</i>	3,600	4,699	4,839	3,628	3,443	2,673
Irrigated land	<i>No. of acres</i>	646,677	693,698	681,056	701,587	701,692	580,687
Harvested cropland	<i>do.</i>	634,834	686,489	668,355	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Vermilion	Jeff. Davis	Morehouse	Acadia	Evangeline
Irrigated land	<i>No. of farms</i>	3,929	520	346	218	408	225
Irrigated land	<i>No. of acres</i>	646,677	82,911	82,612	78,539	69,857	39,056
Major irrigated crops:							
Rice	<i>do.</i>	417,411	72,395	73,067	30,627	64,367	33,839
Cotton	<i>do.</i>	117,837	0	0	30,769	0	0
Soybeans for beans	<i>do.</i>	74,326	6,001	8,723	13,504	5,227	5,075

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	268,630	381,817	502,700	876,142	230,716	319,683
Machinery and equipment	38,323	43,528	81,166	108,987	31,379	35,281
Farm products sold	49,000	44,469	104,892	111,288	39,624	35,635
Crops, nursery, and greenhouse	79,353	70,822	106,959	113,418	66,579	56,657
Livestock and poultry	23,727	20,632	15,408	13,135	24,245	21,034
Selected production expenses:						
Commercial fertilizers	5,035	4,955	9,997	12,425	3,698	3,358
Other agricultural chemicals	7,572	9,358	12,150	13,932	6,197	7,955
Energy and petroleum products	3,453	4,435	8,596	13,810	2,586	3,248
Hired labor	11,254	9,204	17,009	14,576	9,691	8,004
Contract labor	2,735	2,829	5,042	3,769	2,222	2,652

Irrigation methods, water sources, and pumping energy use

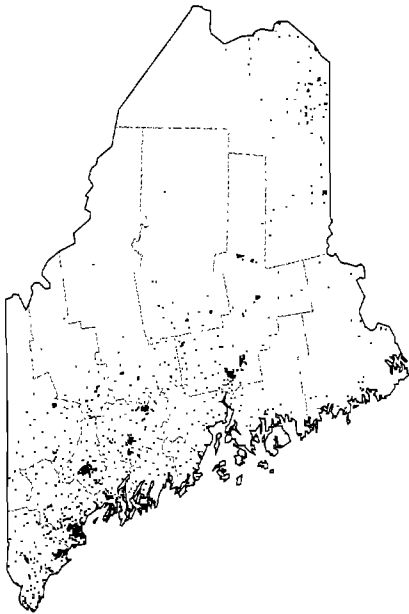
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	320	103,444	0.7	416	86,571	0.9
Center pivot	243	77,234	0.9	342	69,299	1.1
Mechanical move	77	17,590	0.2	39	11,760	NA
Hand move	0	0	NA	37	259	0.8
Solid set and permanent	31	8,620	1.0	13	5,253	2.0
All gravity systems	2,150	554,472	1.8	2,017	503,739	1.7
Gated pipe	367	92,810	1.5	341	82,941	1.3
Ditch with siphon tube	538	69,578	2.0	453	103,775	1.5
Flooding	1,477	392,084	1.8	1,401	317,023	1.9
Drip or trickle	668	4,557	1.8	25	461	NA
Subirrigation	68	13,162	1.9	22	1,320	NA
Sources:						
Wells	2,110	472,073	1.5	1,759	393,704	1.6
Onfarm surface sources	1,030	193,176	1.7	721	179,625	1.9
Off-farm water suppliers	329	20,652	1.8	125	17,877	1.8
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	2,826	647,243	17	2,250	520,211	23
Electricity	724	98,014	16	693	106,482	18
Natural gas	667	104,320	26	673	122,077	28
LP gas, propane, butane	210	30,078	19	328	43,569	39
Diesel fuel	2,046	414,831	14	1,237	246,643	19
Gasoline and gasohol	NA	NA	NA	36	1,440	2
Off-farm water supply	329	20,652	34	125	17,877	54

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	886	1,364	1,840	43	43	47
Irrigated cropland	820	1,053	1,604	48	47	53
Grazing land	822	1,387	1,490	11	12	14

Maine

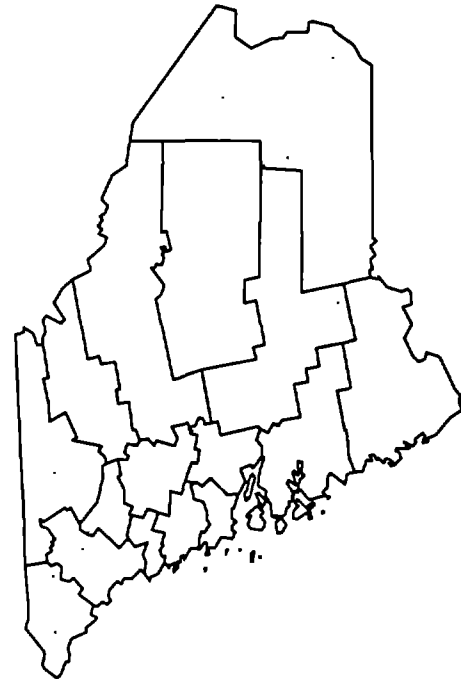
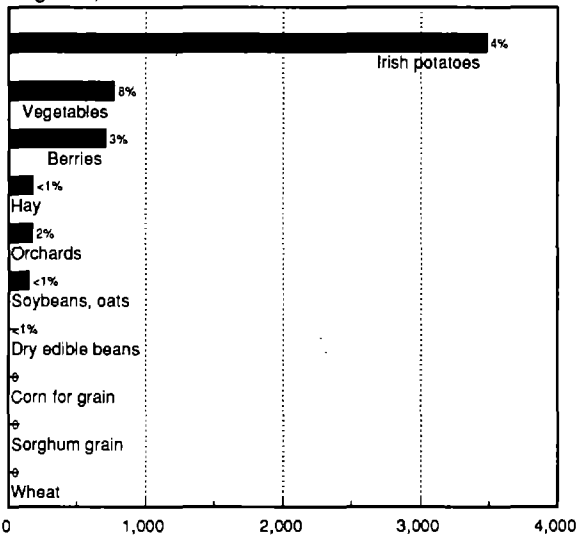
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	0.9	92	4
Ground	0.1	8	5
Total	1.0	100	4
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	31.1	90	NA
Ground	3.6	10	NA
Total	34.7	100	NA
Use—			
Irrigation	2.1	6	NA
Other farm uses	32.6	94	NA
Disposition—			
Consumptive use	29.8	86	NA
Return flow	4.9	14	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Maine

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	5,919	6,591	6,402	6,032	7,253	12,020
Harvested cropland	<i>do.</i>	5,486	6,138	6,064	5,631	6,519	11,007
Irrigated land	<i>do.</i>	359	200	255	176	115	206
Harvested cropland	<i>do.</i>	352	199	246	NA	NA	NA
Total cropland	<i>1,000 acres</i>	592	611	650	642	707	894
Harvested cropland	<i>do.</i>	411	457	463	450	458	594
Irrigated land	<i>No. of acres</i>	6,065	5,831	7,013	6,211	5,526	4,157
Harvested cropland	<i>do.</i>	5,998	5,825	6,479	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Aroostook	York	Cumberland	Penobscot	Oxford
Irrigated land	<i>No. of farms</i>	359	36	54	56	30	16
Irrigated land	<i>No. of acres</i>	6,065	2,135	869	684	584	450
Major irrigated crops:							
Irish potatoes	<i>do.</i>	3,485	1,965	NA	NA	512	NA
Vegetables	<i>do.</i>	776	NA	137	289	NA	NA
Berries	<i>do.</i>	711	1	191	26	NA	41

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	210,777	150,487	274,510	292,309	206,904	147,129
Machinery and equipment	38,325	33,916	63,283	70,336	36,808	33,049
Farm products sold	64,681	57,034	81,042	113,919	63,687	55,362
Crops, nursery, and greenhouse	41,295	36,879	80,643	112,083	37,291	32,957
Livestock and poultry	75,025	63,699	9,358	28,089	76,385	64,101
Selected production expenses:						
Commercial fertilizers	5,054	5,598	6,061	11,331	4,961	5,377
Other agricultural chemicals	4,252	3,648	5,364	7,397	4,119	3,465
Energy and petroleum products	3,487	3,832	5,599	11,531	3,356	3,647
Hired labor	16,606	13,385	29,981	33,534	15,657	12,663
Contract labor	5,494	8,028	6,052	65,900	5,456	5,191

Irrigation methods, water sources, and pumping energy use: Water Resources Region 01, New England

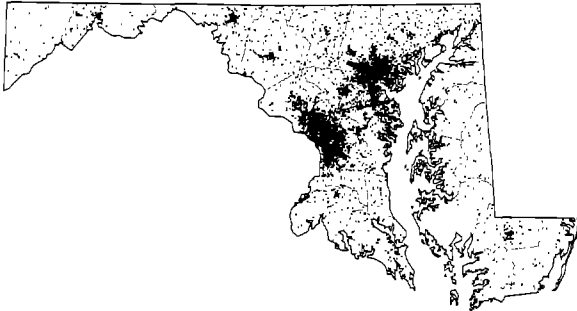
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	967	24,233	0.8	886	24,127	1.1
Center pivot	611	11,411	1.3	196	5,039	1.1
Mechanical move	13	1,046	0.3	36	2,548	0.4
Hand move	95	2,325	0.3	373	6,670	0.5
Solid set and permanent	258	9,421	0.5	335	9,870	1.7
All gravity systems	188	11,714	NA	87	2,683	1.5
Gated pipe	23	391	NA	6	174	NA
Ditch with siphon tube	26	2,928	NA	41	1,455	1.5
Flooding	139	8,395	NA	44	1,054	1.2
Drip or trickle	0	0	0.0	75	679	0.6
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	324	3,698	0.5	178	2,966	0.9
Onfarm surface sources	844	21,566	3.9	731	21,261	1.0
Off-farm water suppliers	26	102	NA	76	869	0.5
	----- <i>Number</i> -----		<i>\$/acre</i>	----- <i>Number</i> -----		<i>\$/acre</i>
Onfarm energy use for pumping	942	24,312	48	789	22,988	54
Electricity	273	5,958	68	279	5,612	94
Natural gas	0	0	0	9	174	87
LP gas, propane, butane	310	7,418	53	147	6,203	51
Diesel fuel	130	6,599	35	190	6,392	29
Gasoline and gasohol	444	4,337	29	379	4,607	44
Off-farm water supply	26	102	84	76	869	36

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	794	528	513	32	27	26
Irrigated cropland	500	NR	NR	NR	NR	NR
Grazing land	496	309	271	14	11	13

Maryland

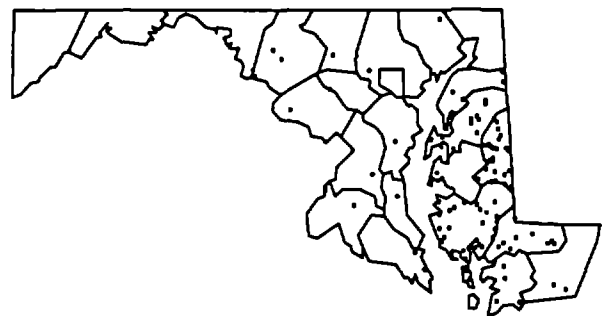
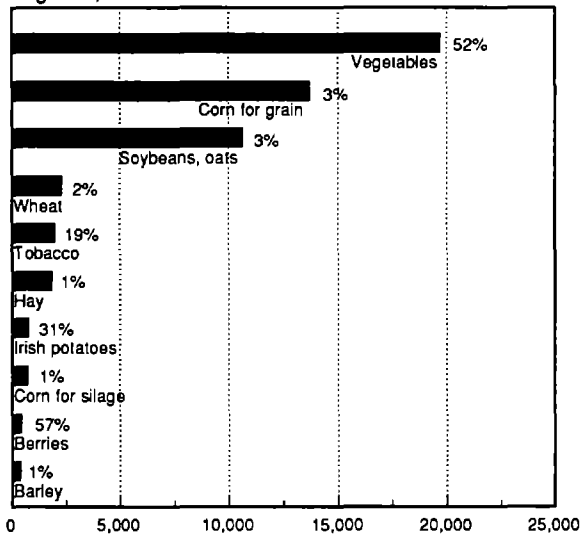
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	1.5	86	2
Ground	0.2	14	15
Total	1.7	100	4
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	27.3	43	NA
Ground	36.5	57	NA
Total	63.8	100	NA
Use—			
Irrigation	38.0	60	NA
Other farm uses	25.8	40	NA
Disposition—			
Consumptive use	51.0	80	NA
Return flow	12.8	20	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Maryland

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	13,200	14,719	14,384	14,058	15,797	19,553
Harvested cropland	<i>do.</i>	11,960	13,672	13,663	13,183	14,454	18,685
Irrigated land	<i>do.</i>	1,074	845	616	499	536	467
Harvested cropland	<i>do.</i>	1,040	826	595	NA	NA	NA
Total cropland	<i>1,000 acres</i>	1,745	1,799	1,810	1,776	1,819	1,866
Harvested cropland	<i>do.</i>	1,347	1,529	1,477	1,439	1,301	1,421
Irrigated land	<i>No. of acres</i>	50,762	38,556	28,467	22,629	21,501	15,996
Harvested cropland	<i>do.</i>	50,077	38,219	28,023	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Caroline	Dorchester	Queen Annes	Wicomico	Kent
Irrigated land	<i>No. of farms</i>	1,074	130	79	47	86	19
Irrigated land	<i>No. of acres</i>	50,762	13,279	11,279	5,196	4,957	3,439
Major irrigated crops:							
Vegetables	<i>do.</i>	19,724	5,504	4,494	2,020	1,550	1,545
Corn	<i>do.</i>	13,728	5,104	3,455	2,448	1,417	396
Soybeans for beans	<i>do.</i>	10,652	3,238	4,480	604	1,137	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	366,788	332,301	473,812	585,774	357,300	316,068
Machinery and equipment	44,656	40,853	74,306	62,834	42,019	39,444
Farm products sold	66,937	63,600	130,042	140,518	61,991	59,363
Crops, nursery, and greenhouse	27,120	30,745	96,079	107,056	18,591	24,590
Livestock and poultry	86,396	73,213	128,502	120,648	84,758	71,904
Selected production expenses:						
Commercial fertilizers	4,908	6,086	8,331	9,743	4,494	5,774
Other agricultural chemicals	2,825	2,783	5,722	4,928	2,458	2,569
Energy and petroleum products	3,397	3,818	7,365	8,315	3,033	3,532
Hired labor	13,634	9,363	31,691	23,916	10,910	7,995
Contract labor	6,367	5,389	13,598	16,046	5,146	3,795

Irrigation methods, water sources, and pumping energy use: Water Resources Region 02, Mid-Atlantic

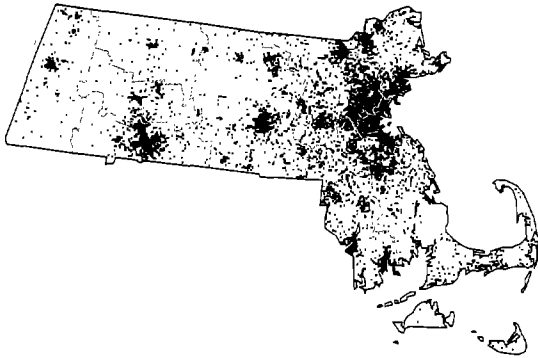
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	2,482	255,416	0.6	2,209	183,188	0.5
Center pivot	817	105,830	0.6	403	70,560	0.6
Mechanical move	672	94,424	0.4	525	56,114	0.3
Hand move	1,235	46,357	0.4	1,399	49,996	0.5
Solid set and permanent	86	8,805	0.8	179	6,428	1.4
All gravity systems	19	1,660	0.9	38	6,228	0.0
Gated pipe	0	0	0.0	29	3,510	0.0
Ditch with siphon tube	10	1,390	0.9	0	0	0.0
Flooding	9	270	NA	9	2,718	0.0
Drip or trickle	209	NA	1.1	156	2,646	0.5
Subirrigation	2	NA	NA	10	1,515	0.0
Sources:						
Wells	792	126,525	0.8	1,065	106,936	0.6
Onfarm surface sources	1,920	137,469	0.5	1,288	76,946	0.6
Off-farm water suppliers	67	4,076	0.3	149	2,075	0.6
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	2,440	246,466	19	2,097	175,259	20
Electricity	537	49,109	21	496	41,735	25
Natural gas	0	0	0	0	0	0
LP gas, propane, butane	51	6,729	13	103	11,538	19
Diesel fuel	1,460	167,116	18	831	90,185	16
Gasoline and gasohol	868	23,512	28	990	31,801	25
Off-farm water supply	67	4,076	21	149	2,075	56

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	2,023	1,724	2,013	41	54	51
Irrigated cropland	2,857	2,378	2,272	83	132	143
Grazing land	1,621	1,041	1,014	16	18	20

Massachusetts

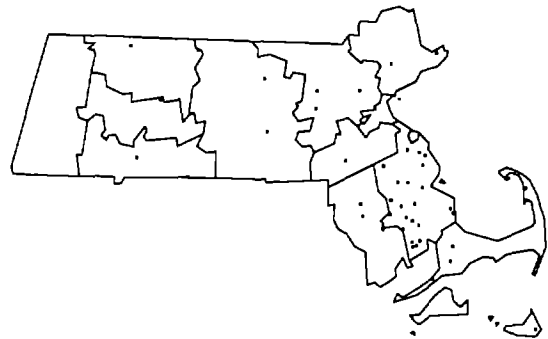
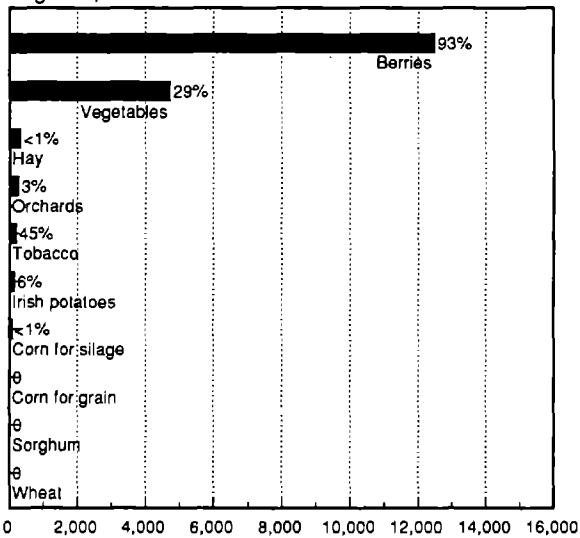
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		<i>M.a.f.</i>	—Percent—
Sources:			
Surface	6.6	95	0
Ground	0.4	5	1
Total	7.0	100	0
Agriculture:			
<i>Sources—</i>			
Surface	15.1	75	NA
Ground	5.0	25	NA
Total	20.1	100	NA
<i>Use—</i>			
Irrigation	17.9	89	NA
Other farm uses	2.2	11	NA
<i>Disposition—</i>			
Consumptive use	19.5	97	NA
Return flow	0.6	3	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Massachusetts

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	5,654	4,941	4,645	4,212	5,168	7,101
Harvested cropland	<i>do.</i>	5,084	4,608	4,397	4,032	4,669	6,498
Irrigated land	<i>do.</i>	1,316	1,000	966	879	925	1,229
Harvested cropland	<i>do.</i>	1,290	989	959	NA	NA	NA
Total cropland	<i>1,000 acres</i>	273	266	277	257	280	348
Harvested cropland	<i>do.</i>	195	198	197	188	190	234
Irrigated land	<i>No. of acres</i>	20,158	17,331	16,753	18,512	18,850	24,178
Harvested cropland	<i>do.</i>	19,566	17,012	16,588	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Plymouth	Bristol	Barnstable	Middlesex	Franklin
Irrigated land	<i>No. of farms</i>	1,316	465	136	112	129	47
Irrigated land	<i>No. of acres</i>	20,158	11,028	1,699	1,265	1,253	941
Major irrigated crops:							
Berries	<i>do.</i>	12,499	10,586	391	934	19	39
Vegetables	<i>do.</i>	4,750	187	821	228	861	446
Hay	<i>do.</i>	339	78	NA	NA	0	0

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	346,530	205,677	399,533	275,900	330,201	188,243
Machinery and equipment	32,039	28,429	51,375	42,250	26,071	24,997
Farm products sold	54,772	52,108	134,018	102,411	33,489	40,678
Crops, nursery, and greenhouse	56,507	42,769	136,132	102,207	16,521	17,072
Livestock and poultry	42,500	48,901	14,440	12,690	44,281	50,804
Selected production expenses:						
Commercial fertilizers	2,321	2,179	2,902	2,342	2,005	2,112
Other agricultural chemicals	2,418	1,989	3,813	2,965	1,412	1,417
Energy and petroleum products	3,072	4,311	6,047	8,703	2,127	3,224
Hired labor	30,471	17,873	50,374	33,812	17,774	13,019
Contract labor	7,713	6,070	12,874	7,830	3,908	4,165

Irrigation methods, water sources, and pumping energy use: Water Resources Region 01, New England

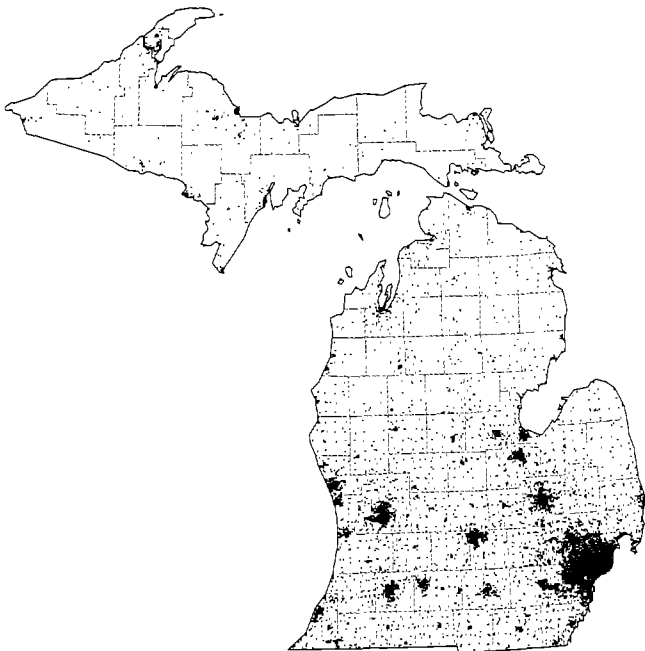
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	967	24,233	0.8	886	24,127	1.1
Center pivot	611	11,411	1.3	196	5,039	1.1
Mechanical move	13	1,046	0.3	36	2,548	0.4
Hand move	95	2,325	0.3	373	6,670	0.5
Solid set and permanent	258	9,421	0.5	335	9,870	1.7
All gravity systems	188	11,714	NA	87	2,683	1.5
Gated pipe	23	391	NA	6	174	NA
Ditch with siphon tube	26	2,928	NA	41	1,455	1.5
Flooding	139	8,395	NA	44	1,054	1.2
Drip or trickle	0	0	0.0	75	679	0.6
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	324	3,698	0.5	178	2,966	0.9
Onfarm surface sources	844	21,566	3.9	731	21,261	1.0
Off-farm water suppliers	26	102	NA	76	869	0.5
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	942	24,312	48	789	22,988	54
Electricity	273	5,958	68	279	5,612	94
Natural gas	0	0	0	9	174	87
LP gas, propane, butane	310	7,418	53	147	6,203	51
Diesel fuel	130	6,599	35	190	6,392	29
Gasoline and gasohol	444	4,337	29	379	4,607	44
Off-farm water supply	26	102	84	76	869	36

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	14,488	6,287	5,412	56	47	47
Irrigated cropland	41,747	NR	NR	75	NR	NR
Grazing land	8,539	2,136	2,543	18	16	18

Michigan

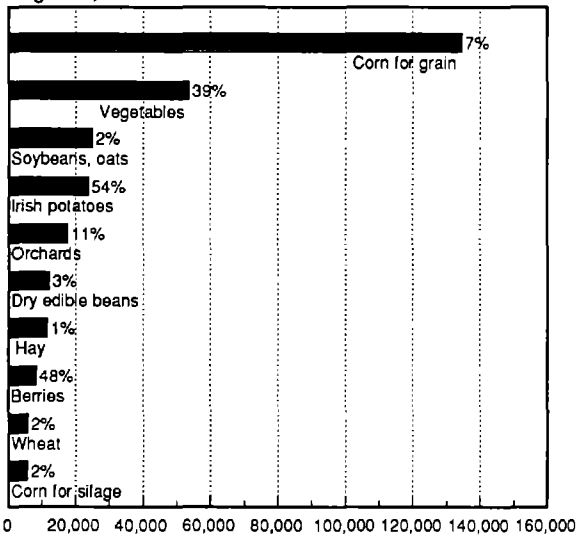
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	12.1	95	1
Ground	0.7	5	19
Total	12.8	100	2
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	139.2	53	NA
Ground	124.0	47	NA
Total	263.2	100	NA
Use—			
Irrigation	235.2	89	NA
Other farm uses	28.0	11	NA
Disposition—			
Consumptive use	259.8	99	NA
Return flow	3.4	1	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Michigan

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	48,653	56,321	59,080	62,914	75,656	91,560
Harvested cropland	do.	46,017	53,738	57,294	60,836	70,605	87,947
Irrigated land	do.	3,755	3,179	3,157	2,036	2,150	2,041
Harvested cropland	do.	3,684	3,150	3,101	NA	NA	NA
Total cropland	1,000 acres	8,181	8,458	8,382	8,005	8,580	9,455
Harvested cropland	do.	6,172	7,256	6,774	6,318	5,502	6,738
Irrigated land	No. of acres	314,953	285,983	225,928	96,839	77,097	48,991
Harvested cropland	do.	312,073	284,047	222,666	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	St. Joseph	Montcalm	Van Buren	Branch	Kalamazoo
Irrigated land	No. of farms	3,755	229	142	174	135	146
Irrigated land	No. of acres	314,953	58,989	28,987	23,763	22,965	15,162
Major irrigated crops:							
Corn	do.	134,704	44,080	8,062	4,748	15,138	9,810
Vegetables	do.	53,780	812	2,273	11,007	427	1,738
Soybeans for beans	do.	24,078	9,957	NA	661	4,017	2,271

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	196,065	228,238	394,473	469,148	180,836	213,823
Machinery and equipment	45,954	45,711	100,147	99,166	41,787	42,506
Farm products sold	49,736	44,123	170,754	166,209	40,152	37,128
Crops, nursery, and greenhouse	34,517	30,983	141,174	135,553	22,999	23,115
Livestock and poultry	49,667	39,787	146,550	129,516	46,087	37,224
Selected production expenses:						
Commercial fertilizers	5,215	5,629	10,165	12,062	4,719	5,138
Other agricultural chemicals	3,380	3,044	9,807	9,001	2,697	2,518
Energy and petroleum products	3,468	3,911	11,080	13,221	2,863	3,352
Hired labor	13,370	8,640	49,342	33,850	7,880	5,642
Contract labor	5,962	5,755	17,223	20,173	3,913	3,442

Irrigation methods, water sources, and pumping energy use: Water Resources Region 04, Great Lakes

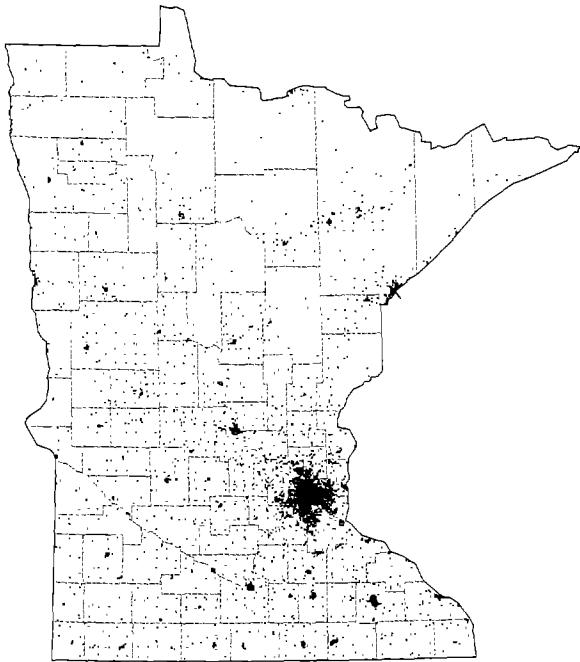
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	2,967	450,551	0.7	2,883	435,517	0.7
Center pivot	1,214	238,305	0.8	970	217,712	0.9
Mechanical move	1,059	154,851	0.6	1,291	167,404	0.5
Hand move	1,085	42,863	0.7	926	36,130	0.5
Solid set and permanent	386	14,532	0.7	477	14,271	0.7
All gravity systems	42	2,807	1.1	38	2,003	0.7
Gated pipe	3	800	1.4	17	800	0.6
Ditch with siphon tube	15	632	NA	12	420	NA
Flooding	24	1,375	1.5	9	783	0.7
Drip or trickle	400	11,993	0.5	338	11,366	0.4
Subirrigation	193	10,490	1.6	37	2,330	1.5
Sources:						
Wells	1,732	259,864	0.8	1,597	265,261	0.6
Onfarm surface sources	1,823	195,925	0.6	1,771	175,356	0.6
Off-farm water suppliers	90	18,789	0.8	71	8,518	3.8
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	3,045	452,647	23	2,928	437,010	25
Electricity	1,708	226,994	28	1,522	245,612	27
Natural gas	7	1,790	9	15	2,513	16
LP gas, propane, butane	131	13,697	23	163	15,785	14
Diesel fuel	1,291	197,583	19	1,268	159,174	22
Gasoline and gasohol	641	12,583	23	563	13,926	29
Off-farm water supply	90	18,789	6	71	8,518	3

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	685	761	968	39	52	55
Irrigated cropland	951	1,048	1,182	79	82	94
Grazing land	307	324	385	11	15	16

Minnesota

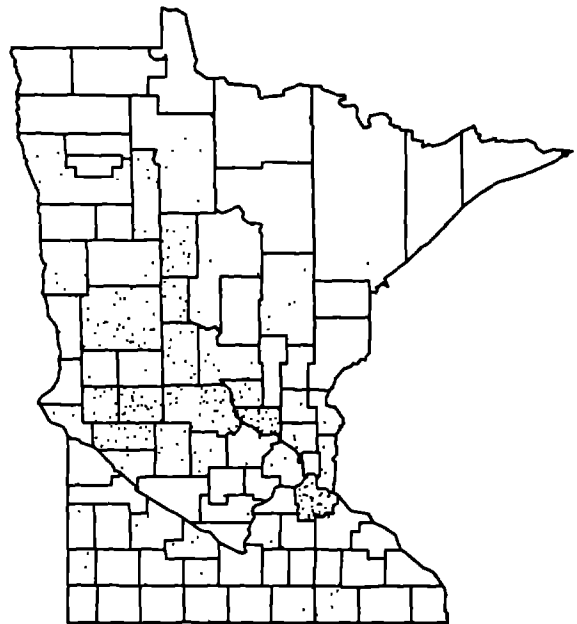
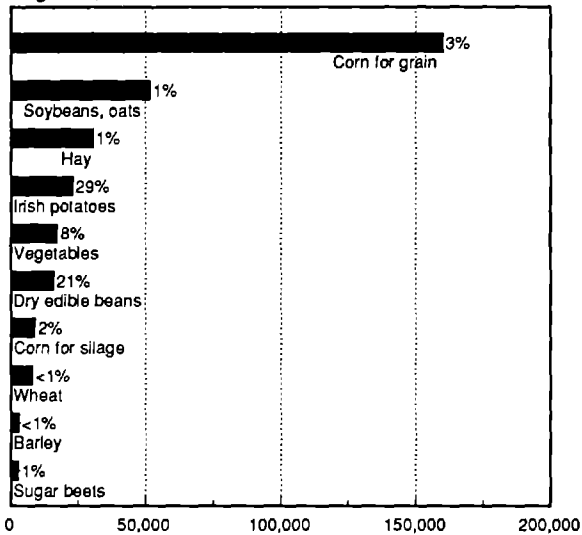
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
<i>M.a.f.</i>			
Sources:			
Surface	2.4	76	4
Ground	0.8	24	27
Total	3.2	100	10
<i>T.a.f.</i>			
Agriculture:			
Sources—			
Surface	99.3	32	NA
Ground	211.0	68	NA
Total	310.3	100	NA
Use—			
Irrigation	234.1	75	NA
Other farm uses	76.2	25	NA
Disposition—			
Consumptive use	288.9	93	NA
Return flow	21.4	7	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Minnesota

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	79,461	88,399	94,255	95,160	106,665	127,259
Harvested cropland	<i>do.</i>	76,537	85,948	92,257	92,776	102,876	124,424
Irrigated land	<i>do.</i>	2,425	2,172	2,031	853	575	470
Harvested cropland	<i>do.</i>	2,400	2,156	1,991	NA	NA	NA
Total cropland	<i>1,000 acres</i>	21,876	22,189	22,577	21,321	22,261	22,243
Harvested cropland	<i>do.</i>	16,635	19,723	19,123	17,896	15,649	17,515
Irrigated land	<i>No. of acres</i>	353,504	315,376	271,704	77,823	36,365	17,510
Harvested cropland	<i>do.</i>	348,500	312,667	268,405	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Dakota	Stearns	Otter Tail	Pope	Sherburne
Irrigated land	<i>No. of farms</i>	2,425	203	214	185	127	121
Irrigated land	<i>No. of acres</i>	353,504	39,425	34,630	34,026	28,457	23,629
Major irrigated crops:							
Corn	<i>do.</i>	160,134	22,033	17,530	13,969	16,433	10,128
Soybeans for beans	<i>do.</i>	46,978	6,648	4,348	1,242	6,610	4,067
Hay	<i>do.</i>	30,686	3,216	5,393	6,213	1,764	1,400

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	218,808	342,593	374,333	574,477	214,599	337,323
Machinery and equipment	55,741	60,671	103,326	115,148	54,453	59,433
Farm products sold	66,719	62,932	143,191	146,451	64,475	60,965
Crops, nursery, and greenhouse	40,616	39,539	94,152	93,016	38,600	37,914
Livestock and poultry	59,016	50,268	110,688	101,539	57,801	49,216
Selected production expenses:						
Commercial fertilizers	5,242	5,665	10,756	11,413	5,056	5,492
Other agricultural chemicals	3,480	3,568	6,385	6,457	3,381	3,482
Energy and petroleum products	4,324	5,671	9,566	13,155	4,180	5,500
Hired labor	6,462	5,138	22,563	18,489	5,840	4,682
Contract labor	3,018	3,059	7,425	5,724	2,769	2,922

Irrigation methods, water sources, and pumping energy use: Water Resources Region 07, Upper Mississippi

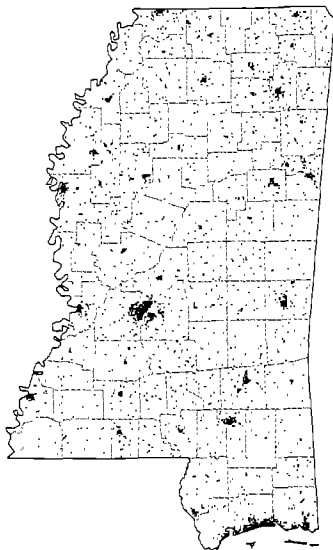
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	3,557	755,893	0.9	2,980	593,946	0.8
Center pivot	2,316	593,502	0.9	1,897	474,203	0.8
Mechanical move	952	114,128	0.7	909	83,062	0.5
Hand move	523	26,911	0.8	324	19,538	1.4
Solid set and permanent	311	21,352	1.7	399	17,143	2.3
All gravity systems	278	23,542	0.8	35	2,450	NA
Gated pipe	208	12,438	0.6	35	2,450	NA
Ditch with siphon tube	59	9,596	1.2	NA	NA	NA
Flooding	15	1,508	NA	NA	NA	NA
Drip or trickle	149	1,963	0.5	36	720	0.3
Subirrigation	36	8,092	1.1	1	D	NA
Sources:						
Wells	2,732	638,774	0.9	2,206	482,201	0.7
Onfarm surface sources	1,260	116,957	0.9	955	99,923	1.0
Off-farm water suppliers	119	19,873	0.9	108	2,016	1.4
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	3,581	748,931	22	2,936	569,361	19
Electricity	2,015	434,187	23	1,932	392,425	17
Natural gas	45	7,887	17	NA	NA	NA
LP gas, propane, butane	198	27,022	17	1,911	368,491	21
Diesel fuel	1,697	275,315	20	1,055	122,097	23
Gasoline and gasohol	185	4,520	33	208	15,039	40
Off-farm water supply	119	19,873	5	108	2,016	59

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	594	638	1,056	45	57	72
Irrigated cropland	757	913	1,186	81	86	96
Grazing land	180	209	339	13	14	17

Mississippi

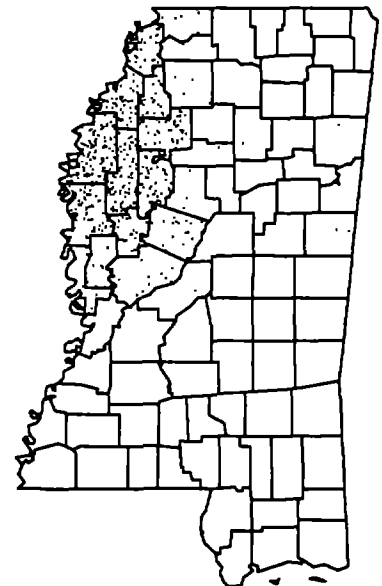
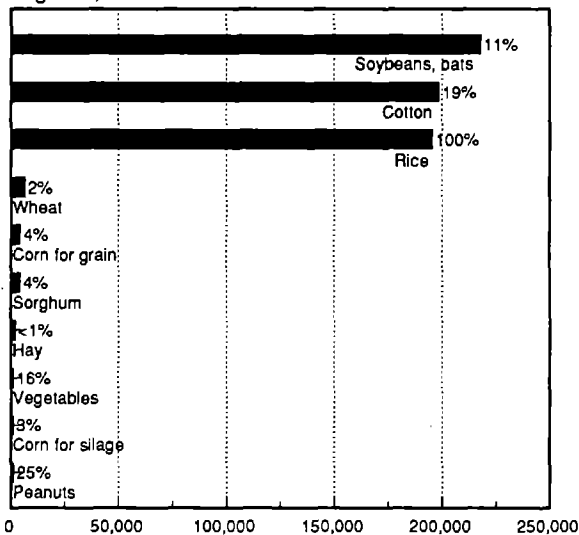
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		M.a.f.	Percent
Sources:			
Surface	0.8	32	24
Ground	1.8	68	70
Total	2.6	100	55
Agriculture:			
Sources—			
Surface	0.2	14	NA
Ground	1.2	86	NA
Total	1.4	100	NA
Use—			
Irrigation	1.0	70	NA
Other farm uses	0.4	30	NA
Disposition—			
Consumptive use	0.5	38	NA
Return flow	0.9	62	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Mississippi

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	29,785	37,476	40,373	49,530	66,853	96,998
Harvested cropland	<i>do.</i>	24,305	31,122	34,189	40,007	53,266	88,229
Irrigated land	<i>do.</i>	2,012	1,462	1,139	673	987	857
Harvested cropland	<i>do.</i>	1,936	1,438	1,075	NA	NA	NA
Total cropland	<i>1,000 acres</i>	6,748	7,745	8,119	8,040	8,189	6,565
Harvested cropland	<i>do.</i>	4,273	5,800	5,849	4,793	4,752	4,400
Irrigated land	<i>No. of acres</i>	636,842	430,901	308,694	161,611	149,920	123,398
Harvested cropland	<i>do.</i>	632,791	429,447	305,481	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Bolivar	Sunflower	Washington	Coahoma	Leflore
Irrigated land	<i>No. of farms</i>	2,012	269	234	157	100	112
Irrigated land	<i>No. of acres</i>	636,842	137,385	90,260	66,616	55,557	50,540
Major irrigated crops:							
Soybeans for beans	<i>do.</i>	217,827	61,420	21,438	23,749	22,110	17,337
Cotton	<i>do.</i>	198,549	16,576	38,689	15,175	18,804	19,308
Rice	<i>do.</i>	195,505	58,068	28,604	26,251	11,213	13,508

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
Dollars						
Land and buildings	215,209	257,819	852,547	1,321,167	176,795	219,167
Machinery and equipment	34,900	35,083	136,307	173,264	28,778	30,057
Farm products sold	54,672	45,231	243,260	271,097	42,838	37,168
Crops, nursery, and greenhouse	69,499	64,670	245,417	276,174	41,222	46,660
Livestock and poultry	38,812	26,433	102,002	56,411	37,715	26,073
Selected production expenses:						
Commercial fertilizers	4,025	4,089	14,938	15,050	3,095	3,529
Other agricultural chemicals	7,857	9,606	33,755	33,339	4,742	7,336
Energy and petroleum products	3,272	3,896	17,971	28,063	2,360	3,011
Hired labor	10,888	9,148	37,417	36,413	7,491	6,925
Contract labor	3,419	2,745	7,229	11,223	2,876	2,204

Irrigation methods, water sources, and pumping energy use: Water Resources Region 08, Lower Mississippi

Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	1,977	771,968	0.7	1,439	426,219	0.8
Center pivot	1,573	628,087	0.7	985	319,232	0.8
Mechanical move	269	56,412	0.3	163	33,426	0.7
Hand move	50	15,102	NA	100	4,885	0.2
Solid set and permanent	244	72,367	0.8	239	68,676	1.0
All gravity systems	8,614	3,495,595	1.5	7,145	2,586,918	1.4
Gated pipe	3,125	1,046,177	1.2	2,027	528,037	0.9
Ditch with siphon tube	1,433	326,262	2.0	1,258	310,265	1.6
Flooding	6,030	2,123,156	1.6	5,020	1,748,616	1.6
Drip or trickle	466	12,395	1.4	196	3,502	0.5
Subirrigation	137	53,965	1.2	104	17,220	2.2
Sources:						
Wells	8,508	3,763,587	1.3	7,172	2,596,689	1.3
Onfarm surface sources	2,134	524,572	1.8	1,680	395,971	1.7
Off-farm water suppliers	1,057	72,366	0.9	144	29,655	2.0
----- <i>Number</i> ----- <i>\$/acre</i> ----- <i>Number</i> ----- <i>\$/acre</i>						
Onfarm energy use for pumping	9,312	4,259,523	16	8,058	2,900,523	20
Electricity	4,972	1,488,702	22	4,631	1,246,185	22
Natural gas	1,154	223,243	22	1,033	191,980	25
LP gas, propane, butane	2,228	498,399	13	1,911	368,491	21
Diesel fuel	6,017	2,042,815	13	4,059	1,091,072	16
Gasoline and gasohol	85	6,364	7	119	2,795	4
Off-farm water supply	1,057	72,366	11	144	29,655	45

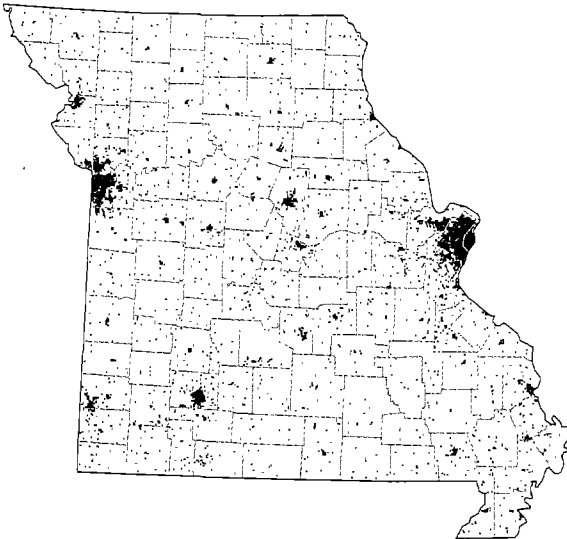
Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	591	654	837	32	35	46
Irrigated cropland	935	1,028	1,459	69	64	65
Grazing land	418	460	578	13	11	13

Missouri

Distribution of population, 1985

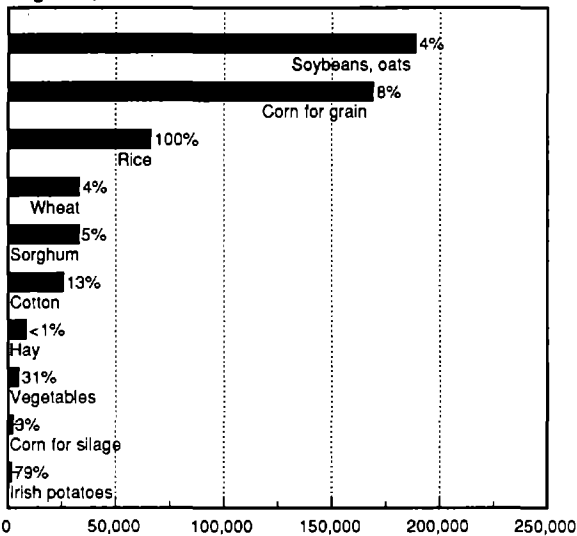
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water <i>M.a.f.</i>	Share of total	
		—Percent—	
Sources:			
Surface	6.1	90	1
Ground	0.7	10	46
Total	6.8	100	6
Agriculture:			
Sources—			
Surface	0.1	15	NA
Ground	0.3	85	NA
Total	0.4	100	NA
Use—			
Irrigation	0.3	88	NA
Other farm uses	0.1	12	NA
Disposition—			
Consumptive use	0.3	75	NA
Return flow	0.1	25	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Missouri

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	93,434	100,593	105,339	107,673	127,337	134,608
Harvested cropland	<i>do.</i>	80,396	86,837	92,385	93,357	105,853	119,569
Irrigated land	<i>do.</i>	2,823	2,037	2,136	1,310	1,386	822
Harvested cropland	<i>do.</i>	2,754	2,004	2,069	NA	NA	NA
Total cropland	<i>1,000 acres</i>	19,378	19,376	20,283	19,339	20,955	17,960
Harvested cropland	<i>do.</i>	11,655	12,725	12,434	11,765	10,036	11,068
Irrigated land	<i>No. of acres</i>	534,795	402,914	320,387	150,446	155,862	59,426
Harvested cropland	<i>do.</i>	529,342	400,668	316,607	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Stoddard	New Madrid	Butler	Mississippi	Scott
Irrigated land	<i>No. of farms</i>	2,823	376	256	304	101	106
Irrigated land	<i>No. of acres</i>	534,795	139,272	81,289	74,315	36,641	30,135
Major irrigated crops:							
Soybeans for beans	<i>do.</i>	188,785	46,140	31,506	21,449	14,948	10,677
Corn	<i>do.</i>	169,151	50,693	27,673	5,695	14,009	12,465
Rice	<i>do.</i>	66,666	21,546	1,615	37,858	NA	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	175,612	223,247	552,473	798,552	165,338	212,936
Machinery and equipment	28,432	30,450	88,881	108,441	26,783	29,050
Farm products sold	34,353	32,076	132,918	144,696	31,659	29,998
Crops, nursery, and greenhouse	27,974	27,384	120,451	129,772	23,070	23,770
Livestock and poultry	26,889	23,201	64,648	61,461	26,464	22,884
Selected production expenses:						
Commercial fertilizers	3,599	4,048	12,419	15,512	3,238	3,704
Other agricultural chemicals	2,732	2,911	8,027	8,887	2,444	2,677
Energy and petroleum products	2,291	2,750	9,359	13,593	2,089	2,554
Hired labor	5,094	4,355	22,431	20,166	4,105	3,678
Contract labor	2,133	1,844	8,707	3,385	1,744	1,782

Irrigation methods, water sources, and pumping energy use: Water Resources Region 08, Lower Mississippi

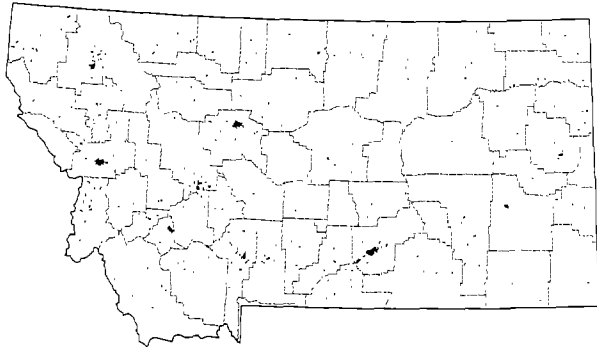
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	1,977	771,968	0.7	1,439	426,219	0.8
Center pivot	1,573	628,087	0.7	985	319,232	0.8
Mechanical move	269	56,412	0.3	163	33,426	0.7
Hand move	50	15,102	NA	100	4,885	0.2
Solid set and permanent	244	72,367	0.8	239	68,676	1.0
All gravity systems	8,614	3,495,595	1.5	7,145	2,586,918	1.4
Gated pipe	3,125	1,046,177	1.2	2,027	528,037	0.9
Ditch with siphon tube	1,433	326,262	2.0	1,258	310,265	1.6
Flooding	6,030	2,123,156	1.6	5,020	1,748,616	1.6
Drip or trickle	466	12,395	1.4	196	3,502	0.5
Subirrigation	137	53,965	1.2	104	17,220	2.2
Sources:						
Wells	8,508	3,763,587	1.3	7,172	2,596,689	1.3
Onfarm surface sources	2,134	524,572	1.8	1,680	395,971	1.7
Off-farm water suppliers	1,057	72,366	0.9	144	29,655	2.0
<i>-----Number----- \$/acre -----Number----- \$/acre</i>						
Onfarm energy use for pumping	9,312	4,259,523	16	8,058	2,900,523	20
Electricity	4,972	1,488,702	22	4,631	1,246,185	22
Natural gas	1,154	223,243	22	1,033	191,980	25
LP gas, propane, butane	2,228	498,399	13	1,911	368,491	21
Diesel fuel	6,017	2,042,815	13	4,059	1,091,072	16
Gasoline and gasohol	85	6,364	7	119	2,795	4
Off-farm water supply	1,057	72,366	11	144	29,655	45

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	589	596	840	50	52	63
Irrigated cropland	778	1,044	1,527	83	84	94
Grazing land	339	343	485	19	19	22

Montana

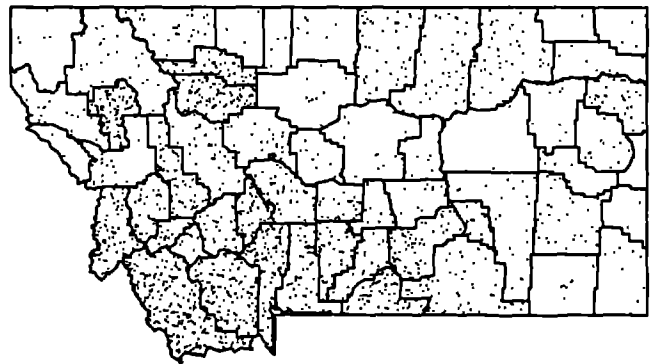
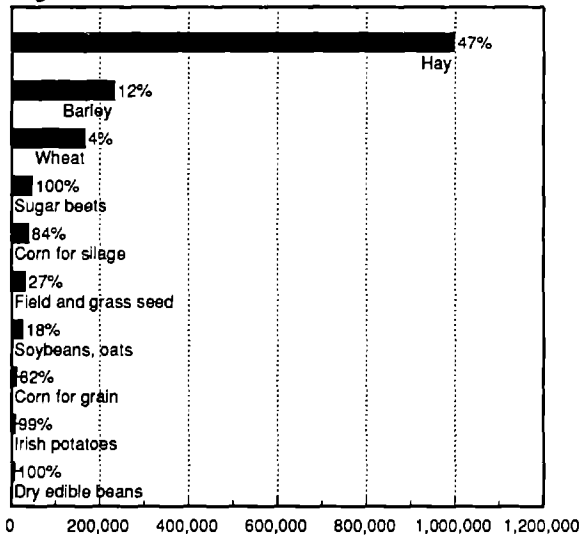
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		<i>M.a.f.</i>	Percent
Sources:			
Surface	9.5	98	98
Ground	0.2	2	47
Total	9.7	100	97
Agriculture:			
Sources—			
Surface	9.3	99	NA
Ground	0.1	1	NA
Total	9.4	100	NA
Use—			
Irrigation	9.3	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	2.0	22	NA
Return flow	7.4	78	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Montana

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	21,064	20,717	21,437	21,368	22,709	25,212
Harvested cropland	<i>do.</i>	19,267	19,279	20,313	20,376	21,404	24,308
Irrigated land	<i>do.</i>	9,520	9,226	9,384	8,714	9,197	10,843
Harvested cropland	<i>do.</i>	8,495	8,282	8,532	NA	NA	NA
Total cropland	<i>1,000 acres</i>	17,830	16,452	16,233	15,446	16,109	15,388
Harvested cropland	<i>do.</i>	9,128	9,366	8,741	8,427	7,937	7,813
Irrigated land	<i>No. of acres</i>	1,996,882	2,023,003	2,069,531	1,759,040	1,841,421	1,893,360
Harvested cropland	<i>do.</i>	1,541,977	1,537,067	1,500,981	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Beaverhead	Madison	Gallatin	Teton	Lake
Irrigated land	<i>No. of farms</i>	9,520	288	348	477	312	747
Irrigated land	<i>No. of acres</i>	1,996,882	247,743	124,831	99,806	99,509	90,202
Major irrigated crops:							
Hay	<i>do.</i>	999,141	126,899	85,653	47,492	29,460	43,104
Barley for grain	<i>do.</i>	233,324	7,857	8,205	19,650	38,125	6,626
Wheat for grain	<i>do.</i>	166,759	4,559	3,332	11,371	14,271	5,656

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	505,526	677,995	597,565	772,626	447,824	618,869
Machinery and equipment	60,754	66,632	60,356	66,924	61,004	66,451
Farm products sold	62,980	65,641	78,669	75,333	53,054	59,407
Crops, nursery, and greenhouse	43,841	53,361	38,760	44,277	47,189	58,957
Livestock and poultry	53,628	45,880	71,639	60,197	39,910	34,631
Selected production expenses:						
Commercial fertilizers	6,475	7,267	5,366	6,135	7,494	8,307
Other agricultural chemicals	4,236	3,768	3,067	2,840	4,972	4,321
Energy and petroleum products	5,365	6,717	5,917	7,390	5,012	6,300
Hired labor	10,997	8,275	14,308	10,110	8,371	6,786
Contract labor	2,870	2,899	3,049	3,012	2,696	2,792

Irrigation methods, water sources, and pumping energy use

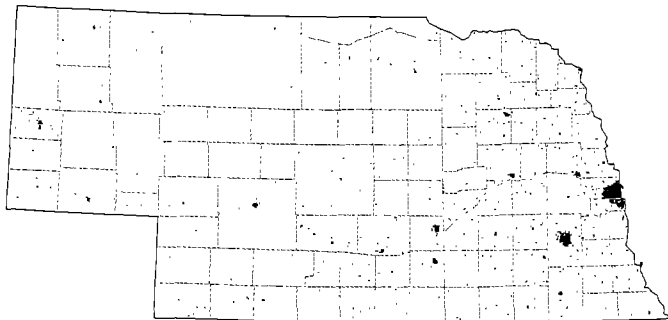
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	3,294	598,806	1.4	3,964	565,096	1.5
Center pivot	542	176,191	0.9	427	143,227	1.6
Mechanical move	1,407	257,254	1.8	1,740	249,245	0.9
Hand move	2,254	161,041	2.0	2,736	157,677	1.5
Solid set and permanent	39	4,320	NA	177	14,947	0.8
All gravity systems	5,397	1,242,799	1.6	5,358	1,298,264	1.8
Gated pipe	1,071	97,587	1.5	658	82,505	1.6
Ditch with siphon tube	3,738	668,299	1.6	3,144	635,675	1.9
Flooding	1,513	476,913	1.4	2,134	580,084	1.9
Drip or trickle	102	20,945	0.2	0	0	NA
Subirrigation	299	51,894	1.0	315	64,362	1.7
Sources:						
Wells	899	130,145	1.1	534	56,024	1.0
Onfarm surface sources	1,699	583,543	1.5	2,882	766,567	2.3
Off-farm water suppliers	5,841	1,217,090	1.6	4,967	1,083,423	1.5
<i>-----Number----- \$/acre</i>						
Onfarm energy use for pumping	3,232	628,777	15	3,232	524,962	13
Electricity	2,772	579,836	15	2,747	454,378	13
Natural gas	38	4,465	18	61	23,624	6
LP gas, propane, butane	40	7,022	8	41	4,245	24
Diesel fuel	413	26,832	12	502	35,510	13
Gasoline and gasohol	257	10,622	3	101	7,205	7
Off-farm water supply	5,841	1,217,090	10	4,967	1,083,423	8

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	255	299	414	20	21	21
Irrigated cropland	693	801	1,149	50	53	57
Grazing land	76	100	146	3	5	3

Nebraska

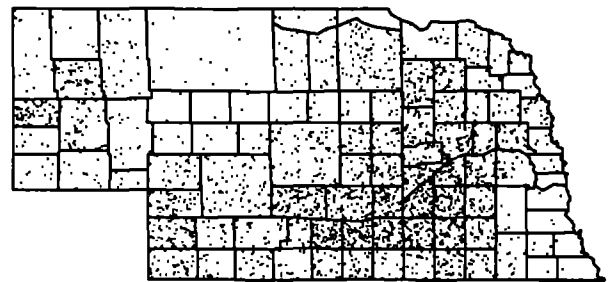
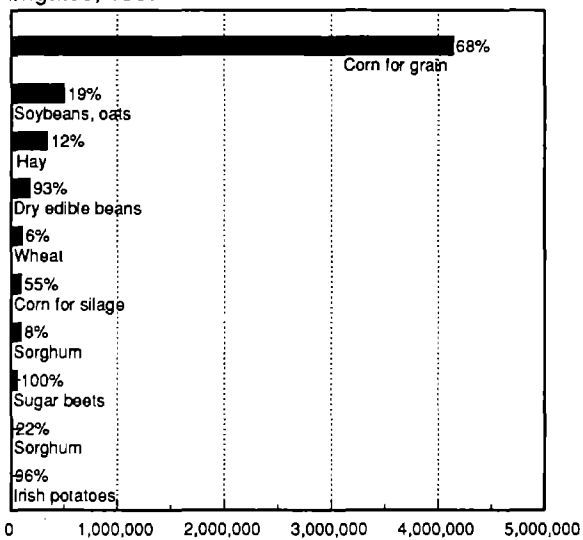
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	5.0	44	47
Ground	6.3	56	95
Total	11.2	100	74
Agriculture:			
Sources—			
Surface	2.3	28	NA
Ground	5.9	72	NA
Total	8.2	100	NA
Use—			
Irrigation	8.2	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	5.3	65	NA
Return flow	2.9	35	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 2,000 acres

Selected Characteristics of Irrigated Farms

Nebraska

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	53,500	54,475	58,594	63,040	67,197	75,386
Harvested cropland	<i>do.</i>	51,175	52,497	56,644	60,660	64,669	73,758
Irrigated land	<i>do.</i>	22,596	22,190	23,862	20,331	19,440	18,833
Harvested cropland	<i>do.</i>	22,488	22,094	23,673	NA	NA	NA
Total cropland	<i>1,000 acres</i>	23,320	22,434	22,274	22,213	22,223	22,100
Harvested cropland	<i>do.</i>	15,276	17,076	16,372	16,309	14,023	15,229
Irrigated land	<i>No. of acres</i>	5,681,835	6,039,292	5,682,931	3,966,930	2,857,247	2,169,317
Harvested cropland	<i>do.</i>	5,561,530	5,948,974	5,491,725	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Hamilton	Dawson	Phelps	York	Buffalo
Irrigated land	<i>No. of farms</i>	22,596	628	656	491	651	752
Irrigated land	<i>No. of acres</i>	5,681,835	197,490	195,082	187,427	176,233	175,190
Major irrigated crops:							
Corn	<i>do.</i>	4,143,223	175,014	149,659	168,822	152,082	143,984
Soybeans for beans	<i>do.</i>	487,356	14,819	17,027	8,107	16,776	20,089
Hay	<i>do.</i>	346,791	1,974	16,482	4,139	844	5,901

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	344,253	532,741	525,342	811,930	238,780	367,681
Machinery and equipment	58,799	68,007	91,741	106,272	39,589	45,604
Farm products sold	110,197	109,984	174,341	185,903	71,960	65,712
Crops, nursery, and greenhouse	46,280	51,211	71,253	80,701	24,440	27,587
Livestock and poultry	107,045	92,518	164,325	149,911	76,782	60,631
Selected production expenses:						
Commercial fertilizers	6,226	7,571	9,333	11,344	3,117	3,787
Other agricultural chemicals	3,439	3,778	5,120	5,189	2,005	2,395
Energy and petroleum products	6,218	7,892	10,666	13,509	3,522	4,589
Hired labor	10,188	7,162	13,904	10,200	6,784	4,437
Contract labor	3,368	2,923	4,052	3,247	2,573	2,577

Irrigation methods, water sources, and pumping energy use

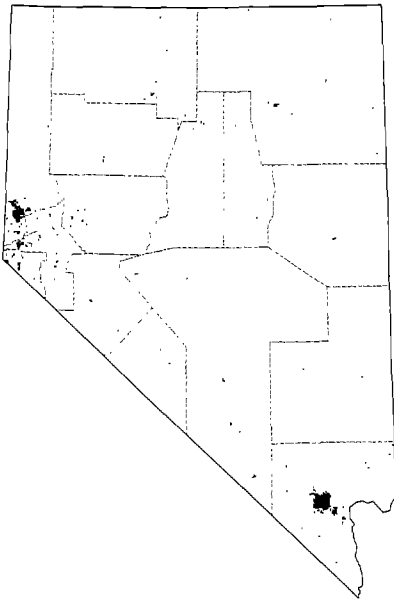
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	12,194	3,057,984	1.0	10,724	2,987,744	1.0
Center pivot	10,055	2,816,185	1.0	9,419	2,778,200	1.1
Mechanical move	2,497	208,306	0.8	1,780	160,084	0.5
Hand move	738	29,179	0.3	1,017	49,215	0.3
Solid set and permanent	214	4,314	NA	3	245	NA
All gravity systems	13,926	2,743,550	1.3	13,766	2,814,136	1.2
Gated pipe	12,429	2,241,950	1.3	12,143	2,242,283	1.1
Ditch with siphon tube	3,012	482,752	1.5	3,996	485,893	1.4
Flooding	138	18,848	0.9	391	85,960	1.0
Drip or trickle	0	0	0.0	0	0	NA
Subirrigation	53	5,300	NA	393	79,690	NA
Sources:						
Wells	16,935	4,901,353	1.1	172,207	5,018,952	1.0
Onfarm surface sources	2,495	169,435	0.9	1,756	162,678	1.1
Off-farm water suppliers	3,437	650,397	1.6	3,372	692,265	1.4
	-----Number-----			-----Number-----		
			<i>\$/acre</i>			<i>\$/acre</i>
Onfarm energy use for pumping	18,421	5,260,251	23	172,271	5,297,147	24
Electricity	10,259	2,257,005	23	9,373	2,205,645	25
Natural gas	4,503	902,552	22	3,852	1,002,163	19
LP gas, propane, butane	5,545	708,645	20	5,455	802,578	19
Diesel fuel	7,567	1,327,906	23	7,198	1,262,408	31
Gasoline and gasohol	1,593	64,143	11	744	24,353	11
Off-farm water supply	3,437	650,397	16	3,372	692,265	15

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	454	435	711	35	43	53
Irrigated cropland	859	859	1,369	83	87	113
Grazing land	96	104	182	6	8	12

Nevada

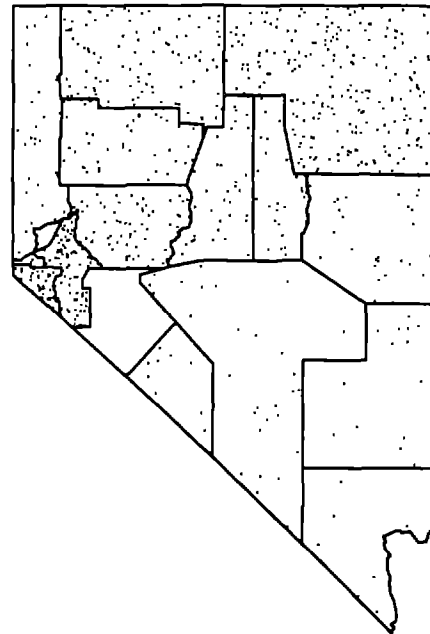
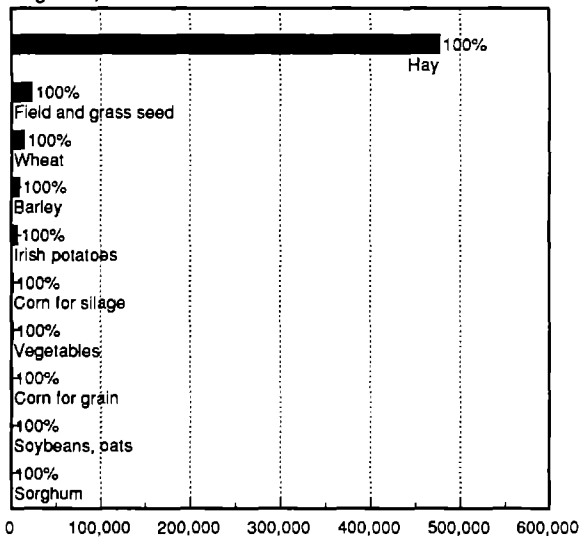
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		M.a.f.	Percent
Sources:			
Surface	3.2	76	93
Ground	1.0	24	83
Total	4.2	100	90
Agriculture:			
Sources—			
Surface	2.9	78	NA
Ground	0.9	22	NA
Total	3.8	100	NA
Use—			
Irrigation	3.7	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	2.0	51	NA
Return flow	1.8	49	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Nevada

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	2,317	2,227	2,120	1,857	1,855	1,993
Harvested cropland	<i>do.</i>	1,884	1,895	1,855	1,665	1,648	1,854
Irrigated land	<i>do.</i>	2,221	2,154	2,086	1,794	1,768	2,018
Harvested cropland	<i>do.</i>	1,883	1,895	1,855	NA	NA	NA
Total cropland	<i>1,000 acres</i>	803	862	829	753	749	774
Harvested cropland	<i>do.</i>	526	605	585	551	521	507
Irrigated land	<i>No. of acres</i>	778,977	829,761	881,151	777,510	752,696	824,511
Harvested cropland	<i>do.</i>	524,067	602,082	585,486	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Elko	Humboldt	Lyon	Churchill	Pershing
Irrigated land	<i>No. of farms</i>	2,221	248	156	279	477	93
Irrigated land	<i>No. of acres</i>	778,977	235,188	100,972	93,218	62,539	42,796
Major irrigated crops:							
Hay	<i>do.</i>	477,346	164,349	64,655	48,207	38,907	23,948
Wheat	<i>do.</i>	15,052	NA	4,667	1,515	2,088	5,377
Field and grass seeds	<i>do.</i>	12,977	0	3,553	0	0	7,113

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	749,936	925,540	891,929	1,069,729	331,906	400,389
Machinery and equipment	52,474	52,928	64,218	62,283	17,642	19,470
Farm products sold	82,741	74,506	103,045	85,595	26,793	32,230
Crops, nursery, and greenhouse	65,813	64,005	65,813	64,005	0	0
Livestock and poultry	77,402	63,944	95,617	71,936	32,919	38,017
Selected production expenses:						
Commercial fertilizers	6,901	6,512	6,985	6,621	200	1,118
Other agricultural chemicals	3,960	4,860	4,310	4,916	606	143
Energy and petroleum products	7,577	8,523	9,079	10,261	2,520	2,308
Hired labor	27,042	17,189	30,149	17,748	9,401	12,942
Contract labor	6,173	5,677	6,731	6,199	2,019	1,500

Irrigation methods, water sources, and pumping energy use

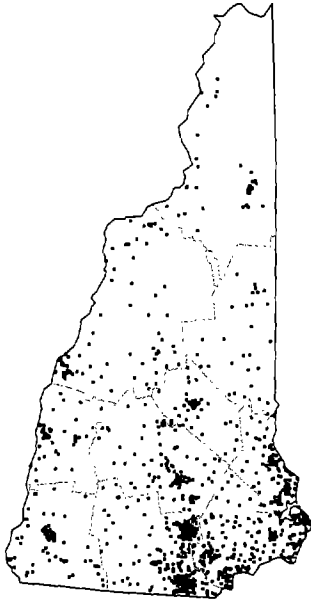
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	521	128,948	2.6	459	122,975	2.5
Center pivot	249	62,389	2.4	130	38,625	2.6
Mechanical move	290	45,849	2.5	289	56,936	2.9
Hand move	71	8,493	3.9	157	16,793	2.6
Solid set and permanent	29	12,217	NA	41	10,621	3.5
All gravity systems	1,740	442,060	2.2	1,560	567,228	2.6
Gated pipe	131	20,003	3.2	117	20,197	3.2
Ditch with siphon tube	596	158,853	2.1	781	190,168	2.7
Flooding	1,117	263,204	2.2	796	356,863	2.6
Drip or trickle	6	760	NA	13	26	NA
Subirrigation	30	7,917	2.0	49	12,725	1.5
Sources:						
Wells	725	206,294	2.6	588	174,631	2.7
Onfarm surface sources	423	187,107	1.5	470	254,208	2.2
Off-farm water suppliers	1,128	209,811	2.4	1,008	277,134	3.0
	-----Number-----			-----Number-----		
			<i>\$/acre</i>			<i>\$/acre</i>
Onfarm energy use for pumping	791	229,064	37	703	197,467	45
Electricity	732	206,565	37	561	171,000	42
Natural gas	NA	NA	NA	0	0	NA
LP gas, propane, butane	6	540	2	0	0	NA
Diesel fuel	79	20,479	38	156	25,828	64
Gasoline and gasohol	16	1,480	5	6	639	8
Off-farm water supply	1,128	209,811	20	1,008	277,134	12

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	382	382	NR	7	NR	NR
Irrigated cropland	1,050	1,126	1,251	72	64	63
Grazing land	277	308	454	22	17	20

New Hampshire

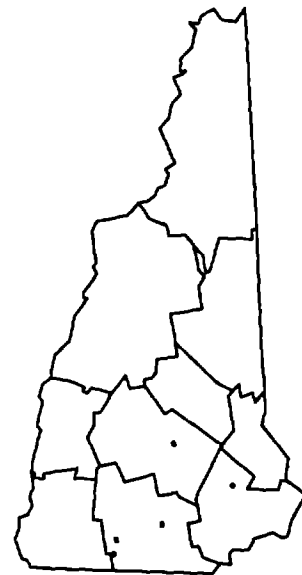
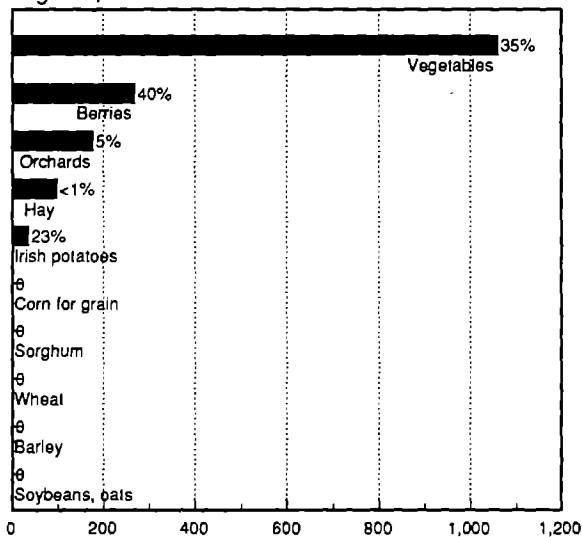
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
<i>M.a.f.</i>			
Sources:			
Surface	0.7	88	0
Ground	0.1	12	1
Total	0.8	100	0
<i>T.a.f.</i>			
Agriculture:			
Sources—			
Surface	1.4	69	NA
Ground	0.6	31	NA
Total	2.0	100	NA
Use—			
Irrigation	0.7	33	NA
Other farm uses	1.3	67	NA
Disposition—			
Consumptive use	0.9	45	NA
Return flow	1.1	55	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

New Hampshire

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	2,255	2,493	2,367	2,273	2,635	4,303
Harvested cropland	<i>do.</i>	2,044	2,282	2,232	2,128	2,352	3,895
Irrigated land	<i>do.</i>	253	176	163	119	93	159
Harvested cropland	<i>do.</i>	253	172	160	NA	NA	NA
Total cropland	<i>1,000 acres</i>	148	155	173	171	189	254
Harvested cropland	<i>do.</i>	107	117	125	118	116	168
Irrigated land	<i>No. of acres</i>	2,948	1,307	1,747	2,130	1,510	2,648
Harvested cropland	<i>do.</i>	NA	1,272	1,721	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Hillsborough	Merrimack	Rockingham	Strafford	Sullivan
Irrigated land	<i>No. of farms</i>	253	39	39	1	25	20
Irrigated land	<i>No. of acres</i>	2,948	1,374	648	392	177	94
Major irrigated crops:							
Vegetables	<i>do.</i>	1,061	591	65	246	71	2
Berries	<i>do.</i>	268	53	31	40	47	30
Orchards	<i>do.</i>	177	NA	NA	NA	19	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	358,279	201,171	413,420	251,753	351,995	197,849
Machinery and equipment	33,905	28,005	45,896	41,359	32,538	27,128
Farm products sold	42,585	37,185	101,878	90,028	35,953	33,582
Crops, nursery, and greenhouse	26,265	19,456	99,747	89,910	9,571	9,553
Livestock and poultry	47,345	42,325	16,750	18,039	48,518	43,032
Selected production expenses:						
Commercial fertilizers	2,096	2,070	2,224	2,239	2,072	2,047
Other agricultural chemicals	1,478	1,529	2,740	3,090	1,124	1,225
Energy and petroleum products	3,089	3,308	7,020	11,312	2,598	2,781
Hired labor	19,545	11,577	51,241	31,984	14,020	9,110
Contract labor	4,690	3,682	11,074	11,667	2,734	2,647

Irrigation methods, water sources, and pumping energy use: Water Resources Region 01, New England

Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	967	24,233	0.8	886	24,127	1.1
Center pivot	611	11,411	1.3	196	5,039	1.1
Mechanical move	13	1,046	0.3	36	2,548	0.4
Hand move	95	2,325	0.3	373	6,670	0.5
Solid set and permanent	258	9,421	0.5	335	9,870	1.7
All gravity systems	188	11,714	NA	87	2,683	1.5
Gated pipe	23	391	NA	6	174	0.0
Ditch with siphon tube	26	2,928	NA	41	1,455	1.5
Flooding	139	8,395	NA	44	1,054	1.2
Drip or trickle	0	0	0.0	75	679	0.6
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	324	3,698	0.5	178	2,966	0.9
Onfarm surface sources	844	21,566	3.9	731	21,261	1.0
Off-farm water suppliers	26	102	NA	76	869	0.5
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	942	24,312	48	789	22,988	54
Electricity	273	5,958	68	279	5,612	94
Natural gas	0	0	0	9	174	87
LP gas, propane, butane	310	7,418	53	147	6,203	51
Diesel fuel	130	6,599	35	190	6,392	29
Gasoline and gasohol	444	4,337	29	379	4,607	44
Off-farm water supply	26	102	84	76	869	36

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	3,404	2,800	1,473	49	38	35
Irrigated cropland	NR	NR	NR	NR	NR	NR
Grazing land	2,837	666	863	17	13	12

New Jersey

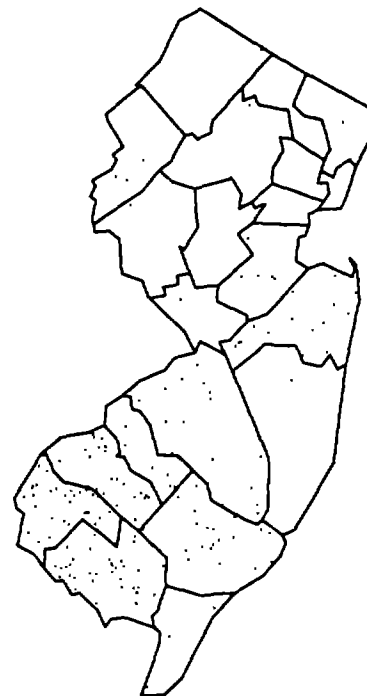
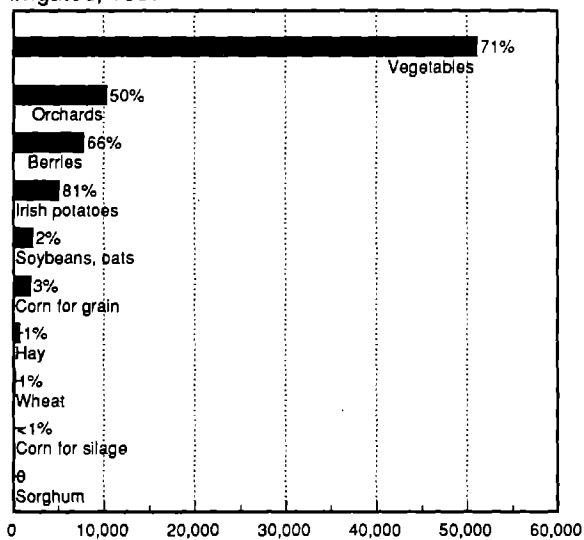
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
<i>M.a.f.</i>			
Sources:			
Surface	1.8	73	6
Ground	0.7	27	6
Total	2.5	100	6
<i>T.a.f.</i>			
Agriculture:			
Sources—			
Surface	106.2	74	NA
Ground	38.3	27	NA
Total	144.5	100	NA
Use—			
Irrigation	141.0	98	NA
Other farm uses	3.5	2	NA
Disposition—			
Consumptive use	130.1	90	NA
Return flow	14.4	10	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

New Jersey

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	8,268	7,658	7,529	7,001	7,748	9,690
Harvested cropland	do.	7,288	6,940	7,016	6,653	6,981	8,759
Irrigated land	do.	1,846	1,681	1,648	1,581	1,509	2,009
Harvested cropland	do.	1,805	1,659	1,623	NA	NA	NA
Total cropland	1,000 acres	643	670	709	675	707	776
Harvested cropland	do.	485	570	584	541	496	560
Irrigated land	No. of acres	91,208	83,049	77,159	89,321	71,967	96,433
Harvested cropland	do.	89,961	81,840	75,450	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Cumberland	Salem	Gloucester	Atlantic	Burlington
Irrigated land	No. of farms	1,846	281	154	212	229	183
Irrigated land	No. of acres	91,208	19,373	17,251	13,664	11,030	9,194
Major irrigated crops:							
Vegetables	do.	51,173	15,117	12,233	7,714	4,917	3,205
Orchards	do.	10,377	NA	NA	4,857	1,464	452
Berries	do.	7,802	39	15	95	2,542	3,866

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	396,198	343,137	471,456	414,885	376,248	324,150
Machinery and equipment	37,768	36,291	73,363	60,388	28,307	29,909
Farm products sold	54,916	52,672	162,851	138,215	27,189	30,871
Crops, nursery, and greenhouse	59,839	54,316	163,483	138,636	17,338	21,965
Livestock and poultry	32,790	31,290	29,627	23,652	32,973	31,704
Selected production expense .:						
Commercial fertilizers	4,138	4,871	7,526	6,897	2,713	4,047
Other agricultural chemicals	3,329	3,210	6,870	5,745	1,649	1,978
Energy and petroleum products	3,373	4,519	8,493	11,033	1,980	2,797
Hired labor	30,913	18,817	62,132	41,248	11,834	8,274
Contract labor	16,297	20,588	35,319	40,219	3,617	5,340

Irrigation methods, water sources, and pumping energy use: Water Resources Region 02, Mid-Atlantic

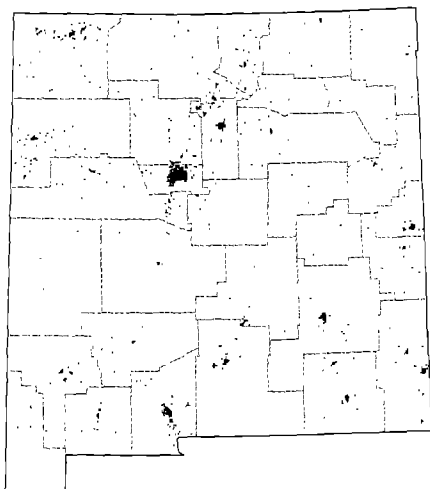
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,482	255,416	0.6	2,209	183,188	0.5
Center pivot	817	105,830	0.6	403	70,560	0.6
Mechanical move	672	94,424	0.4	525	56,114	0.3
Hand move	1,235	46,357	0.4	1,399	49,996	0.5
Solid set and permanent	86	8,805	0.8	179	6,428	1.4
All gravity systems	19	1,660	0.9	38	6,228	0.0
Gated pipe	0	0	0.0	29	3,510	0.0
Ditch with siphon tube	10	1,390	0.9	0	0	0.0
Flooding	9	270	NA	9	2,718	0.0
Drip or trickle	209	NA	1.1	156	2,646	0.5
Subirrigation	2	NA	NA	10	1,515	0.0
Sources:						
Wells	792	126,525	0.8	1,065	106,936	0.6
Onfarm surface sources	1,920	137,469	0.5	1,288	76,946	0.6
Off-farm water suppliers	67	4,076	0.3	149	2,075	0.6
-----Number----- \$/acre -----Number----- \$/acre						
Onfarm energy use for pumping						
Electricity	2,440	246,466	19	2,097	175,259	20
Natural gas	537	49,109	21	496	41,735	25
LP gas, propane, butane	0	0	0	0	0	0
Diesel fuel	51	6,729	13	103	11,538	19
Gasoline and gasohol	1,460	167,116	18	831	90,185	16
Off-farm water supply	868	23,512	28	990	31,801	25
Off-farm water supply	67	4,076	21	149	2,075	56

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	6,855	3,688	2,762	35	43	46
Irrigated cropland	2,863	2,230	1,929	66	77	69
Grazing land	2,996	2,571	1,939	23	26	30

New Mexico

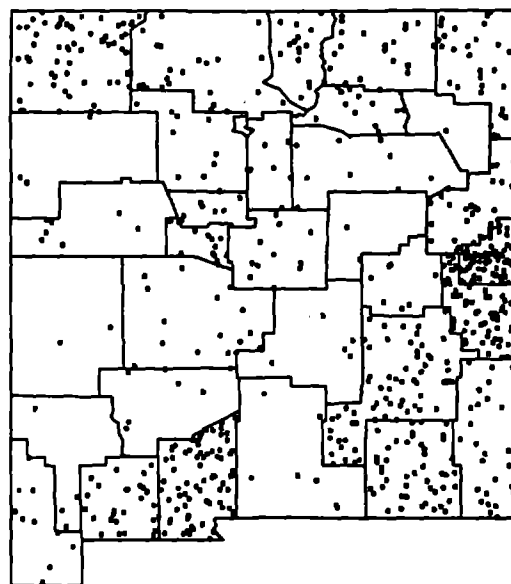
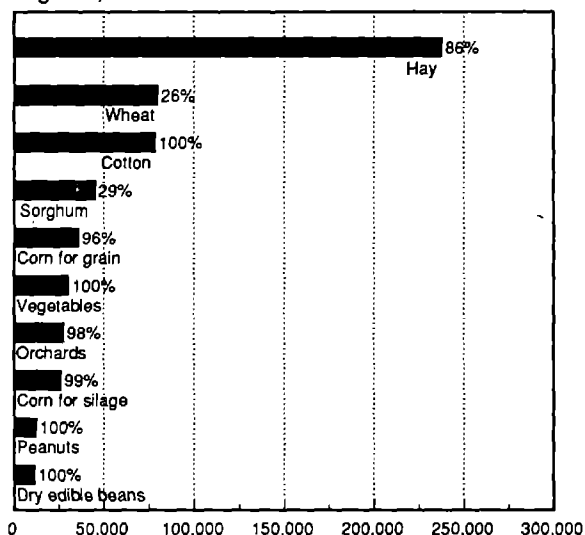
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
<i>M.a.f.</i>			
Sources:			
Surface	2.0	549	5
Ground	1.7	46	79
Total	3.7	100	87
Agriculture:			
Sources—			
Surface	1.9	59	NA
Ground	1.3	41	NA
Total	3.2	100	NA
Use—			
Irrigation	3.1	98	NA
Other farm uses	0.1	2	NA
Disposition—			
Consumptive use	1.5	46	NA
Return flow	1.7	54	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

New Mexico

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	9,429	9,196	8,597	8,041	8,308	10,742
Harvested cropland	<i>do.</i>	7,269	7,395	7,016	6,393	6,700	8,828
Irrigated land	<i>do.</i>	7,022	6,918	6,554	5,714	5,698	8,274
Harvested cropland	<i>do.</i>	6,210	6,225	5,919	NA	NA	NA
Total cropland	<i>1,000 acres</i>	2,279	2,234	2,257	2,187	2,282	2,271
Harvested cropland	<i>do.</i>	989	1,297	1,209	976	1,008	906
Irrigated land	<i>No. of acres</i>	718,449	807,206	890,610	867,325	822,637	812,723
Harvested cropland	<i>do.</i>	606,344	702,040	733,715	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Curry	Dona Ana	Roosevelt	Chaves	San Juan
Irrigated land	<i>No. of farms</i>	7,022	247	962	287	297	465
Irrigated land	<i>No. of acres</i>	718,449	85,456	78,078	72,043	64,724	63,431
Major irrigated crops:							
Hay	<i>do.</i>	237,919	4,299	16,152	7,454	32,707	23,504
Wheat for grain	<i>do.</i>	80,235	32,107	2,493	13,334	1,788	NA
Cotton	<i>do.</i>	79,135	1,430	23,375	10,496	12,062	0

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	582,012	618,708	542,486	610,499	619,002	627,226
Machinery and equipment	33,093	32,053	42,438	39,626	24,422	24,277
Farm products sold	74,399	63,079	79,045	60,582	69,885	65,711
Crops, nursery, and greenhouse	51,393	46,726	55,798	50,803	24,143	27,488
Livestock and poultry	79,703	62,839	78,928	50,737	80,204	71,680
Selected production expenses:						
Commercial fertilizers	5,325	4,823	5,535	4,864	3,638	4,237
Other agricultural chemicals	2,846	2,935	2,944	2,893	2,587	3,154
Energy and petroleum products	4,715	4,985	5,892	6,438	3,554	3,485
Hired labor	17,596	11,382	19,648	12,794	15,025	9,541
Contract labor	8,112	7,423	12,005	9,972	2,892	3,002

Irrigation methods, water sources, and pumping energy use

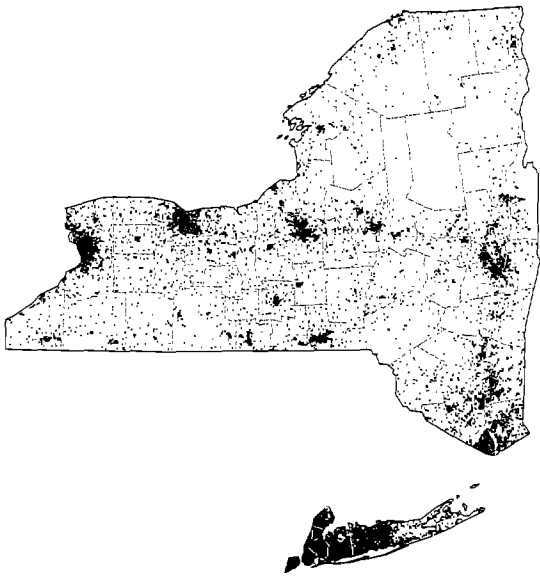
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	1,011	265,618	1.5	1,550	221,686	1.8
Center pivot	576	210,434	1.4	565	163,687	1.9
Mechanical move	412	46,827	2.2	375	39,627	1.8
Hand move	263	5,712	1.0	634	15,062	1.1
Solid set and permanent	8	2,645	2.0	81	3,310	2.3
All gravity systems	4,763	433,818	2.4	4,944	455,252	2.5
Gated pipe	663	86,951	1.7	709	72,847	1.8
Ditch with siphon tube	2,963	248,263	2.5	3,347	273,717	2.5
Flooding	1,508	98,604	2.4	1,130	108,688	2.5
Drip or trickle	330	7,414	2.2	157	3,006	1.8
Subirrigation	8	2,108	3.5	130	4,597	3.1
Sources:						
Wells	2,143	445,988	1.9	2,412	442,182	2.1
Onfarm surface sources	780	51,511	1.7	670	38,917	1.4
Off-farm water suppliers	3,041	214,935	2.3	3,556	221,316	2.3
-----Number----- <i>\$/acre</i> -----Number----- <i>\$/acre</i>						
Onfarm energy use for pumping	2,317	481,100	41	2,631	489,552	48
Electricity	1,587	271,946	48	1,721	268,706	52
Natural gas	658	173,124	32	678	185,228	42
LP gas, propane, butane	102	13,163	19	175	12,643	33
Diesel fuel	170	21,463	29	479	22,720	56
Gasoline and gasohol	89	1,404	15	16	255	17
Off-farm water supply	3,041	214,935	26	3,556	221,316	22

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	391	375	392	23	14	11
Irrigated cropland	2,293	2,604	2,489	78	69	69
Grazing land	226	219	195	2	3	8

New York

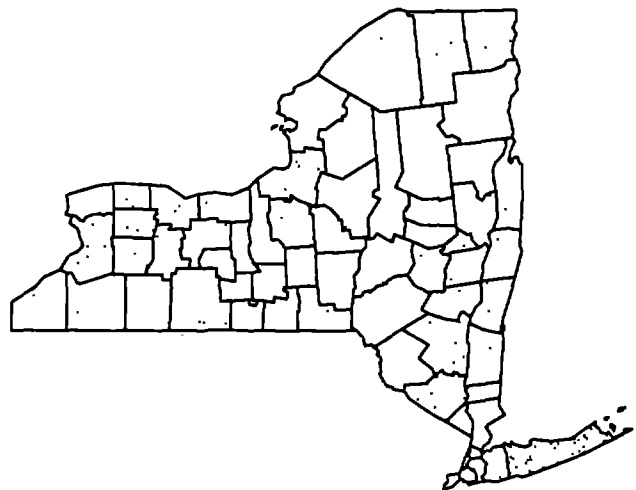
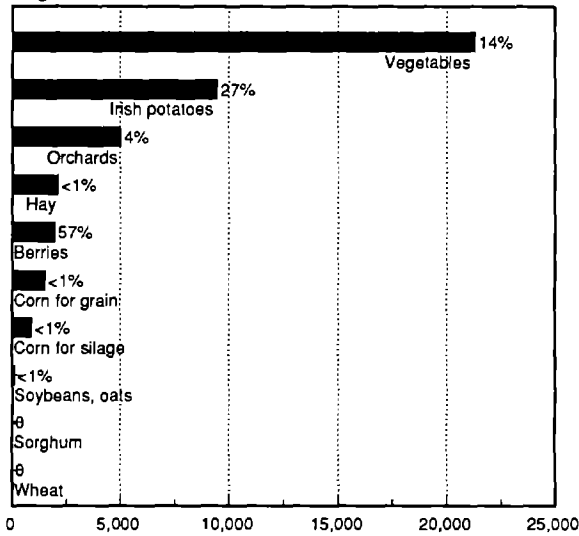
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		<i>M.a.f.</i>	Percent
Sources:			
Surface	8.9	88	0
Ground	1.2	12	3
Total	10.1	100	1
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	28.3	44	NA
Ground	35.6	56	NA
Total	63.9	100	NA
Use—			
Irrigation	42.6	67	NA
Other farm uses	21.3	33	NA
Disposition—			
Consumptive use	61.7	97	NA
Return flow	2.2	3	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

New York

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	35,680	40,276	41,879	42,675	49,768	64,266
Harvested cropland	<i>do.</i>	33,664	38,509	40,647	41,121	46,518	61,978
Irrigated land	<i>do.</i>	1,992	1,713	1,715	1,447	1,393	1,917
Harvested cropland	<i>do.</i>	1,945	1,694	1,677	NA	NA	NA
Total cropland	<i>1,000 acres</i>	5,382	5,698	5,941	5,788	6,082	6,470
Harvested cropland	<i>do.</i>	3,900	4,430	4,349	4,156	3,836	4,743
Irrigated land	<i>No. of acres</i>	50,920	52,125	56,106	54,580	55,491	79,193
Harvested cropland	<i>do.</i>	48,613	50,673	54,660	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Suffolk	Orange	Ulster	Erie	Monroe
Irrigated land	<i>No. of farms</i>	1,992	447	67	70	125	81
Irrigated land	<i>No. of acres</i>	50,920	18,640	3,427	2,600	2,366	1,785
Major irrigated crops:							
Vegetables	<i>do.</i>	21,314	5,963	1,906	661	1,280	1,336
Irish potatoes	<i>do.</i>	9,475	6,659	111	NA	181	NA
Orchards	<i>do.</i>	5,027	951	211	1,715	17	31

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	218,934	177,988	369,084	311,886	210,753	172,169
Machinery and equipment	49,087	47,561	79,701	71,758	47,416	46,510
Farm products sold	64,697	57,501	157,353	137,679	59,534	54,109
Crops, nursery, and greenhouse	37,099	31,673	156,218	134,048	23,750	22,726
Livestock and poultry	69,682	60,921	50,649	48,472	69,923	61,029
Selected production expenses:						
Commercial fertilizers	3,940	4,054	6,635	6,744	3,738	3,888
Other agricultural chemicals	2,755	2,457	7,465	7,378	2,352	2,110
Energy and petroleum products	4,337	4,798	10,669	13,358	3,980	4,425
Hired labor	16,633	12,499	64,929	44,371	12,910	10,426
Contract labor	6,235	7,032	20,948	19,802	4,861	5,655

Irrigation methods, water sources, and pumping energy use: Water Resources Region 02, Mid-Atlantic

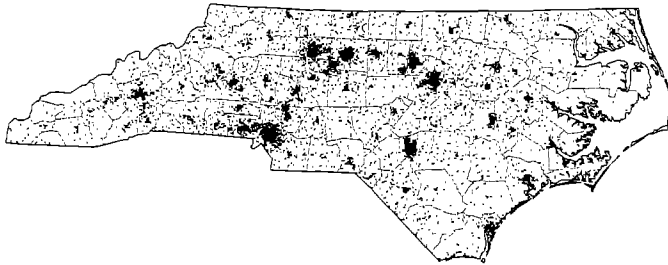
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,482	255,416	0.6	2,209	183,188	0.5
Center pivot	817	105,830	0.6	403	70,560	0.6
Mechanical move	672	94,424	0.4	525	56,114	0.3
Hand move	1,235	46,357	0.4	1,399	49,996	0.5
Solid set and permanent	86	8,805	0.8	179	6,428	1.4
All gravity systems	19	1,660	0.9	38	6,228	0.0
Gated pipe	0	0	0.0	29	3,510	0.0
Ditch with siphon tube	10	1,390	0.9	0	0	0.0
Flooding	9	270	NA	9	2,718	0.0
Drip or trickle	209	NA	1.1	156	2,646	0.5
Subirrigation	2	NA	NA	10	1,515	0.0
Sources:						
Wells	792	126,525	0.8	1,065	106,936	0.6
Onfarm surface sources	1,920	137,469	0.5	1,288	76,946	0.6
Off-farm water suppliers	67	4,076	0.3	149	2,075	0.6
<i>-----Number----- \$/acre</i>						
Onfarm energy use for pumping	2,440	246,466	19	2,097	175,259	20
Electricity	537	49,109	21	496	41,735	25
Natural gas	0	0	0	0	0	0
LP gas, propane, butane	51	6,729	13	103	11,538	19
Diesel fuel	1,460	167,116	18	831	90,185	16
Gasoline and gasohol	868	23,512	28	990	31,801	25
Off-farm water supply	67	4,076	21	149	2,075	56

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	840	731	642	32	31	29
Irrigated cropland	13,446	10,961	4,621	134	98	88
Grazing land	379	280	245	12	12	11

North Carolina

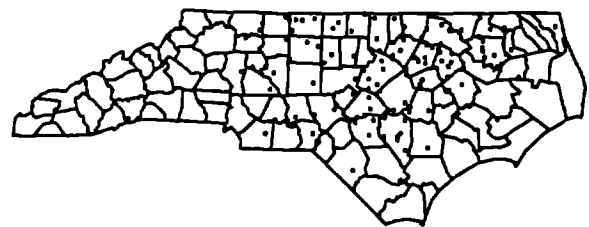
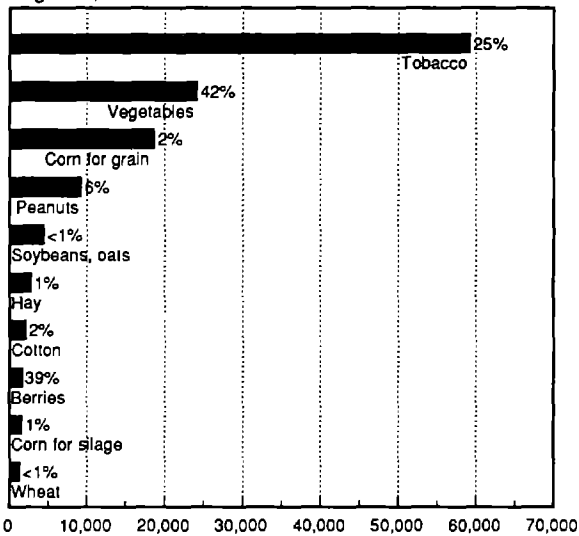
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		<i>M.a.f.</i>	Percent
Sources:			
Surface	8.3	94	2
Ground	0.5	6	9
Total	8.8	100	2
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	143.3	77	NA
Ground	43.8	23	NA
Total	187.1	100	NA
Use—			
Irrigation	147.9	79	NA
Other farm uses	39.2	21	NA
Disposition—			
Consumptive use	179.8	96	NA
Return flow	7.3	4	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

North Carolina

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	54,972	68,439	77,836	87,862	113,506	143,134
Harvested cropland	<i>do.</i>	50,108	63,392	73,870	82,844	102,316	137,737
Irrigated land	<i>do.</i>	6,445	4,026	6,082	4,002	5,170	12,583
Harvested cropland	<i>do.</i>	6,318	3,969	5,959	NA	NA	NA
Total cropland	<i>1,000 acres</i>	5,716	5,950	6,049	5,753	5,967	5,782
Harvested cropland	<i>do.</i>	3,779	4,659	4,467	4,075	3,472	3,986
Irrigated land	<i>No. of acres</i>	137,858	81,078	89,861	51,340	59,153	96,874
Harvested cropland	<i>do.</i>	135,368	79,607	87,415	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Nash	Edgecombe	Sampson	Bertie	Wake
Irrigated land	<i>No. of farms</i>	6,445	150	69	210	40	314
Irrigated land	<i>No. of acres</i>	137,858	11,395	7,932	7,920	6,687	5,835
Major irrigated crops:							
Tobacco	<i>do.</i>	59,285	3,118	1,104	1,062	295	4,545
Vegetables	<i>do.</i>	23,586	5,811	888	5,357	75	107
Corn	<i>do.</i>	18,750	578	2,199	505	2,761	50

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	199,781	187,840	318,321	298,910	185,187	181,746
Machinery and equipment	30,403	28,932	53,189	51,374	27,592	27,696
Farm products sold	59,737	48,093	99,126	86,647	54,932	45,835
Crops, nursery, and greenhouse	36,408	36,043	77,205	73,854	28,750	33,009
Livestock and poultry	67,170	45,028	74,604	47,902	66,634	44,923
Selected production expenses:						
Commercial fertilizers	3,819	4,110	5,877	6,415	3,502	3,955
Other agricultural chemicals	2,700	2,620	4,321	3,367	2,413	2,556
Energy and petroleum products	3,421	3,855	7,429	8,698	2,907	3,587
Hired labor	10,650	7,700	18,410	14,535	9,030	7,067
Contract labor	5,921	5,133	8,577	10,222	5,274	4,536

Irrigation methods, water sources, and pumping energy use: Water Resources Region 03, South Atlantic Gulf

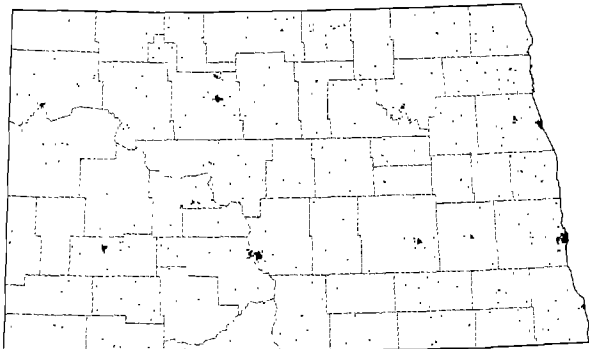
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	13,837	1,265,350	0.8	8,987	904,024	0.7
Center pivot	6,322	661,593	0.9	1,938	380,757	0.7
Mechanical move	2,432	296,183	0.5	2,723	241,098	0.5
Hand move	3,635	119,964	0.6	2,352	56,675	0.6
Solid set and permanent	2,583	187,610	1.5	2,788	225,494	1.4
All gravity systems	1,556	777,181	1.6	1,447	620,636	1.8
Gated pipe	211	21,326	0.9	137	25,028	1.3
Ditch with siphon tube	520	149,441	1.2	553	161,804	1.9
Flooding	836	606,414	1.7	789	433,804	1.9
Drip or trickle	2,751	327,958	1.6	1,989	243,723	1.3
Subirrigation	148	220,468	4.1	100	246,712	4.6
Sources:						
Wells	8,864	1,281,282	1.2	7,391	1,093,214	1.2
Onfarm surface sources	8,119	630,540	0.8	4,146	410,299	0.9
Off-farm water suppliers	1,247	556,348	3.1	290	478,335	3.5
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	13,818	2,210,114	18	10,142	1,815,951	22
Electricity	6,309	733,196	22	5,134	658,340	25
Natural gas	4	287	56	64	7,335	47
LP gas, propane, butane	1,628	91,982	24	607	51,882	32
Diesel fuel	5,945	1,358,762	16	4,862	1,072,794	19
Gasoline and gasohol	1,850	25,887	35	907	25,600	18
Off-farm water supply	1,247	556,348	27	290	478,335	22

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	1,148	1,064	1,323	45	34	39
Irrigated cropland	1,180	1,130	1,070	51	24	15
Grazing land	1,054	937	894	25	19	20

North Dakota

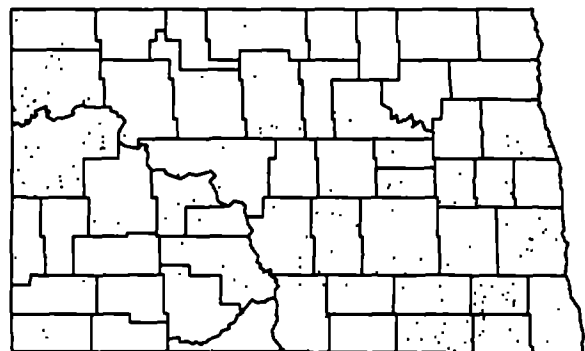
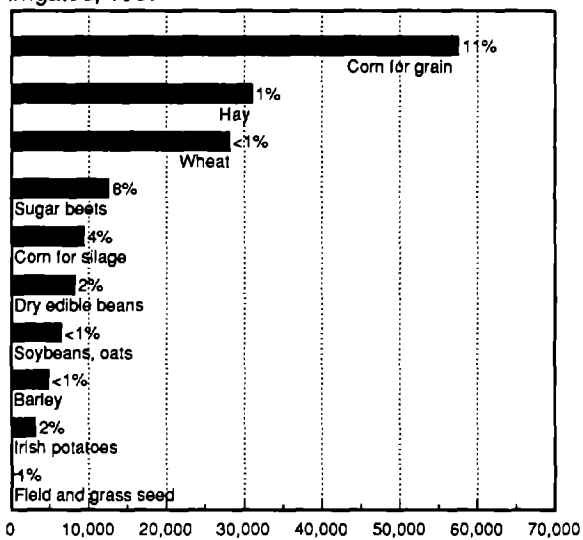
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	1.2	89	10
Ground	0.1	11	61
Total	1.3	100	15
Agriculture:			
Sources—			
Surface	110.8	56	NA
Ground	86.3	44	NA
Total	197.1	100	NA
Use—			
Irrigation	172.5	88	NA
Other farm uses	24.6	13	NA
Disposition—			
Consumptive use	163.4	83	NA
Return flow	33.7	17	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

North Dakota

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	33,179	34,693	38,936	41,301	44,581	47,748
Harvested cropland	<i>do.</i>	32,360	34,031	38,388	40,643	43,606	47,070
Irrigated land	<i>do.</i>	809	762	792	510	480	442
Harvested cropland	<i>do.</i>	789	749	744	NA	NA	NA
Total cropland	<i>1,000 acres</i>	28,208	28,116	28,606	29,185	29,459	27,446
Harvested cropland	<i>do.</i>	18,364	20,308	18,979	19,207	17,175	17,695
Irrigated land	<i>No. of acres</i>	168,013	162,643	141,434	70,891	63,238	50,548
Harvested cropland	<i>do.</i>	162,078	160,726	136,219	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	McKenzie	Ransom	Williams	Cass	Dickey
Irrigated land	<i>No. of farms</i>	809	93	44	55	29	42
Irrigated land	<i>No. of acres</i>	168,013	21,501	15,333	14,811	11,642	11,582
Major irrigated crops:							
Corn for grain	<i>do.</i>	57,562	708	11,033	70	7,899	7,835
Hay	<i>do.</i>	31,050	3,424	1,089	3,725	NA	535
Wheat	<i>do.</i>	28,214	4,761	685	5,244	1,430	984

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	366,475	486,939	615,027	852,949	361,072	479,103
Machinery and equipment	77,505	84,156	123,677	137,074	76,501	83,031
Farm products sold	62,007	62,977	132,561	135,168	60,351	61,435
Crops, nursery, and greenhouse	49,817	55,745	91,263	98,919	48,768	54,779
Livestock and poultry	35,493	25,815	78,579	68,063	34,350	24,750
Selected production expenses:						
Commercial fertilizers	7,366	7,578	11,810	12,542	7,242	7,433
Other agricultural chemicals	5,080	4,768	7,688	7,198	5,017	4,714
Energy and petroleum products	6,081	7,858	11,340	15,488	5,965	7,695
Hired labor	6,225	5,493	13,098	12,505	5,997	5,255
Contract labor	2,676	3,092	6,406	4,635	2,483	2,982

Irrigation methods, water sources, and pumping energy use

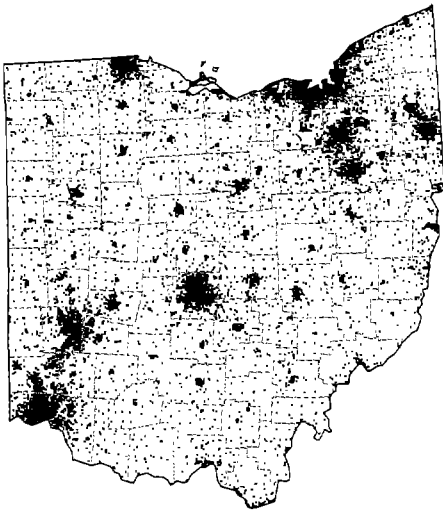
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	394	119,665	1.0	437	100,259	0.9
Center pivot	305	106,215	1.0	311	92,759	0.9
Mechanical move	15	7,670	NA	75	6,404	0.6
Hand move	89	4,424	1.1	56	1,096	0.6
Solid set and permanent	9	1,356	NA	0	0	NA
All gravity systems	228	49,313	1.4	180	43,871	1.4
Gated pipe	114	9,236	1.1	45	5,589	1.1
Ditch with siphon tube	156	32,666	1.9	118	31,099	1.4
Flooding	63	7,411	1.2	59	7,183	1.4
Drip or trickle	0	0	0.0	2	0	NA
Subirrigation	0	0	0.0	0	0	NA
Sources:						
Wells	265	91,318	1.0	271	79,978	0.9
Onfarm surface sources	196	32,885	1.0	210	32,943	1.0
Off-farm water suppliers	146	42,818	1.4	128	31,149	1.5
	-----Number-----		\$/acre	-----Number-----		\$/acre
Onfarm energy use for pumping	498	123,577	21	475	114,033	18
Electricity	293	97,556	23	309	95,470	20
Natural gas	2	NA	NA	0	0	NA
LP gas, propane, butane	92	5,061	20	27	1,244	17
Diesel fuel	168	19,590	13	135	16,167	11
Gasoline and gasohol	24	570	17	32	1,152	16
Off-farm water supply	146	42,818	12	128	31,149	13

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	324	393	481	23	31	32
Irrigated cropland	709	893	1,169	61	69	76
Grazing land	109	125	166	7	7	7

Ohio

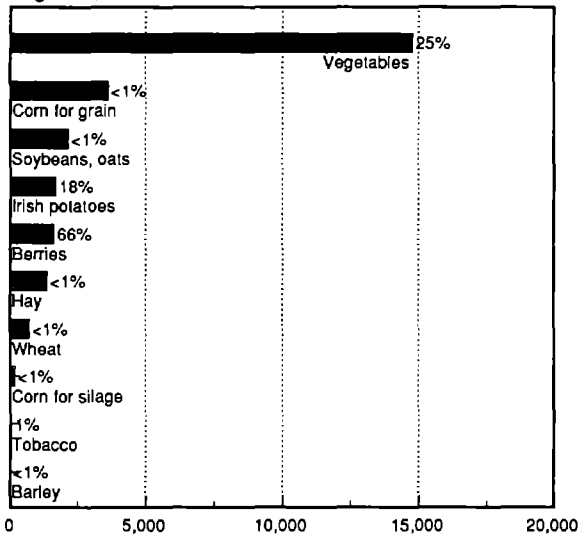
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total		Agriculture's share
		<i>M.a.f.</i>	—Percent—	
Sources:				
Surface	13.5	94		0
Ground	0.8	64		
Total	14.3	100		0
Agriculture:				
<i>T.a.f.</i>				
Sources—				
Surface	28.0	44		NA
Ground	35.8	56		NA
Total	63.8	100		NA
Use—				
Irrigation	19.0	30		NA
Other farm uses	44.8	70		NA
Disposition—				
Consumptive use	61.8	97		NA
Return flow	2.0	3		NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Ohio

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	74,376	82,069	85,585	89,231	105,854	115,274
Harvested cropland	<i>do.</i>	70,577	78,363	82,515	85,790	98,271	110,194
Irrigated land	<i>do.</i>	1,562	1,152	1,103	981	1,024	750
Harvested cropland	<i>do.</i>	1,516	1,132	1,059	NA	NA	NA
Total cropland	<i>1,000 acres</i>	11,920	11,824	12,081	11,766	12,447	11,864
Harvested cropland	<i>do.</i>	9,298	10,396	10,214	9,680	8,515	9,276
Irrigated land	<i>No. of acres</i>	32,472	27,688	24,970	22,115	22,087	17,405
Harvested cropland	<i>do.</i>	31,247	27,338	24,243	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Huron	Lucas	Champaign	Clark	Miami
Irrigated land	<i>No. of farms</i>	1,562	14	56	19	21	21
Irrigated land	<i>No. of acres</i>	32,472	3,471	1,903	1,902	1,727	1,513
Major irrigated crops:							
Vegetables	<i>do.</i>	12,339	3,256	NA	NA	94	NA
Corn	<i>do.</i>	3,621	0	NA	477	NA	388
Soybeans for beans	<i>do.</i>	1,849	NA	NA	318	0	NA

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	227,341	267,899	281,723	374,653	226,181	266,457
Machinery and equipment	39,979	39,415	63,057	60,783	39,485	39,126
Farm products sold	43,317	38,966	178,412	169,340	40,602	37,215
Crops, nursery, and greenhouse	30,153	28,782	174,711	166,571	26,375	26,397
Livestock and poultry	37,476	30,175	58,117	47,403	37,315	30,092
Selected production expenses:						
Commercial fertilizers	4,649	5,472	4,734	6,052	4,647	5,464
Other agricultural chemicals	2,696	2,452	4,443	4,557	2,650	2,416
Energy and petroleum products	2,706	3,271	10,511	18,285	2,532	3,067
Hired labor	8,510	6,042	68,913	63,446	5,863	4,515
Contract labor	3,192	3,480	9,762	17,074	2,797	3,000

Irrigation methods, water sources, and pumping energy use: Water Resources Region 04, Great Lakes

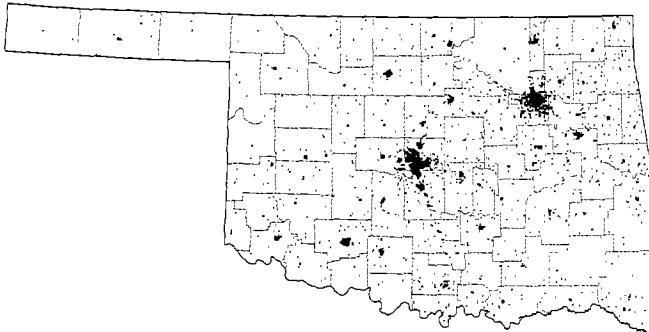
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,967	450,551	0.7	2,883	435,517	0.7
Center pivot	1,214	238,305	0.8	970	217,712	0.9
Mechanical move	1,059	154,851	0.6	1,291	167,404	0.5
Hand move	1,085	42,863	0.7	926	36,130	0.5
Solid set and permanent	386	14,532	0.7	477	14,271	0.7
All gravity systems	42	2,807	1.1	38	2,003	0.7
Gated pipe	3	800	1.4	17	800	0.6
Ditch with siphon tube	15	632	NA	12	420	NA
Flooding	24	1,375	1.5	9	783	0.7
Drip or trickle	400	11,993	0.5	338	11,366	0.4
Subirrigation	193	10,490	1.6	37	2,330	1.5
Sources:						
Wells	1,732	259,864	0.8	1,597	265,261	0.6
Onfarm surface sources	1,823	195,925	0.6	1,771	175,356	0.6
Off-farm water suppliers	90	18,789	0.8	71	8,518	3.8
-----Number----- \$/acre -----Number----- \$/acre						
Onfarm energy use for pumping	3,045	452,647	23	2,928	437,010	25
Electricity	1,708	226,994	28	1,522	245,612	27
Natural gas	7	1,790	9	15	2,513	16
LP gas, propane, butane	131	13,697	23	163	15,785	14
Diesel fuel	1,291	197,583	19	1,268	159,174	22
Gasoline and gasohol	641	12,583	23	563	13,926	29
Off-farm water supply	90	18,789	6	71	8,518	3

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	981	1,042	1,409	56	72	83
Irrigated cropland	NR	NR	NR	NR	NR	NR
Grazing land	384	392	490	17	17	21

Oklahoma

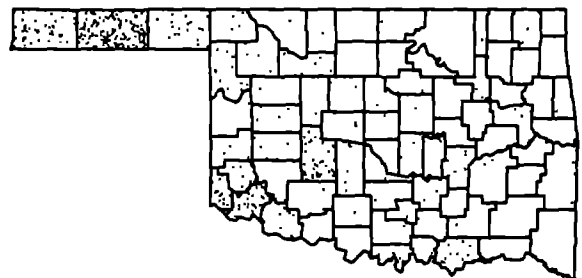
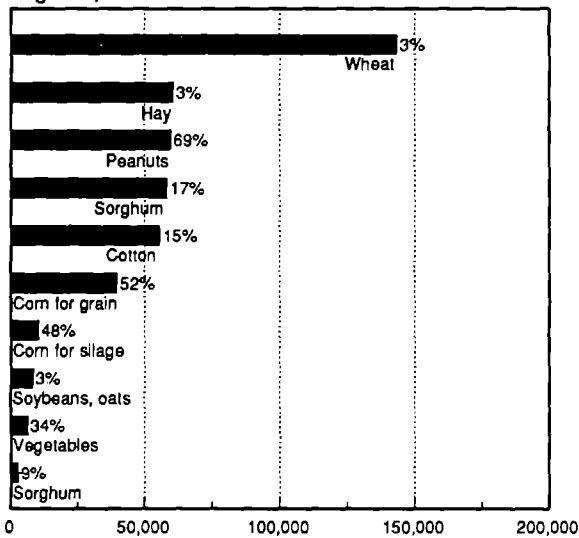
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	0.8	56	10
Ground	0.6	45	67
Total	1.4	100	35
Agriculture:			
Sources—			
Surface	0.1	15	NA
Ground	0.4	85	NA
Total	0.5	100	NA
Use—			
Irrigation	0.5	99	NA
Other farm uses	0.0	1	NA
Disposition—			
Consumptive use	0.5	98	NA
Return flow	0.0	2	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Oklahoma

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	55,783	57,562	59,471	59,105	68,888	67,174
Harvested cropland	<i>do.</i>	43,522	45,825	48,168	47,123	52,940	59,360
Irrigated land	<i>do.</i>	3,029	3,069	3,770	3,454	3,809	2,673
Harvested cropland	<i>do.</i>	2,809	2,877	3,467	NA	NA	NA
Total cropland	<i>1,000 acres</i>	14,443	14,214	14,366	14,667	15,658	13,010
Harvested cropland	<i>do.</i>	7,319	8,961	8,585	8,990	8,265	8,344
Irrigated land	<i>No. of acres</i>	478,437	492,077	601,723	515,104	524,065	302,081
Harvested cropland	<i>do.</i>	448,809	468,043	512,484	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Texas	Cimarron	Caddo	Jackson	Beaver
Irrigated land	<i>No. of farms</i>	3,029	282	129	345	197	106
Irrigated land	<i>No. of acres</i>	478,437	157,645	46,840	44,439	36,996	22,489
Major irrigated crops:							
Wheat for grain	<i>do.</i>	143,400	79,513	20,088	4,267	2,657	10,364
Hay	<i>do.</i>	60,590	9,284	3,707	3,362	1,408	4,058
Peanuts for nuts	<i>do.</i>	59,650	0	0	28,216	278	0

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	215,024	311,642	447,321	624,030	204,882	298,336
Machinery and equipment	29,465	32,109	81,821	87,732	27,172	29,745
Farm products sold	38,658	34,886	146,951	121,088	33,777	31,077
Crops, nursery, and greenhouse	22,283	27,617	80,031	74,559	16,265	23,008
Livestock and poultry	36,553	28,185	118,565	77,985	33,587	26,300
Selected production expenses:						
Commercial fertilizers	3,052	3,459	7,022	7,370	2,725	3,154
Other agricultural chemicals	1,913	1,857	5,033	3,718	1,621	1,600
Energy and petroleum products	2,354	2,921	8,488	11,322	2,074	2,562
Hired labor	5,621	4,348	22,372	16,792	4,200	3,419
Contract labor	2,292	2,188	4,910	4,717	2,061	1,911

Irrigation methods, water sources, and pumping energy use

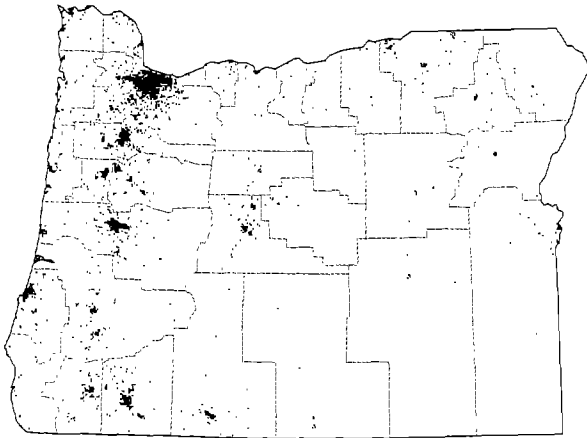
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	1,140	247,865	0.9	1,488	239,479	1.2
Center pivot	657	165,344	0.8	587	157,681	1.1
Mechanical move	427	67,071	0.8	733	69,515	1.3
Hand move	209	12,664	0.8	344	10,036	1.0
Solid set and permanent	55	2,786	NA	43	2,247	0.6
All gravity systems	944	238,295	1.2	688	212,175	1.2
Gated pipe	771	173,601	1.2	498	151,938	1.3
Ditch with siphon tube	198	48,691	1.4	162	43,350	1.2
Flooding	47	16,003	0.6	62	16,887	1.7
Drip or trickle	206	5,454	2.4	79	NA	NA
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	1,401	393,220	1.1	1,482	363,680	1.4
Onfarm surface sources	402	41,263	0.7	386	31,422	1.0
Off-farm water suppliers	283	57,523	1.4	247	44,517	1.2
<i>-----Number-----</i>						
<i>\$/acre</i>						
Onfarm energy use for pumping						
Electricity	1,669	442,742	25	1,836	407,332	29
Natural gas	684	88,903	31	653	118,369	29
LP gas, propane, butane	842	274,471	26	693	227,361	28
Diesel fuel	285	27,906	22	343	33,259	26
Gasoline and gasohol	237	51,384	7	405	28,292	45
Gasoline and gasohol	39	78	88	34	51	17
Off-farm water supply	283	57,523	24	247	44,517	18

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	455	535	754	27	27	31
Irrigated cropland	556	584	771	44	39	49
Grazing land	289	338	432	9	9	9

Oregon

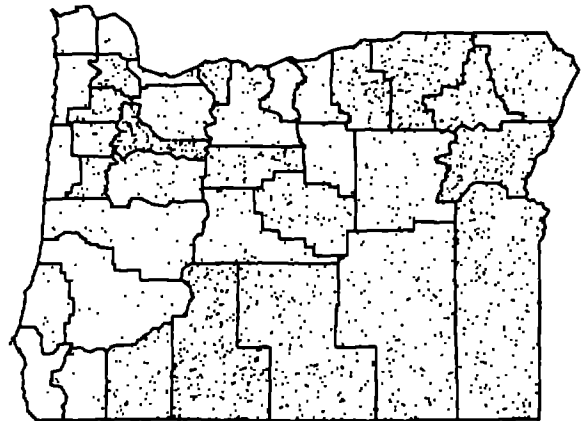
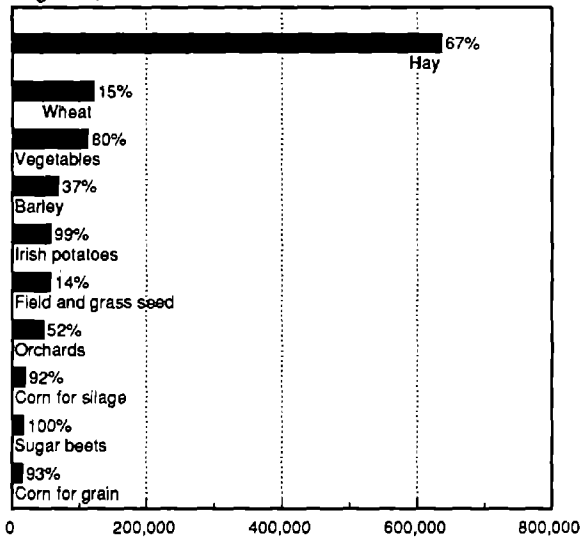
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
Sources:			
Surface	6.6	9	089
Ground	0.7	10	72
Total	7.3	100	88
Agriculture:			
Sources—			
Surface	5.9	92	NA
Ground	0.5	8	NA
Total	6.4	100	NA
Use—			
Irrigation	6.4	100	NA
Other farm uses	0.0	0	NA
Disposition—			
Consumptive use	2.8	43	NA
Return flow	3.6	57	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Oregon

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	27,318	29,300	25,809	24,875	26,604	34,763
Harvested cropland	do.	21,712	23,719	22,007	21,636	22,117	29,981
Irrigated land	do.	14,411	15,334	13,659	11,791	12,014	15,869
Harvested cropland	do.	11,682	12,398	11,327	NA	NA	NA
Total cropland	1,000 acres	5,236	5,237	5,101	5,075	5,198	5,282
Harvested cropland	do.	2,833	3,306	3,210	3,213	2,894	3,050
Irrigated land	No. of acres	1,648,205	1,807,882	1,880,833	1,561,438	1,519,421	1,607,659
Harvested cropland	do.	1,228,388	1,376,498	1,320,501	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Klamath	Malheur	Lake	Harney	Umatilla
Irrigated land	No. of farms	14,411	801	1,101	264	267	940
Irrigated land	No. of acres	1,648,205	212,183	193,271	155,458	137,067	111,657
Major irrigated crops:							
Hay	do.	636,831	59,896	75,304	NA	82,518	27,728
Wheat for grain	do.	122,133	6,512	21,351	1,478	838	24,890
Vegetables	do.	113,217	NA	13,921	0	NA	8,687

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	299,755	371,644	387,154	490,003	226,372	275,385
Machinery and equipment	37,982	37,044	51,324	50,543	26,761	26,041
Farm products sold	57,664	48,129	90,843	77,200	30,502	24,359
Crops, nursery, and greenhouse	69,829	59,751	95,480	78,630	33,290	33,737
Livestock and poultry	37,130	29,283	52,928	45,952	26,126	16,954
Selected production expenses:						
Commercial fertilizers	5,671	5,886	7,042	7,225	3,798	4,065
Other agricultural chemicals	4,397	3,818	6,397	5,000	2,391	2,431
Energy and petroleum products	3,535	3,583	5,490	5,712	1,815	1,842
Hired labor	19,633	13,783	29,457	20,095	7,569	5,489
Contract labor	5,549	4,995	7,860	6,480	2,350	2,732

Irrigation methods, water sources, and pumping energy use

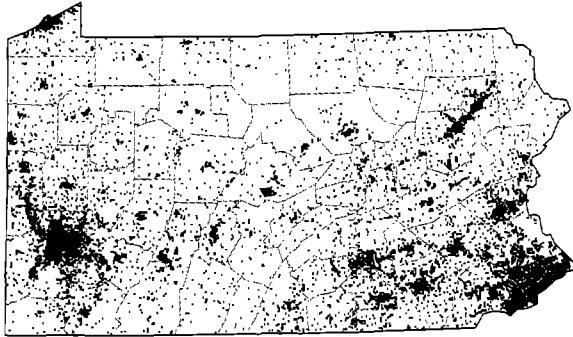
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	7,888	832,814	1.6	8,359	855,675	1.5
Center pivot	1,682	246,819	2.0	632	213,138	2.2
Mechanical move	1,873	290,936	1.2	1,892	284,487	1.3
Hand move	5,229	246,640	1.4	7,099	315,857	1.3
Solid set and permanent	1,229	48,419	2.0	624	42,193	2.2
All gravity systems	3,814	643,056	2.1	5,675	906,828	2.2
Gated pipe	825	40,571	2.8	821	30,806	2.5
Ditch with siphon tube	2,179	298,036	2.3	3,201	337,864	2.4
Flooding	1,468	304,449	2.1	2,309	538,158	2.0
Drip or trickle	118	2,052	NA	24	12,169	1.8
Subirrigation	91	15,272	1.6	198	29,013	2.1
Sources:						
Wells	2,841	397,258	1.5	3,083	366,162	1.5
Onfarm surface sources	3,232	448,463	2.1	3,438	628,695	2.0
Off-farm water suppliers	5,416	647,949	2.0	6,718	803,386	2.2
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	6,728	800,420	26	7,078	827,968	21
Electricity	6,208	751,425	27	6,769	803,804	21
Natural gas	2	NA	NA	9	4,180	25
LP gas, propane, butane	6	300	30	12	2,245	34
Diesel fuel	243	38,343	13	357	16,539	20
Gasoline and gasohol	409	8,786	23	57	1,200	27
Off-farm water supply	5,416	647,949	15	6,718	803,386	18

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	684	670	890	42	43	46
Irrigated cropland	1,211	1,157	1,711	83	101	102
Grazing land	137	138	243	8	13	18

Pennsylvania

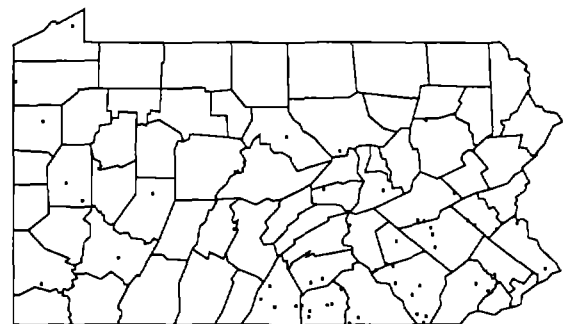
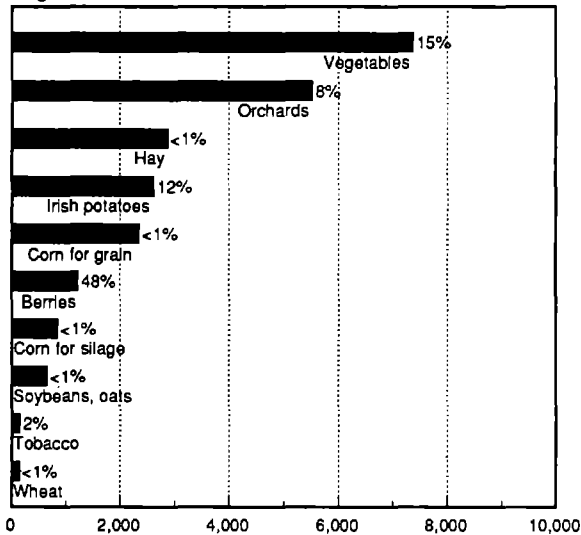
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
		—Percent—	
	<i>M.a.f.</i>		
Sources:			
Surface	15.1	94	0
Ground	0.9	6	8
Total	16.0	100	1
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	19.7	22	NA
Ground	71.0	78	NA
Total	90.7	100	NA
Use—			
Irrigation	12.3	14	NA
Other farm uses	78.4	86	NA
Disposition—			
Consumptive use	80.4	89	NA
Return flow	10.3	11	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Pennsylvania

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	48,546	52,795	54,208	51,709	60,189	79,917
Harvested cropland	<i>do.</i>	46,157	50,423	52,406	49,744	56,361	76,600
Irrigated land	<i>do.</i>	2,208	1,548	1,297	992	936	1,006
Harvested cropland	<i>do.</i>	2,169	1,526	1,259	NA	NA	NA
Total cropland	<i>1,000 acres</i>	5,398	5,546	5,688	5,283	5,598	6,043
Harvested cropland	<i>do.</i>	4,080	4,364	4,264	3,885	3,687	4,534
Irrigated land	<i>No. of acres</i>	29,505	18,139	14,662	17,734	18,697	22,734
Harvested cropland	<i>do.</i>	28,436	17,692	13,848	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Lancaster	Adams	Franklin	Schuylkill	Berks
Irrigated land	<i>No. of farms</i>	2,208	328	65	69	63	158
Irrigated land	<i>No. of acres</i>	29,505	4,056	2,939	2,071	1,369	1,344
Major irrigated crops:							
Vegetables	<i>do.</i>	7,349	1,262	169	189	548	257
Orchards	<i>do.</i>	5,519	49	2,101	1,075	NA	553
Hay	<i>do.</i>	2,881	510	145	232	0	100

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	239,333	225,794	394,740	472,488	231,847	219,151
Machinery and equipment	41,641	38,624	71,198	75,258	40,216	37,636
Farm products sold	59,701	51,287	237,169	240,396	51,759	45,864
Crops, nursery, and greenhouse	26,969	22,765	212,119	225,412	13,309	13,192
Livestock and poultry	60,320	50,565	105,842	85,138	59,416	50,206
Selected production expenses:						
Commercial fertilizers	3,091	3,206	6,717	5,788	2,884	3,135
Other agricultural chemicals	1,654	1,421	5,355	4,885	1,422	1,290
Energy and petroleum products	3,460	3,642	14,220	22,644	2,923	3,127
Hired labor	15,790	11,619	102,561	104,866	9,023	6,795
Contract labor	6,885	5,684	21,924	14,358	4,548	3,944

Irrigation methods, water sources, and pumping energy use: Water Resources Region 02, Mid-Atlantic

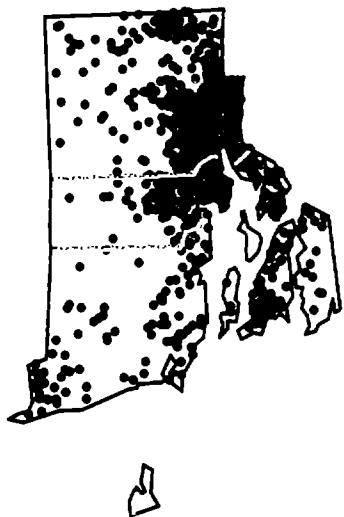
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,482	255,416	0.6	2,209	183,188	0.5
Center pivot	817	105,830	0.6	403	70,560	0.6
Mechanical move	672	94,424	0.4	525	56,114	0.3
Hand move	1,235	46,357	0.4	1,399	49,996	0.5
Solid set and permanent	86	8,805	0.8	179	6,428	1.4
All gravity systems	19	1,660	0.9	38	6,228	0.0
Gated pipe	0	0	0.0	29	3,510	0.0
Ditch with siphon tube	10	1,390	0.9	0	0	0.0
Flooding	9	270	NA	9	2,718	0.0
Drip or trickle	209	NA	1.1	156	2,646	0.5
Subirrigation	2	NA	NA	10	1,515	0.0
Sources:						
Wells	792	126,525	0.8	1,065	106,936	0.6
Onfarm surface sources	1,920	137,469	0.5	1,288	76,946	0.6
Off-farm water suppliers	67	4,076	0.3	149	2,075	0.6
----- <i>Number</i> ----- <i>\$/acre</i> ----- <i>Number</i> ----- <i>\$/acre</i>						
Onfarm energy use for pumping	2,440	246,466	19	2,097	175,259	20
Electricity	537	49,109	21	496	41,735	25
Natural gas	0	0	0	0	0	0
LP gas, propane, butane	51	6,729	13	103	11,538	19
Diesel fuel	1,460	167,116	18	831	90,185	16
Gasoline and gasohol	868	23,512	28	990	31,801	25
Off-farm water cost	67	4,076	21	149	2,075	56

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	1,507	1,342	1,513	36	37	37
Irrigated cropland	NR	NR	NR	60	NR	NR
Grazing land	665	556	608	13	14	13

Rhode Island

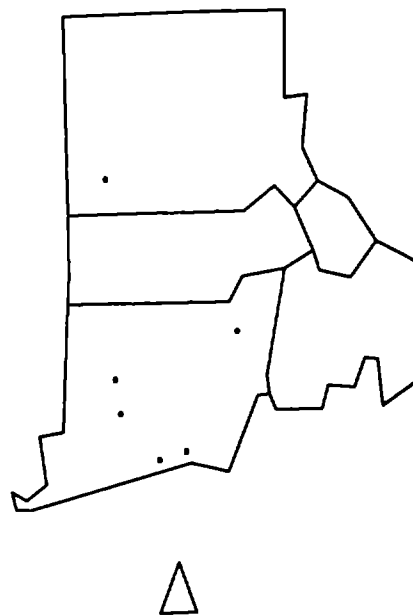
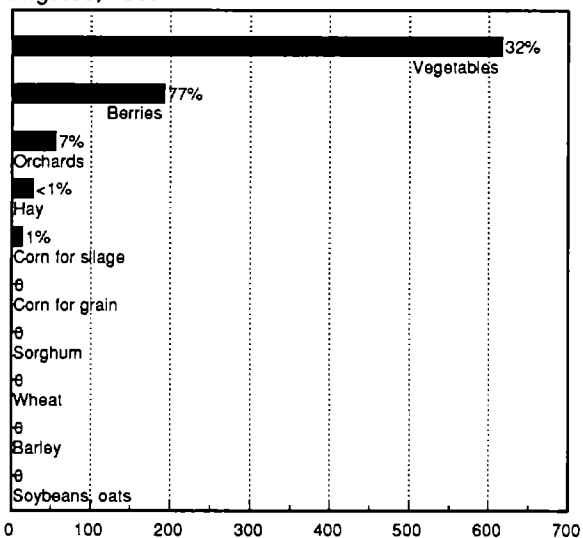
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	
		<i>M.a.f.</i>	—Percent—
Sources:			
Surface	0.1	82	3
Ground	0.0	19	7
Total	0.2	100	4
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	4.3	68	NA
Ground	2.1	32	NA
Total	6.4	100	NA
Use—			
Irrigation	3.8	60	NA
Other farm uses	2.6	40	NA
Disposition—			
Consumptive use	6.0	94	NA
Return flow	0.4	6	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Rhode Island

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	597	655	624	543	604	941
Harvested cropland	<i>do.</i>	523	576	560	512	543	825
Irrigated land	<i>do.</i>	105	84	78	73	60	66
Harvested cropland	<i>do.</i>	99	84	77	NA	NA	NA
Total cropland	<i>1,000 acres</i>	26	28	32	29	32	45
Harvested cropland	<i>do.</i>	18	21	24	21	22	29
Irrigated land	<i>No. of acres</i>	3,494	2,224	2,801	2,336	1,925	1,428
Harvested cropland	<i>do.</i>	3,116	1,828	2,798	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Washington	Providence	Newport	Kent	Bristol
Irrigated land	<i>No. of farms</i>	105	41	28	20	11	5
Irrigated land	<i>No. of acres</i>	3,494	2,749	375	247	97	26
Major irrigated crops:							
Vegetables	<i>do.</i>	617	273	208	NA	NA	NA
Berries	<i>do.</i>	193	82	NA	NA	NA	NA
Orchards	<i>do.</i>	56	NA	NA	0	0	0

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	420,279	237,141	803,721	521,029	339,624	207,936
Machinery and equipment	35,918	25,893	87,324	79,859	25,086	20,324
Farm products sold	53,903	41,726	209,866	150,454	26,426	27,544
Crops, nursery, and greenhouse	72,317	49,425	226,000	150,512	17,511	20,340
Livestock and poultry	30,919	31,377	6,278	17,412	32,220	32,013
Selected production expenses:						
Commercial fertilizers	3,346	2,522	6,590	7,355	2,261	1,742
Other agricultural chemicals	2,192	2,286	4,030	6,197	1,471	1,212
Energy and petroleum products	2,942	3,276	8,205	13,779	1,747	2,189
Hired labor	44,561	20,665	109,292	78,857	11,739	7,700
Contract labor	8,045	2,810	12,516	4,889	4,086	2,242

Irrigation methods, water sources, and pumping energy use: Water Resources Region 01, New England

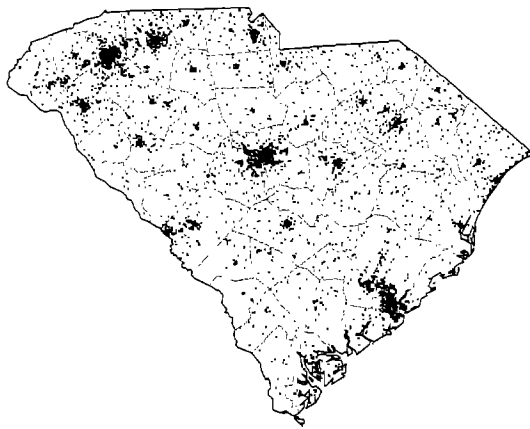
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	967	24,233	0.8	886	24,127	1.1
Center pivot	611	11,411	1.3	196	5,039	1.1
Mechanical move	13	1,046	0.3	36	2,548	0.4
Hand move	95	2,325	0.3	373	6,670	0.5
Solid set and permanent	258	9,421	0.5	335	9,870	1.7
All gravity systems	188	11,714	NA	87	2,683	1.5
Gated pipe	23	391	NA	6	174	0.0
Ditch with siphon tube	26	2,928	NA	41	1,455	1.5
Flooding	139	8,395	NA	44	1,054	1.2
Drip or trickle	0	0	0.0	75	679	0.8
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	324	3,698	0.5	178	2,966	0.9
Onfarm surface sources	844	21,566	3.9	731	21,261	1.0
Off-farm water suppliers	26	102	NA	76	869	0.5
	----- <i>Number</i> -----			----- <i>Number</i> -----		
			<i>\$/acre</i>			<i>\$/acre</i>
Onfarm energy use for pumping	942	24,312	48	789	22,988	54
Electricity	273	5,958	68	279	5,612	94
Natural gas	0	0	0	9	174	87
LP gas, propane, butane	310	7,418	53	147	6,203	51
Diesel fuel	130	6,599	35	190	6,392	29
Gasoline and gasohol	444	4,337	29	379	4,607	44
Off-farm water supply	26	102	84	76	869	36

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	67,612	NR	NR	78	NR	NR
Irrigated cropland	70,000	NR	NR	150	NR	NR
Grazing land	56,761	NR	NR	32	NR	NR

South Carolina

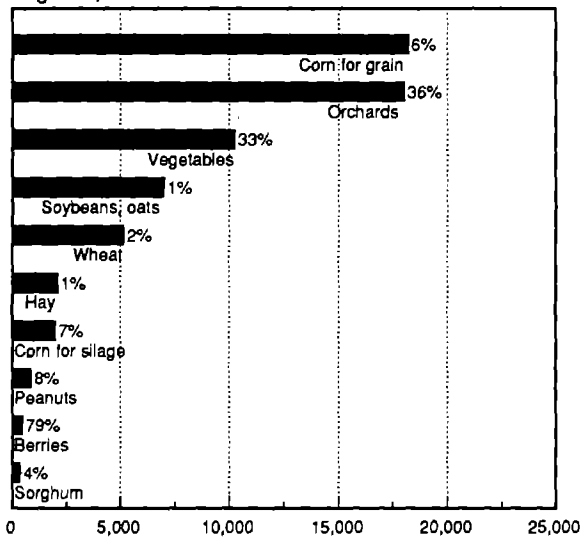
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
<i>M.a.f.</i>			
Sources:			
Surface	7.4	97	0
Ground	0.2	3	12
Total	7.6	100	1
<i>T.a.f.</i>			
Agriculture: Sources—			
Surface	19.9	40	NA
Ground	29.4	60	NA
Total	49.3	100	NA
Use—			
Irrigation	38.1	77	NA
Other farm uses	11.2	23	NA
Disposition—			
Consumptive use	49.2	100	NA
Return flow	0.1	0	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

South Carolina

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	18,578	23,166	25,427	28,074	37,634	53,963
Harvested cropland	<i>do.</i>	15,556	20,144	22,875	24,757	32,189	50,005
Irrigated land	<i>do.</i>	1,216	946	770	446	675	1,337
Harvested cropland	<i>do.</i>	1,153	926	719	NA	NA	NA
Total cropland	<i>1,000 acres</i>	2,686	3,179	3,376	3,201	3,440	3,520
Harvested cropland	<i>do.</i>	1,590	2,474	2,524	2,251	2,042	2,263
Irrigated land	<i>No. of acres</i>	80,689	81,326	32,031	10,335	15,003	18,524
Harvested cropland	<i>do.</i>	78,569	80,738	30,440	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Orangeburg	Edgefield	Sumter	Calhoun	Lexington
Irrigated land	<i>No. of farms</i>	1,216	71	40	41	24	90
Irrigated land	<i>No. of acres</i>	80,689	12,105	6,191	5,945	4,634	4,535
Major irrigated crops:							
Corn for grain	<i>do.</i>	18,225	4,505	0	1,967	1,962	692
Orchards	<i>do.</i>	18,030	745	5,743	37	NA	574
Vegetables	<i>do.</i>	10,254	346	33	225	68	1,829

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	201,169	208,524	424,484	559,784	187,505	195,155
Machinery and equipment	31,252	30,576	76,666	89,315	28,467	28,339
Farm products sold	42,827	38,853	157,880	143,399	35,579	34,729
Crops, nursery, and greenhouse	42,837	40,164	147,184	131,191	30,893	34,703
Livestock and poultry	33,950	26,226	84,788	73,242	32,342	25,075
Selected production expenses:						
Commercial fertilizers	4,541	5,320	11,470	15,043	4,004	4,861
Other agricultural chemicals	3,718	4,992	10,486	13,630	3,004	4,441
Energy and petroleum products	2,825	3,454	10,218	11,854	2,361	3,132
Hired labor	11,947	8,500	45,822	32,139	8,509	7,093
Contract labor	7,042	8,045	25,438	26,050	4,154	6,027

Irrigation methods, water sources, and pumping energy use: Water Resources Region 03, South Atlantic Gulf

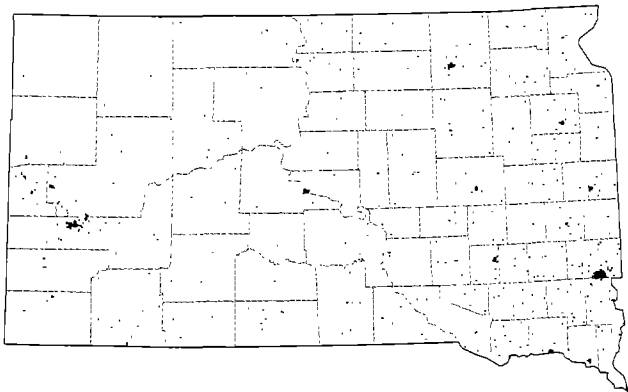
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	13,837	1,265,350	0.8	8,887	904,024	0.7
Center pivot	6,322	661,593	0.9	1,938	380,757	0.7
Mechanical move	2,432	296,183	0.5	2,723	241,098	0.5
Hand move	3,635	119,964	0.6	2,352	56,675	0.6
Solid set and permanent	2,583	187,610	1.5	2,788	225,494	1.4
All gravity systems	1,556	777,181	1.6	1,447	620,636	1.8
Gated pipe	211	21,326	0.9	137	25,028	1.3
Ditch with siphon tube	520	149,441	1.2	553	161,804	1.9
Flooding	836	606,414	1.7	789	433,804	1.9
Drip or trickle	2,751	327,958	1.6	1,989	243,723	1.3
Subirrigation	148	220,468	4.1	100	246,712	4.6
Sources:						
Wells	8,864	1,281,282	1.2	7,391	1,093,214	1.2
Onfarm surface sources	8,119	630,540	0.8	4,146	410,299	0.9
Off-farm water suppliers	1,247	556,348	3.1	290	478,335	3.5
	<i>-----Number-----</i>			<i>-----Number-----</i>		
	<i>\$/acre</i>			<i>\$/acre</i>		
Onfarm energy use for pumping	13,818	2,210,114	18	10,142	1,815,951	22
Electricity	6,309	733,196	22	5,134	658,340	25
Natural gas	4	287	56	64	7,335	47
LP gas, propane, butane	1,628	91,982	24	607	51,882	32
Diesel fuel	5,945	1,358,762	16	4,862	1,072,794	19
Gasoline and gasohol	1,850	25,887	35	907	25,600	18
Off-farm water supply	1,247	556,348	27	290	478,335	22

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	640	NR	740	22	NR	28
Irrigated cropland	618	NR	1,272	55	NR	47
Grazing land	662	NR	593	13	NR	15

South Dakota

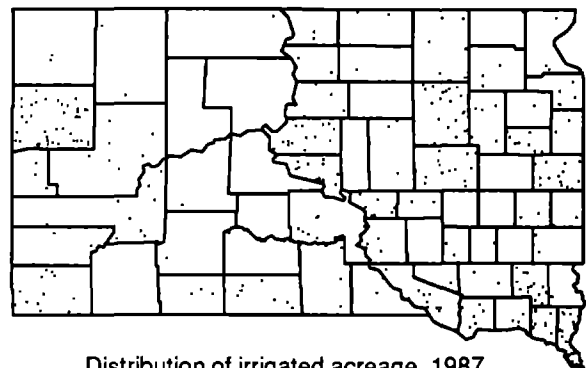
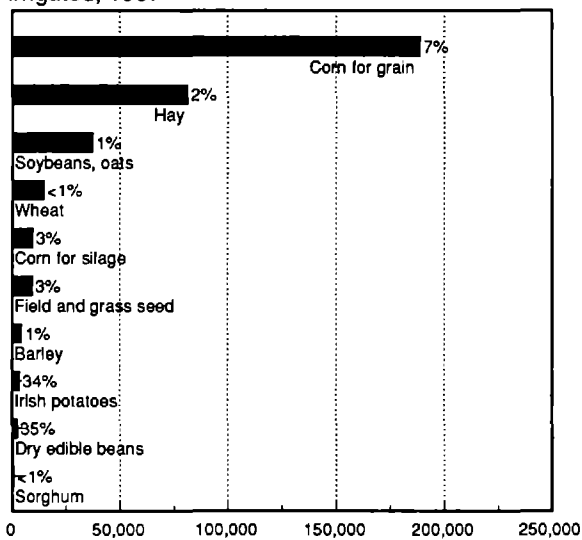
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water <i>M.a.f.</i>	Share of total	
		—Percent—	
Sources:			
Surface	0.5	63	88
Ground	0.3	37	53
Total	0.8	100	75
Agriculture:			
Sources—			
Surface	0.4	74	NA
Ground	0.2	26	NA
Total	0.6	100	NA
Use—			
Irrigation	0.5	91	NA
Other farm uses	0.1	9	NA
Disposition—			
Consumptive use	0.4	64	NA
Return flow	0.2	36	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

South Dakota

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	32,451	33,844	36,091	40,015	42,781	47,133
Harvested cropland	<i>do.</i>	31,110	32,823	35,172	38,635	41,108	46,230
Irrigated land	<i>do.</i>	1,869	1,815	1,776	1,072	1,063	1,005
Harvested cropland	<i>do.</i>	1,837	1,772	1,710	NA	NA	NA
Total cropland	<i>1,000 acres</i>	19,642	18,839	18,733	19,192	19,838	18,707
Harvested cropland	<i>do.</i>	12,983	14,433	13,856	14,855	12,634	14,445
Irrigated land	<i>No. of acres</i>	361,796	376,447	334,755	152,203	148,341	130,050
Harvested cropland	<i>do.</i>	350,822	364,657	313,802	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Butte	Union	Spink	Sully	Brookings
Irrigated land	<i>No. of farms</i>	1,869	271	97	84	22	94
Irrigated land	<i>No. of acres</i>	361,796	43,726	26,328	20,827	18,667	15,257
Major irrigated crops:							
Corn for grain	<i>do.</i>	188,952	7,341	16,270	14,497	14,668	11,460
Hay	<i>do.</i>	81,554	24,476	NA	2,156	1,415	790
Soybeans for beans	<i>do.</i>	31,130	0	8,659	1,831	1,006	1,522

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	326,333	418,940	664,506	861,087	308,110	396,418
Machinery and equipment	55,005	60,589	100,896	114,823	52,526	57,867
Farm products sold	74,761	66,709	205,422	183,822	67,684	60,693
Crops, nursery, and greenhouse	31,785	31,016	68,116	71,810	29,462	28,693
Livestock and poultry	65,517	53,161	195,929	151,129	58,781	48,096
Selected production expenses:						
Commercial fertilizers	4,515	4,134	8,539	8,140	4,216	3,827
Other agricultural chemicals	3,154	2,668	5,820	5,661	2,987	2,490
Energy and petroleum products	5,341	6,930	12,044	16,569	4,982	6,445
Hired labor	6,206	4,677	16,195	10,675	5,446	4,230
Contract labor	2,723	2,213	4,777	2,397	2,521	2,198

Irrigation methods, water sources, and pumping energy use

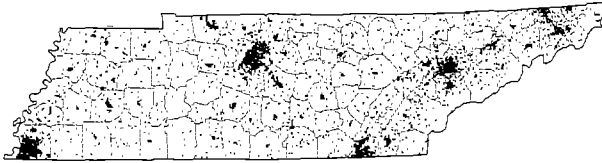
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	1,121	254,711	1.0	892	225,664	0.8
Center pivot	1,069	246,539	1.0	752	206,495	0.8
Mechanical move	112	6,598	0.3	179	16,864	0.6
Hand move	93	1,574	NA	42	1,355	1.0
Solid set and permanent	0	0	NA	1	D	NA
All gravity systems	550	112,254	1.3	623	113,445	1.1
Gated pipe	177	40,688	0.5	292	29,572	1.0
Ditch with siphon tube	329	38,397	1.1	390	54,385	1.0
Flooding	181	33,169	1.4	228	29,488	1.0
Drip or trickle	0	0	0.0	13	520	NA
Subirrigation	0	0	0.0	0	0	NA
Sources:						
Wells	749	201,198	0.9	619	131,135	0.7
Onfarm surface sources	277	50,939	1.1	370	88,053	1.0
Off-farm water suppliers	585	114,151	1.4	469	120,200	1.1
	<i>-----Number-----</i>			<i>-----Number-----</i>		
			<i>\$/acre</i>			<i>\$/acre</i>
Onfarm energy use for pumping	1,046	265,155	23	958	205,140	20
Electricity	884	223,257	25	709	173,178	21
Natural gas	0	0	0	29	580	60
LP gas, propane, butane	59	6,167	16	20	1,400	18
Diesel fuel	171	30,956	12	271	29,692	15
Gasoline and gasohol	34	4,775	17	29	290	30
Off-farm water supply	585	114,151	10	469	120,200	12

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	273	276	401	20	27	31
Irrigated cropland	463	508	806	47	62	71
Grazing land	75	92	135	5	8	9

Tennessee

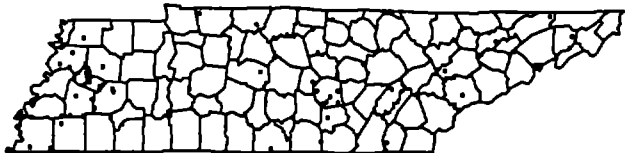
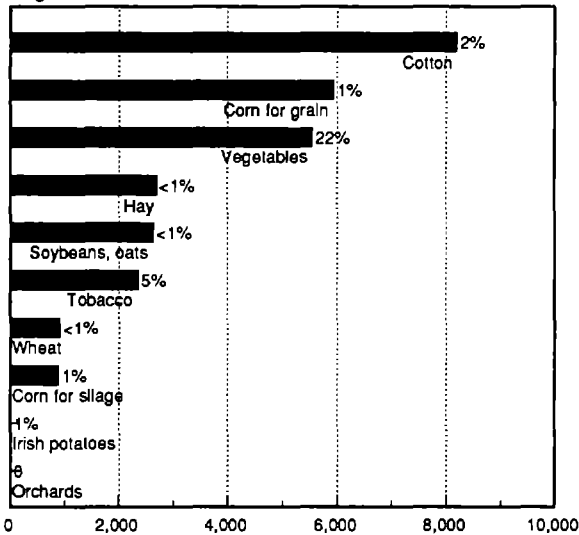
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	Percent	
Sources:			
Surface	9.0	95	1
Ground	0.5	5	8
Total	9.5	100	1
Agriculture:			
<i>Sources—</i>			
Surface	44.9	54	NA
Ground	38.0	46	NA
Total	82.9	100	NA
<i>Use—</i>			
Irrigation	10.0	12	NA
Other farm uses	72.9	88	NA
<i>Disposition—</i>			
Consumptive use	37.6	45	NA
Return flow	45.3	55	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Tennessee

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	73,703	84,774	82,450	89,518	115,086	127,992
Harvested cropland	<i>do.</i>	63,754	74,518	73,823	77,885	96,958	115,755
Irrigated land	<i>do.</i>	1,899	1,141	1,254	836	1,299	1,086
Harvested cropland	<i>do.</i>	1,799	1,103	1,167	NA	NA	NA
Total cropland	<i>1,000 acres</i>	7,186	7,602	7,786	7,757	8,404	7,855
Harvested cropland	<i>do.</i>	3,854	4,549	4,409	3,746	3,472	3,618
Irrigated land	<i>No. of acres</i>	37,776	17,745	13,163	9,860	12,158	10,737
Harvested cropland	<i>do.</i>	34,886	16,382	11,045	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Crockett	Lake	Dyer	Haywood	Shelby
Irrigated land	<i>No. of farms</i>	1,899	10	7	8	11	69
Irrigated land	<i>No. of acres</i>	37,776	6,493	2,281	1,863	1,755	1,664
Major irrigated crops:							
Cotton	<i>do.</i>	8,206	5,983	NA	NA	967	NA
Corn for grain	<i>do.</i>	5,952	0	1,823	NA	NA	NA
Vegetables	<i>do.</i>	4,871	NA	0	NA	NA	18

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	146,126	139,141	246,428	237,919	143,617	137,893
Machinery and equipment	22,700	20,713	46,399	38,276	22,106	20,491
Farm products sold	20,294	18,593	83,996	60,906	18,739	18,053
Crops, nursery, and greenhouse	16,292	14,909	75,732	53,600	13,832	14,180
Livestock and poultry	16,020	13,354	28,680	22,369	15,785	13,269
Selected production expenses:						
Commercial fertilizers	2,061	1,958	3,439	2,599	2,018	1,948
Other agricultural chemicals	1,414	1,567	2,343	3,016	1,376	1,540
Energy and petroleum products	1,254	1,427	4,340	5,301	1,174	1,378
Hired labor	3,787	3,004	27,604	22,992	2,868	2,641
Contract labor	2,485	2,104	11,998	8,206	1,883	1,875

Irrigation methods, water sources, and pumping energy use: Water Resources Region 08, Lower Mississippi

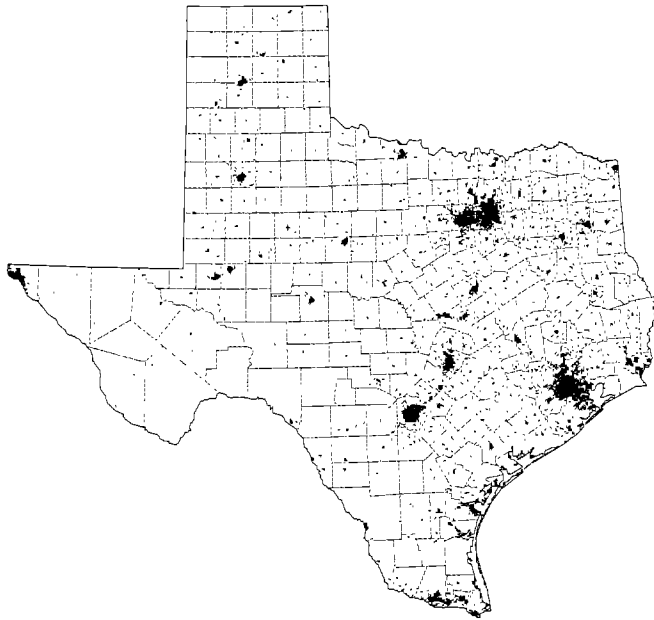
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	1,977	771,968	0.7	1,439	426,219	0.8
Center pivot	1,573	628,087	0.7	985	319,232	0.8
Mechanical move	269	56,412	0.3	163	33,426	0.7
Hand move	50	15,102	NA	100	4,885	0.2
Solid set and permanent	244	72,367	0.8	239	68,676	1.0
All gravity systems	8,614	3,495,595	1.5	7,145	2,586,918	1.4
Gated pipe	3,215	1,046,177	1.2	2,027	528,037	0.9
Ditch with siphon tube	1,433	326,262	2.0	1,258	310,265	1.6
Flooding	6,030	2,123,156	1.6	5,020	1,748,616	1.6
Drip or trickle	466	12,395	1.4	196	3,502	0.5
Subirrigation	137	53,965	1.2	104	17,220	2.2
Sources:						
Wells	8,508	3,763,587	1.3	7,172	2,596,689	1.3
Onfarm surface sources	2,134	524,572	1.8	1,680	395,971	1.7
Off-farm water suppliers	1,057	72,366	0.9	144	29,655	2.0
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	9,312	4,259,523	16	8,058	2,900,523	20
Electricity	4,972	1,488,702	22	4,631	1,246,185	22
Natural gas	1,154	223,243	22	1,033	191,980	25
LP gas, propane, butane	2,228	498,399	13	1,911	368,491	21
Diesel fuel	6,017	2,042,815	13	4,059	1,091,072	16
Gasoline and gasohol	85	6,364	7	119	2,795	4
Off-farm water supply	1,057	72,366	11	144	29,655	45

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	857	889	1,042	41	45	50
Irrigated cropland	1,182	1,281	NR	60	50	NR
Grazing land	584	621	662	20	20	20

Texas

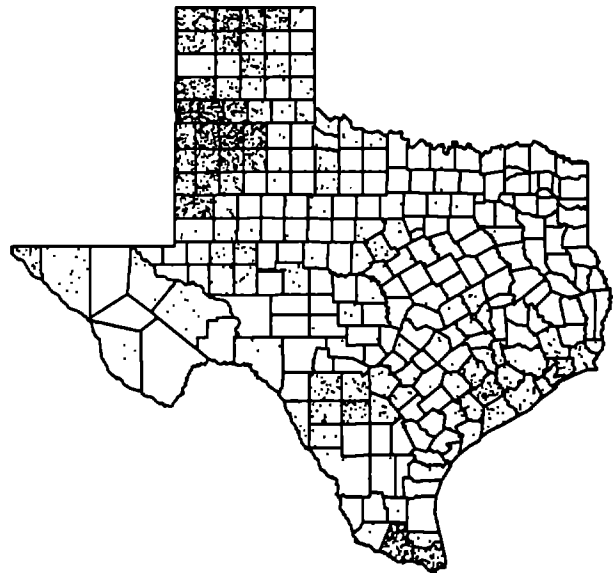
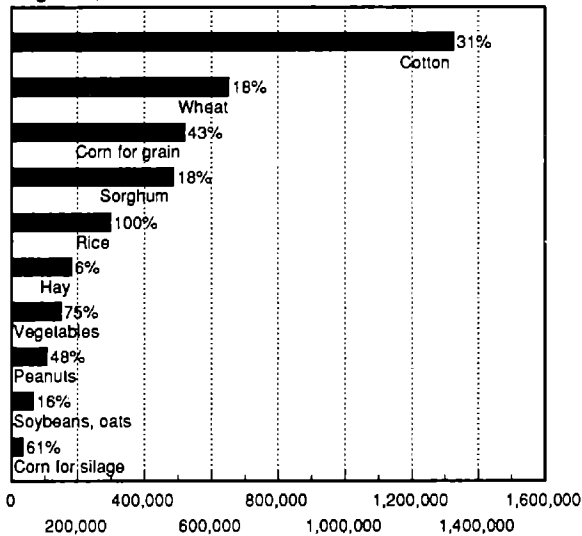
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	14.4	64	22
Ground	8.0	36	77
Total	22.5	100	42
Agriculture:			
Sources—			
Surface	3.2	34	NA
Ground	6.2	66	NA
Total	9.4	100	NA
Use—			
Irrigation	9.1	97	NA
Other farm uses	0.3	3	NA
Disposition—			
Consumptive use	7.8	83	NA
Return flow	1.6	17	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 2,000 acres

Selected Characteristics of Irrigated Farms

Texas

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	147,174	145,880	145,748	146,373	176,790	164,645
Harvested cropland	<i>do.</i>	110,358	110,341	112,291	109,208	128,274	138,503
Irrigated land	<i>do.</i>	19,806	19,775	24,418	22,634	28,552	27,114
Harvested cropland	<i>do.</i>	18,523	18,437	22,670	NA	NA	NA
Total cropland	<i>1,000 acres</i>	35,611	36,598	39,404	36,499	39,762	34,269
Harvested cropland	<i>do.</i>	16,521	20,761	20,599	19,014	19,825	19,408
Irrigated land	<i>No. of acres</i>	4,271,043	5,575,553	6,947,079	6,593,832	6,888,075	6,384,963
Harvested cropland	<i>do.</i>	4,020,802	5,319,716	6,366,287	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Hale	Hidalgo	Castro	Lamb	Parmer
Irrigated land	<i>No. of farms</i>	19,806	626	1,319	457	575	533
Irrigated land	<i>No. of acres</i>	4,271,043	240,956	231,214	180,156	178,314	171,606
Major irrigated crops:							
Cotton	<i>do.</i>	1,327,122	124,300	47,236	37,125	91,565	35,903
Wheat for grain	<i>do.</i>	652,746	16,873	643	42,048	11,975	38,620
Corn for grain	<i>do.</i>	522,359	57,352	23,159	53,484	34,124	58,405

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	374,742	386,138	587,091	758,381	349,900	341,846
Machinery and equipment	30,351	30,436	78,569	87,302	24,701	23,664
Farm products sold	55,877	48,299	167,744	147,268	42,765	36,456
Crops, nursery, and greenhouse	48,168	46,835	113,431	114,838	25,080	23,589
Livestock and poultry	50,330	40,037	159,163	111,355	43,076	35,309
Selected production expenses:						
Commercial fertilizers	3,462	4,005	8,659	10,267	2,420	2,822
Other agricultural chemicals	3,018	3,872	7,690	8,687	1,828	2,152
Energy and petroleum products	3,146	3,993	11,911	17,591	2,071	2,367
Hired labor	10,424	7,617	25,902	19,146	6,838	5,070
Contract labor	3,278	3,911	7,666	9,989	2,361	2,353

Irrigation methods, water sources, and pumping energy use

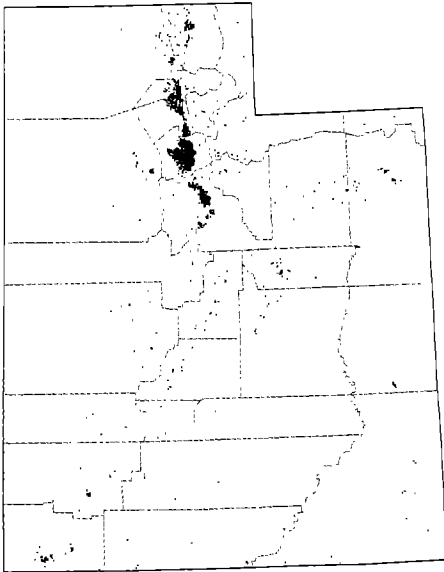
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	5,243	1,333,785	1.0	4,738	1,366,968	1.1
Center pivot	3,412	1,060,286	1.1	2,695	1,011,314	1.3
Mechanical move	1,573	171,794	1.1	1,710	256,919	0.8
Hand move	691	69,640	0.8	1,136	95,154	0.5
Solid set and permanent	443	32,065	0.9	3	D	NA
All gravity systems	11,087	3,169,416	1.6	10,302	3,669,263	1.4
Gated pipe	7,145	1,725,284	1.5	5,884	2,215,680	1.2
Ditch with siphon tube	2,828	957,391	1.9	4,495	1,041,623	1.5
Flooding	2,925	486,741	2.2	2,306	411,960	2.5
Drip or trickle	686	49,991	1.3	593	20,248	1.1
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	10,285	3,490,332	1.2	9,447	4,012,220	1.2
Onfarm surface sources	2,077	248,866	1.5	1,251	223,186	2.7
Off-farm water suppliers	3,945	765,415	2.2	3,555	698,785	1.9
	<i>-----Number-----</i>			<i>-----Number-----</i>		
			<i>\$/acre</i>			<i>\$/acre</i>
Onfarm energy use for pumping	11,128	3,827,384	34	10,717	4,464,089	42
Electricity	7,103	1,439,992	37	6,918	1,749,506	41
Natural gas	4,985	2,066,756	33	5,257	2,353,833	44
LP gas, propane, butane	861	139,991	27	708	139,803	21
Diesel fuel	949	178,662	28	1,042	220,834	47
Gasoline and gasohol	28	1,983	7	113	113	65
Off-farm water supply	3,945	765,415	30	3,555	698,785	27

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	747	924	876	23	22	22
Irrigated cropland	728	780	911	43	45	49
Grazing land	476	581	474	5	5	5

Utah

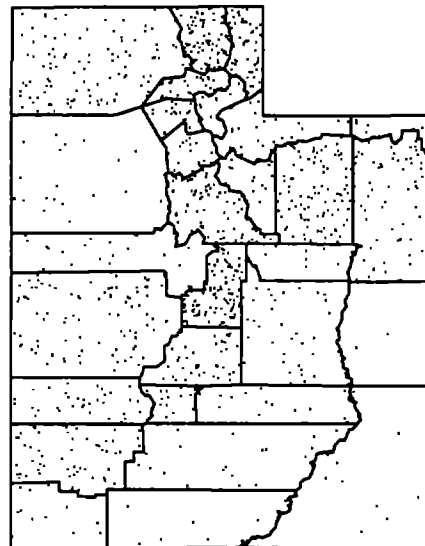
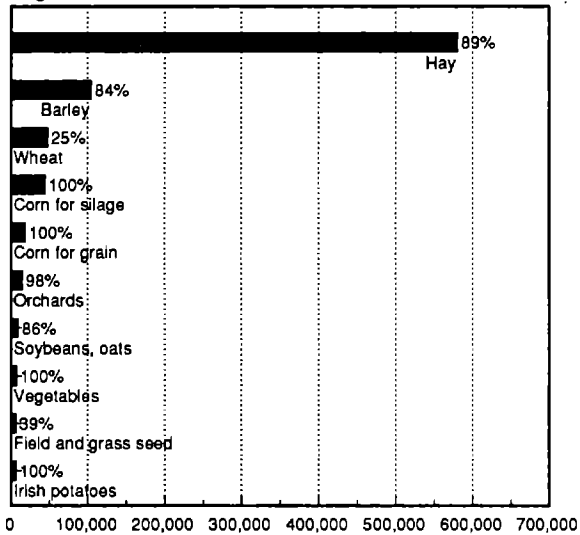
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water <i>M.a.f.</i>	Share of total	
		Percent	Agriculture's share
Sources:			
Surface	3.8	81	95
Ground	0.9	19	53
Total	4.7	100	87
Agriculture:			
Sources—			
Surface	3.6	88	NA
Ground	0.5	12	NA
Total	4.1	100	NA
Use—			
Irrigation	4.0	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	2.2	54	NA
Return flow	1.9	46	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Utah

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	12,233	12,349	11,779	11,327	12,055	14,570
Harvested cropland	do.	10,752	11,078	10,951	10,692	11,103	13,759
Irrigated land	do.	11,143	11,174	10,822	9,701	10,282	13,762
Harvested cropland	do.	9,983	10,224	10,079	NA	NA	NA
Total cropland	1,000 acres	2,029	1,920	2,007	1,839	1,945	2,070
Harvested cropland	do.	1,077	1,118	1,163	1,089	1,024	1,039
Irrigated land	No. of acres	1,161,207	1,082,328	1,168,621	969,645	1,025,014	1,092,270
Harvested cropland	do.	829,732	821,839	839,226	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Sanpete	Box Elder	Duchesne	Millard	Cache
Irrigated land	No. of farms	11,143	600	838	658	529	937
Irrigated land	No. of acres	1,161,207	110,744	106,686	97,174	93,419	83,771
Major irrigated crops:							
Hay	do.	581,082	38,549	39,253	42,508	50,941	41,636
Barley for grain	do.	105,534	7,798	16,644	2,767	17,918	18,699
Wheat for grain	do.	48,678	1,472	17,302	333	8,132	6,202

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	302,838	389,678	309,214	403,451	278,798	336,249
Machinery and equipment	35,685	33,985	38,574	36,780	24,861	23,237
Farm products sold	43,927	39,719	43,821	39,387	44,332	41,038
Crops, nursery, and greenhouse	19,933	19,880	19,966	19,740	19,531	21,366
Livestock and poultry	50,030	41,961	47,983	40,158	57,567	48,790
Selected production expenses:						
Commercial fertilizers	2,092	1,792	2,013	1,752	3,524	2,498
Other agricultural chemicals	1,109	979	1,103	948	1,151	1,440
Energy and petroleum products	3,332	3,509	3,568	3,808	2,327	2,354
Hired labor	9,018	6,936	8,633	6,700	11,496	8,080
Contract labor	3,817	3,392	3,920	3,593	3,201	2,566

Irrigation methods, water sources, and pumping energy use

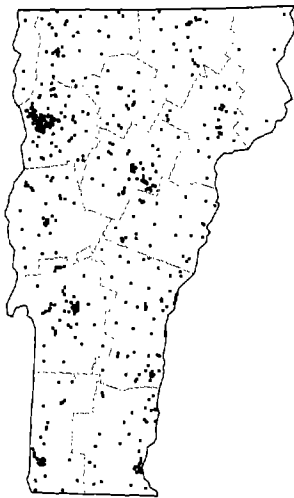
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	3,343	382,000	2.0	3,163	295,749	2.3
Center pivot	1,007	110,034	2.4	141	44,087	2.7
Mechanical move	1,510	171,207	1.7	1,361	150,776	2.9
Hand move	1,595	95,927	1.5	2,300	99,002	1.6
Solid set and permanent	127	4,832	3.0	133	1,884	2.9
All gravity systems	7,937	763,353	2.2	8,016	739,253	2.2
Gated pipe	1,475	60,704	2.5	582	36,481	3.0
Ditch with siphon tube	3,625	355,639	2.2	5,303	416,348	2.3
Flooding	3,740	347,010	2.2	2,624	286,424	2.0
Drip or trickle	77	9,882	1.6	171	13,927	1.9
Subirrigation	106	13,297	1.8	134	9,229	1.0
Sources:						
Wells	1,751	216,390	2.5	893	123,404	2.3
Onfarm surface sources	1,208	165,804	1.9	1,111	103,605	2.1
Off-farm water suppliers	7,955	770,409	2.1	8,632	832,542	2.1
<i>-----Number----- \$/acre</i>						
Onfarm energy use for pumping						
Electricity	2,327	294,992	37	1,816	236,481	26
Natural gas	1,627	231,816	41	1,382	186,549	30
LP gas, propane, butane	51	4,584	13	90	17,771	11
Diesel fuel	57	3,399	9	19	2,660	6
Gasoline and gasohol	480	53,818	23	292	28,975	17
Off-farm water supply	210	1,375	21	48	526	12
	7,955	770,409	11	8,632	832,542	9

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	340	293	492	17	13	12
Irrigated cropland	1,534	1,704	2,718	44	54	53
Grazing land	434	404	565	12	10	16

Vermont

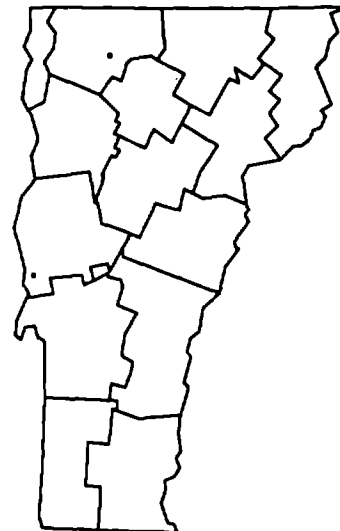
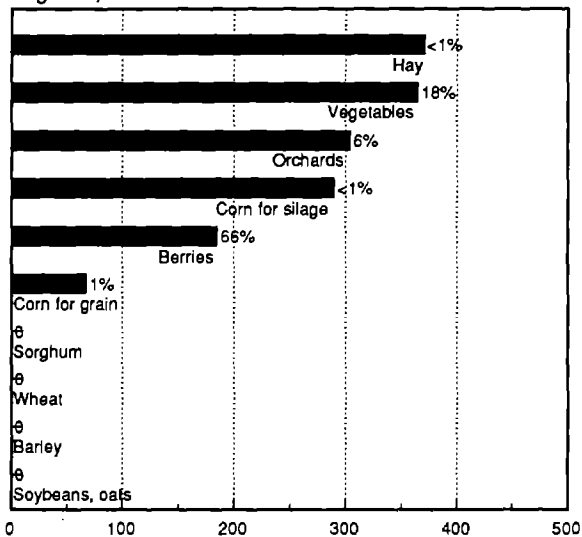
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
<i>M.a.f.</i>			
Sources:			
Surface	0.1	71	3
Ground	0.1	29	10
Total	0.2	100	5
<i>T.a.f.</i>			
Agriculture:			
Sources—			
Surface	2.5	37	NA
Ground	4.3	63	NA
Total	6.8	100	NA
Use—			
Irrigation	0.6	8	NA
Other farm uses	6.2	92	NA
Disposition—			
Consumptive use	1.8	27	NA
Return flow	5.0	73	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Vermont

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	5,506	5,977	5,696	5,762	6,600	8,930
Harvested cropland	do.	5,069	5,583	5,494	5,501	6,125	8,619
Irrigated land	do.	178	120	94	46	37	77
Harvested cropland	do.	174	119	87	NA	NA	NA
Total cropland	1,000 acres	708	772	806	779	836	878
Harvested cropland	do.	488	548	555	515	511	657
Irrigated land	No. of acres	1,823	1,254	1,397	509	286	1,063
Harvested cropland	do.	1,782	1,246	1,297	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Franklin	Addison	Chittenden	Grand Isle	Windsor
Irrigated land	No. of farms	178	18	28	18	9	18
Irrigated land	No. of acres	1,823	487	385	244	142	102
Major irrigated crops:							
Hay	do.	371	230	NA	0	NA	0
Vegetables	do.	365	NA	32	116	33	31
Orchards	do.	304	0	285	12	NA	0

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	258,713	206,616	209,135	200,817	260,197	206,713
Machinery and equipment	46,090	43,571	47,276	47,315	46,054	43,508
Farm products sold	63,899	58,496	64,676	49,252	63,875	58,675
Crops, nursery, and greenhouse	12,431	10,128	53,917	37,771	8,946	8,518
Livestock and poultry	75,054	66,784	59,765	35,860	75,223	67,083
Selected production expenses:						
Commercial fertilizers	2,632	2,486	1,549	1,423	2,683	2,515
Other agricultural chemicals	1,335	1,078	2,117	1,500	1,274	1,056
Energy and petroleum products	3,983	4,023	4,970	4,981	3,952	4,007
Hired labor	10,470	8,430	21,366	12,909	9,966	8,312
Contract labor	2,715	1,805	7,444	1,067	2,389	1,854

Irrigation methods, water sources, and pumping energy use: Water Resources Region 01, New England

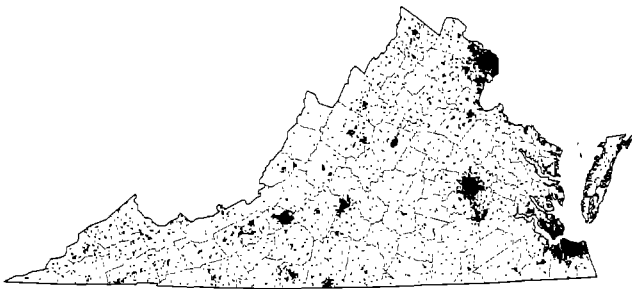
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	967	24,233	0.8	886	24,127	1.1
Center pivot	611	11,411	1.3	196	5,039	1.1
Mechanical move	13	1,046	0.3	36	2,548	0.4
Hand move	95	2,325	0.3	373	6,670	0.5
Solid set and permanent	258	9,421	0.5	335	9,870	1.7
All gravity systems	188	11,714	NA	87	2,683	1.5
Gated pipe	23	391	NA	6	174	0.0
Ditch with siphon tube	26	2,928	NA	41	1,455	1.5
Flooding	139	8,395	NA	44	1,054	1.2
Drip or trickle	0	0	0.0	75	679	0.6
Subirrigation	0	0	0.0	0	0	0.0
Sources:						
Wells	324	3,698	0.5	178	2,966	0.9
Onfarm surface sources	844	21,566	3.9	731	21,261	1.0
Off-farm water suppliers	26	102	NA	76	869	0.5
	-----Number-----		<i>\$/acre</i>	-----Number-----		<i>\$/acre</i>
Onfarm energy use for pumping	942	24,312	48	789	22,988	54
Electricity	273	5,958	68	279	5,612	94
Natural gas	0	0	0	9	174	87
LP gas, propane, butane	310	7,418	53	147	6,203	51
Diesel fuel	130	6,599	35	190	6,392	29
Gasoline and gasohol	444	4,337	29	379	4,607	44
Off-farm water supply	26	102	84	76	869	36

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	975	723	897	27	25	26
Irrigated cropland	NR	NR	NR	NR	NR	NR
Grazing land	823	680	734	13	11	11

Virginia

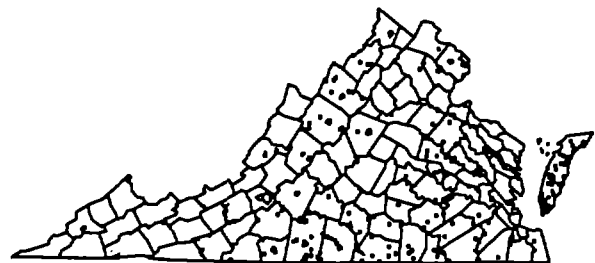
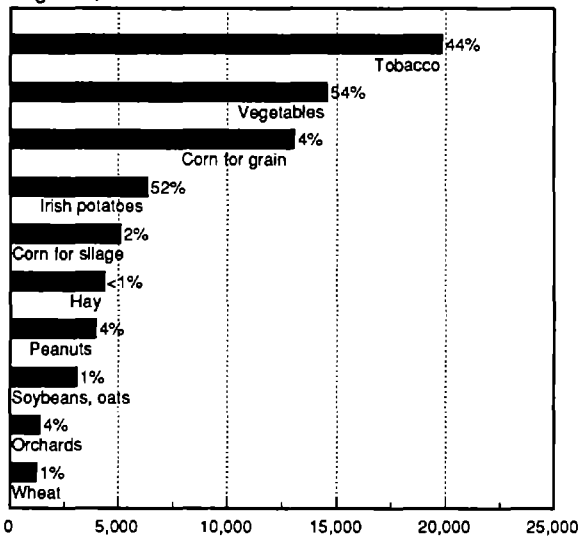
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	5.1	93	2
Ground	0.4	7	10
Total	5.5	100	2
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	78.6	67	NA
Ground	39.0	33	NA
Total	117.6	100	NA
Use—			
Irrigation	58.2	50	NA
Other farm uses	59.4	50	NA
Disposition—			
Consumptive use	43.9	37	NA
Return flow	73.7	63	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

Virginia

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	41,491	48,550	47,652	50,419	60,877	75,021
Harvested cropland	do.	37,332	44,259	44,643	46,485	54,192	71,748
Irrigated land	do.	3,054	1,839	2,416	1,965	2,708	4,452
Harvested cropland	do.	2,991	1,815	2,355	NA	NA	NA
Total cropland	1,000 acres	4,363	4,560	4,509	4,432	4,601	4,010
Harvested cropland	do.	2,407	2,779	2,600	2,447	2,278	2,566
Irrigated land	No. of acres	78,681	42,824	42,030	28,257	36,618	50,968
Harvested cropland	do.	77,204	42,400	40,372	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Northampton	Accomack	Pittsylvania	Hanover	Rockingham
Irrigated land	No. of farms	3,054	61	72	460	57	77
Irrigated land	No. of acres	78,681	9,580	9,132	6,322	3,771	3,654
Major irrigated crops:							
Tobacco	do.	19,856	0	0	5,686	0	0
Vegetables	do.	14,513	5,680	4,360	183	555	11
Corn for grain	do.	13,069	NA	593	18	1,926	388

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	232,374	205,034	348,315	306,538	223,787	201,338
Machinery and equipment	30,249	26,976	59,906	59,613	28,045	25,787
Farm products sold	35,464	30,986	89,381	89,758	31,520	28,825
Crops, nursery, and greenhouse	21,046	21,831	74,499	80,970	13,169	17,999
Livestock and poultry	35,169	27,473	42,931	30,806	34,805	27,402
Selected production expenses:						
Commercial fertilizers	2,889	3,151	6,066	6,447	2,564	2,992
Other agricultural chemicals	2,187	2,351	4,644	3,908	1,865	2,231
Energy and petroleum products	2,043	2,361	6,204	7,938	1,722	2,157
Hired labor	7,480	5,581	20,903	17,457	5,687	4,837
Contract labor	3,918	4,319	12,795	18,954	2,946	3,179

Irrigation methods, water sources, and pumping energy use: Water Resources Region 02, Mid-Atlantic

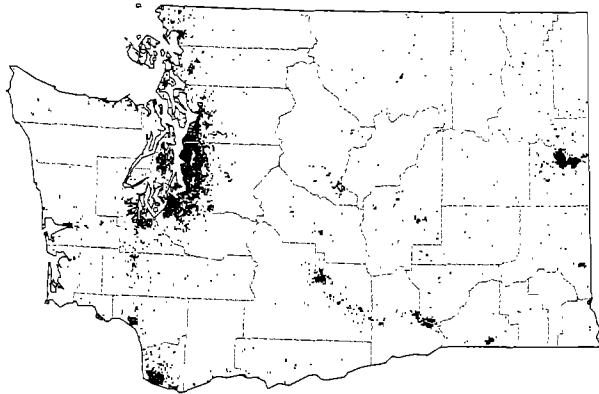
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,482	255,416	0.6	2,209	183,188	0.5
Center pivot	817	105,830	0.6	403	70,560	0.6
Mechanical move	672	94,424	0.4	525	56,114	0.3
Hand move	1,235	46,357	0.4	1,399	49,996	0.5
Solid set and permanent	86	8,805	0.8	179	6,428	1.4
All gravity systems	19	1,660	0.9	38	6,228	0.0
Gated pipe	0	0	0.0	29	3,510	0.0
Ditch with siphon tube	10	1,390	0.9	0	0	0.0
Flooding	9	270	NA	9	2,718	0.0
Drip or trickle	209	NA	1.1	156	2,646	0.5
Subirrigation	2	NA	NA	10	1,515	0.0
Sources:						
Wells	792	126,525	0.8	1,065	106,936	0.6
Onfarm surface sources	1,920	137,469	0.5	1,288	76,946	0.6
Off-farm water suppliers	67	4,076	0.3	149	2,075	0.6
<i>-----Number----- \$/acre</i>						
Onfarm energy use for pumping						
Electricity	2,440	246,466	19	2,097	175,259	20
Natural gas	537	49,109	21	496	41,735	25
LP gas, propane, butane	0	0	0	0	0	0
Diesel fuel	51	6,729	13	103	11,538	19
Gasoline and gasohol	1,460	167,116	18	831	90,185	16
Off-farm water supply	868	23,512	28	990	31,801	25
Off-farm water supply	67	4,076	21	149	2,075	56

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	1,385	1,242	1,165	36	35	37
Irrigated cropland	1,228	1,306	NR	83	49	NR
Grazing land	854	809	783	15	14	15

Washington

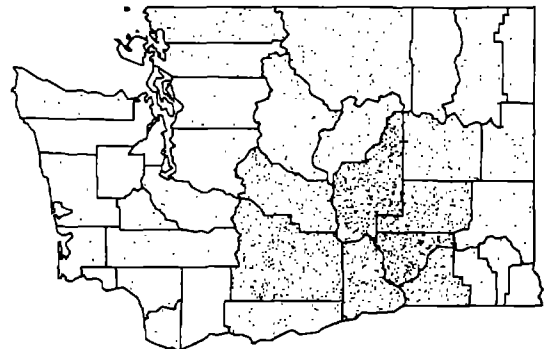
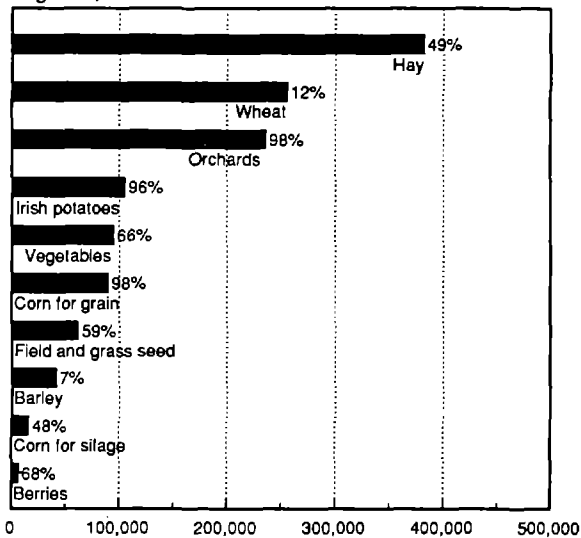
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	6.4	83	75
Ground	1.4	17	53
Total	7.8	100	71
Agriculture:			
Sources—			
Surface	4.8	87	NA
Ground	0.7	13	NA
Total	5.6	100	NA
Use—			
Irrigation	5.5	99	NA
Other farm uses	0.1	1	NA
Disposition—			
Consumptive use	5.0	90	NA
Return flow	0.6	10	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Washington

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	No. of farms	28,891	31,317	28,488	27,581	31,389	41,515
Harvested cropland	do.	24,027	26,067	24,926	24,732	26,430	35,815
Irrigated land	do.	15,437	16,252	14,951	13,183	14,074	16,488
Harvested cropland	do.	13,709	14,270	13,385	NA	NA	NA
Total cropland	1,000 acres	8,168	8,191	8,236	7,945	8,230	8,061
Harvested cropland	do.	4,597	5,279	5,014	4,946	4,367	4,423
Irrigated land	No. of acres	1,518,684	1,638,470	1,639,189	1,309,018	1,224,238	1,149,842
Harvested cropland	do.	1,378,065	1,499,888	1,435,530	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Grant	Yakima	Franklin	Adams	Benton
Irrigated land	No. of farms	15,437	1,569	3,850	736	409	921
Irrigated land	No. of acres	1,518,684	369,179	247,313	193,960	131,433	112,366
Major irrigated crops:							
Hay	do.	382,363	107,969	34,414	57,588	22,056	12,922
Wheat for grain	do.	255,983	80,384	16,801	32,506	51,873	15,323
Orchards	do.	235,577	21,636	94,820	11,365	2,770	22,711

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	355,976	423,352	363,988	452,290	349,055	400,729
Machinery and equipment	45,905	45,947	55,955	56,563	37,211	37,651
Farm products sold	87,000	78,469	123,867	107,981	55,595	54,279
Crops, nursery, and greenhouse	93,924	91,776	116,270	106,706	53,336	66,631
Livestock and poultry	67,495	52,004	96,161	69,718	53,907	43,010
Selected production expenses:						
Commercial fertilizers	8,538	9,211	8,380	9,266	8,821	9,126
Other agricultural chemicals	6,699	5,751	7,458	6,116	5,519	5,195
Energy and petroleum products	4,812	4,790	6,594	7,029	3,165	3,040
Hired labor	26,631	17,905	36,920	25,610	12,258	8,415
Contract labor	10,797	10,676	14,835	13,293	3,074	3,865

Irrigation methods, water sources, and pumping energy use

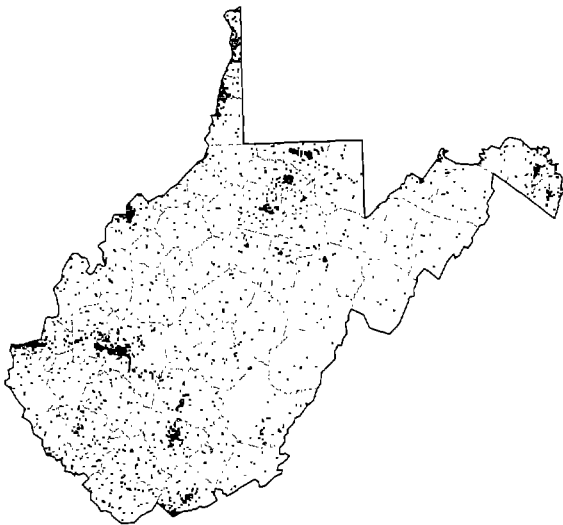
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	11,896	1,215,416	2.1	10,687	1,139,686	2.0
Center pivot	4,014	573,835	2.0	1,279	524,392	2.2
Mechanical move	1,917	233,913	1.7	2,139	255,149	1.8
Hand move	5,916	257,210	1.7	7,035	246,310	1.7
Solid set and permanent	3,020	150,458	3.0	3,914	113,835	3.6
All gravity systems	2,744	327,048	2.6	3,827	348,598	2.4
Gated pipe	901	43,785	3.3	908	43,361	3.0
Ditch with siphon tube	1,445	193,345	2.2	2,211	230,562	2.2
Flooding	721	89,918	2.7	1,169	74,675	2.5
Drip or trickle	258	11,047	NA	390	14,500	2.1
Subirrigation	129	12,645	1.0	76	1,396	NA
Sources:						
Wells	5,195	441,673	1.7	2,934	397,880	1.6
Onfarm surface sources	1,982	218,074	2.3	2,088	163,984	2.1
Off-farm water suppliers	7,623	904,978	2.5	9,062	943,341	2.3
<i>-----Number----- \$/acre -----Number----- \$/acre</i>						
Onfarm energy use for pumping	9,312	1,015,199	32	7,788	931,879	27
Electricity	9,280	1,002,495	32	7,612	916,697	27
Natural gas	0	0	0	11	1,870	67
LP gas, propane, butane	6	384	2	10	1,150	35
Diesel fuel	61	8,514	6	173	11,952	21
Gasoline and gasohol	97	3,806	14	48	210	12
Off-farm water supply	7,623	904,978	33	9,062	943,341	25

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	639	634	813	45	41	45
Irrigated cropland	1,408	1,600	1,983	83	97	105
Grazing land	195	200	235	3	7	8

West Virginia

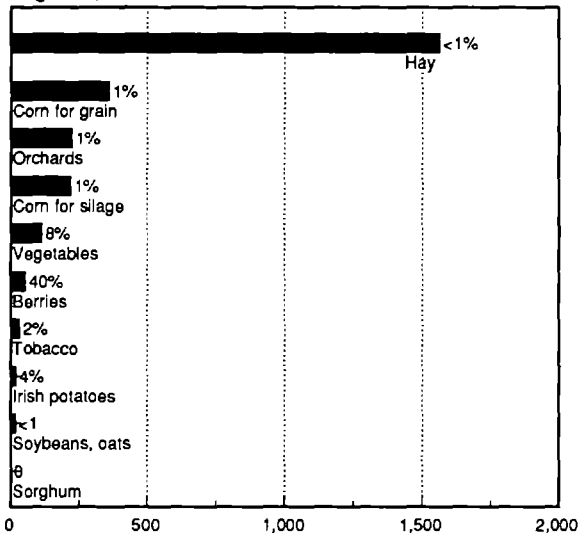
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
	<i>M.a.f.</i>	—Percent—	
Sources:			
Surface	5.8	96	0
Ground	0.3	4	7
Total	6.1	100	1
Agriculture:			
Sources—			
Surface	14.8	44	NA
Ground	18.8	56	NA
Total	33.6	100	NA
Use—			
Irrigation	4.1	12	NA
Other farm uses	29.5	88	NA
Disposition—			
Consumptive use	29.2	87	NA
Return flow	4.4	13	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 500 acres

Selected Characteristics of Irrigated Farms

West Virginia

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	16,246	17,763	16,780	16,344	21,714	32,704
Harvested cropland	<i>do.</i>	15,056	16,446	15,890	14,899	19,145	31,296
Irrigated land	<i>do.</i>	255	135	116	113	130	79
Harvested cropland	<i>do.</i>	241	130	103	NA	NA	NA
Total cropland	<i>1,000 acres</i>	1,286	1,319	1,356	1,329	1,554	1,227
Harvested cropland	<i>do.</i>	554	577	561	511	539	733
Irrigated land	<i>No. of acres</i>	3,132	945	1,236	1,513	3,166	2,420
Harvested cropland	<i>do.</i>	2,697	871	1,041	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Jefferson	Pendleton	Randolph	Monroe	Jackson
Irrigated land	<i>No. of farms</i>	255	9	6	8	4	18
Irrigated land	<i>No. of acres</i>	3,132	473	389	206	198	175
Major irrigated crops:							
Hay	<i>do.</i>	1,563	NA	NA	115	NA	58
Corn for grain	<i>do.</i>	362	NA	NA	NA	NA	NA
Orchards	<i>do.</i>	226	NA	0	0	NA	0

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
<i>Dollars</i>						
Land and buildings	130,802	129,390	217,312	163,184	129,678	129,113
Machinery and equipment	17,482	16,100	31,591	24,255	17,298	16,033
Farm products sold	15,701	12,919	63,203	69,809	14,988	12,506
Crops, nursery, and greenhouse	8,801	10,303	66,497	64,435	6,740	9,229
Livestock and poultry	16,792	12,610	28,060	44,818	16,691	12,489
Selected production expenses:						
Commercial fertilizers	1,119	1,134	2,391	2,711	1,093	1,113
Other agricultural chemicals	933	1,005	3,542	1,500	861	997
Energy and petroleum products	1,039	1,092	5,231	7,572	984	1,038
Hired labor	4,151	3,414	43,752	29,492	3,395	3,126
Contract labor	3,131	3,958	20,063	4,000	2,670	3,958

Irrigation methods, water sources, and pumping energy use: Water Resources Region 02, Mid-Atlantic

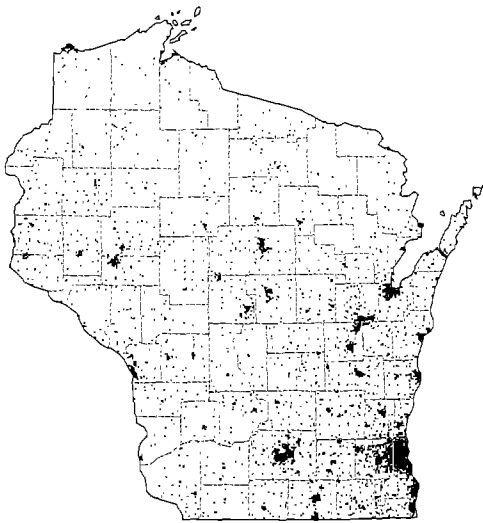
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
<i>Number</i>						
Methods:						
All sprinkler systems	2,482	255,416	0.6	2,209	183,188	0.5
Center pivot	817	105,830	0.6	403	70,560	0.6
Mechanical move	672	94,424	0.4	525	56,114	0.3
Hand move	1,235	46,357	0.4	1,399	49,996	0.5
Solid set and permanent	86	8,805	0.8	179	6,428	1.4
All gravity systems	19	1,660	0.9	38	6,228	0.0
Gated pipe	0	0	0.0	29	3,510	0.0
Ditch with siphon tube	10	1,390	0.9	0	0	0.0
Flooding	9	270	NA	9	2,718	0.0
Drip or trickle	209	NA	1.1	156	2,646	0.5
Subirrigation	2	NA	NA	10	1,515	0.0
Sources:						
Wells	792	126,525	0.8	1,065	106,936	0.6
Onfarm surface sources	1,920	137,469	0.5	1,288	76,946	0.6
Off-farm water suppliers	67	4,076	0.3	149	2,075	0.6
-----Number----- \$/acre -----Number----- \$/acre						
Onfarm energy use for pumping	2,440	246,466	19	2,097	175,259	20
Electricity	537	49,109	21	496	41,735	25
Natural gas	0	0	0	0	0	0
LP gas, propane, butane	51	6,729	13	103	11,538	19
Diesel fuel	1,460	167,116	18	831	90,185	16
Gasoline and gasohol	868	23,512	28	990	31,801	25
Off-farm water supply	67	4,076	21	149	2,075	56

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
<i>Dollars</i>						
Dry cropland	1,037	1,252	1,405	32	33	35
Irrigated cropland	NR	NR	NR	NR	NR	NR
Grazing land	501	568	647	11	11	10

Wisconsin

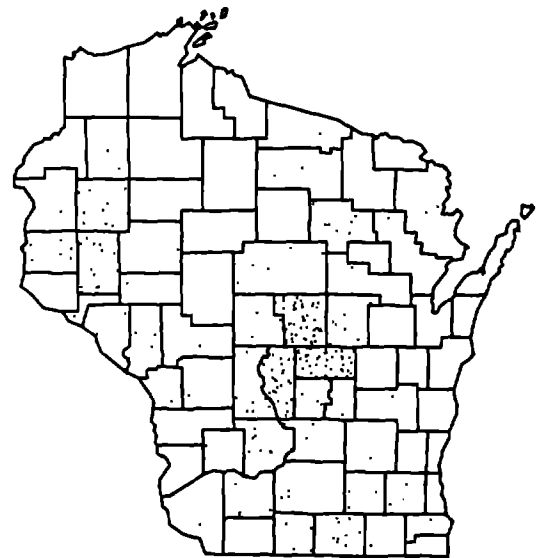
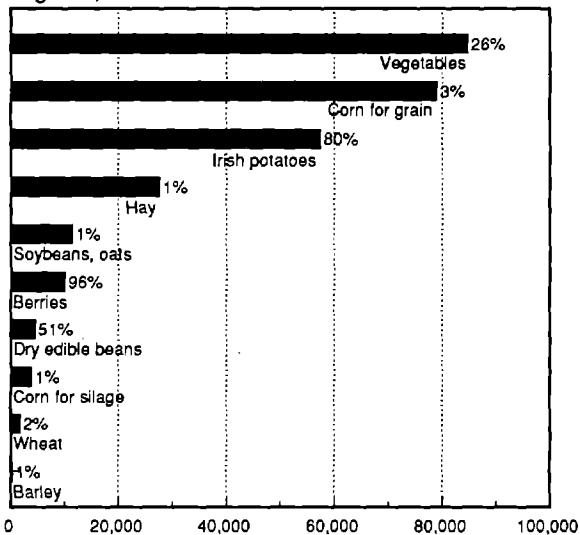
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water	Share of total	Agriculture's share
			—Percent—
Sources:			
Surface	6.9	92	0
Ground	0.6	9	30
Total	7.5	100	3
Agriculture:			
<i>T.a.f.</i>			
Sources—			
Surface	5.7	3	NA
Ground	189.3	97	NA
Total	195.0	100	NA
Use—			
Irrigation	94.2	48	NA
Other farm uses	100.8	52	NA
Disposition—			
Consumptive use	175.8	90	NA
Return flow	19.2	10	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Wisconsin

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	71,320	78,060	83,666	87,263	96,133	116,432
Harvested cropland	<i>do.</i>	69,141	75,734	81,708	84,970	92,197	112,963
Irrigated land	<i>do.</i>	1,850	1,695	1,645	1,165	1,252	813
Harvested cropland	<i>do.</i>	1,821	1,678	1,594	NA	NA	NA
Total cropland	<i>1,000 acres</i>	11,619	11,769	12,089	11,669	11,564	12,043
Harvested cropland	<i>do.</i>	9,335	10,062	9,863	9,340	8,134	9,038
Irrigated land	<i>No. of acres</i>	284,637	259,270	234,557	127,881	105,526	62,302
Harvested cropland	<i>do.</i>	280,624	257,707	230,116	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Portage	Waushara	Adams	Dunn	Barron
Irrigated land	<i>No. of farms</i>	1,850	153	116	51	60	44
Irrigated land	<i>No. of acres</i>	284,637	62,221	44,124	27,663	16,037	10,392
Major irrigated crops:							
Vegetables	<i>do.</i>	84,821	24,610	19,396	9,084	99	4,749
Corn for grain	<i>do.</i>	79,061	11,536	9,031	8,103	7,003	2,030
Irish potatoes	<i>do.</i>	57,508	19,858	10,941	7,925	0	1,610

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	182,950	232,606	535,273	550,086	173,869	225,798
Machinery and equipment	54,037	53,698	142,454	123,624	51,755	52,200
Farm products sold	65,351	59,059	223,791	207,511	61,351	55,933
Crops, nursery, and greenhouse	22,716	22,958	183,621	177,947	15,801	17,082
Livestock and poultry	67,728	57,957	137,336	110,920	66,835	57,351
Selected production expenses:						
Commercial fertilizers	4,061	4,306	14,998	16,496	3,722	3,990
Other agricultural chemicals	1,895	1,699	10,558	8,409	1,617	1,504
Energy and petroleum products	4,074	4,668	12,319	14,891	3,856	4,448
Hired labor	9,062	7,270	51,416	35,032	7,382	6,354
Contract labor	2,724	3,756	8,648	23,095	2,421	2,794

Irrigation methods, water sources, and pumping energy use: Water Resources Region 07, Upper Mississippi

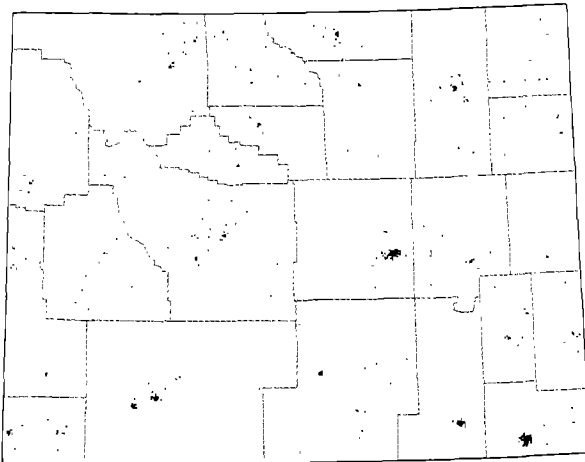
Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	3,557	755,893	0.9	2,980	593,946	0.8
Center pivot	2,316	593,502	0.9	1,897	474,203	0.8
Mechanical move	952	114,128	0.7	909	83,062	0.5
Hand move	523	26,911	0.8	324	19,538	1.4
Solid set and permanent	311	21,352	1.7	399	17,143	2.3
All gravity systems	278	23,542	0.8	35	2,450	NA
Gated pipe	208	12,348	0.6	35	2,450	NA
Ditch with siphon tube	59	9,596	1.2	NA	NA	NA
Flooding	15	1,508	D	NA	NA	NA
Drip or trickle	149	1,963	0.5	36	720	0.3
Subirrigation	36	8,092	1.1	1	D	NA
Sources:						
Wells	2,732	638,774	0.9	2,206	482,201	0.7
Onfarm surface sources	1,260	116,957	0.9	955	99,923	1.0
Off-farm water suppliers	119	19,873	0.9	108	2,016	1.4
	<i>-----Number-----</i>		<i>\$/acre</i>	<i>-----Number-----</i>		<i>\$/acre</i>
Onfarm energy use for pumping	3,581	748,931	22	2,936	569,361	19
Electricity	2,015	434,187	23	1,932	392,425	17
Natural gas	45	7,887	17	NA	NA	NA
LP gas, propane, butane	198	27,022	17	283	39,800	22
Diesel fuel	1,697	275,315	20	1,055	122,097	23
Gasoline and gasohol	185	4,520	33	208	15,039	40
Off-farm water supply	119	19,873	5	108	2,016	59

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	660	682	990	47	50	62
Irrigated cropland	1,012	1,212	1,278	113	127	121
Grazing land	265	279	389	17	17	20

Wyoming

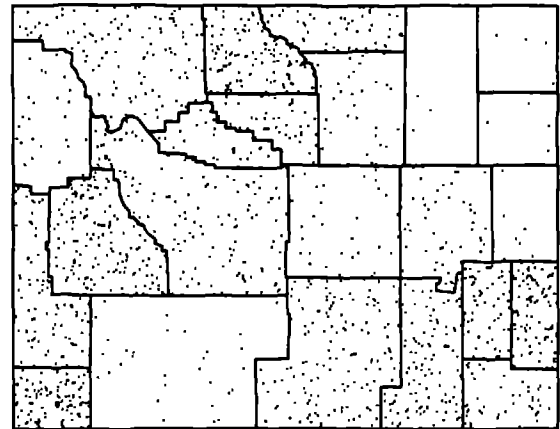
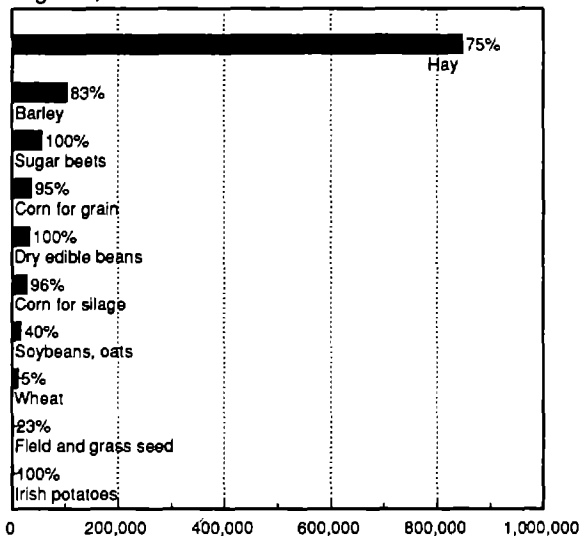
Distribution of population, 1985
Each dot = 1,000 people



Water sources, use, and disposition, 1985

Item	Amount of water <i>M.a.f.</i>	Share of total	
		—Percent—	
Sources:			
Surface	6.4	92	94
Ground	0.6	8	60
Total	7.0	100	92
Agriculture:			
Sources—			
Surface	6.0	95	NA
Ground	0.4	5	NA
Total	6.4	100	NA
Use—			
Irrigation	6.4	100	NA
Other farm uses	0.0	0	NA
Disposition—			
Consumptive use	2.9	45	NA
Return flow	3.5	55	NA

Acres of principal irrigated crops and proportion irrigated, 1987



Distribution of irrigated acreage, 1987
Each dot = 1,000 acres

Selected Characteristics of Irrigated Farms

Wyoming

Land in farms

Item	Unit	1987	1982	1978	1974	1969	1964
Total cropland	<i>No. of farms</i>	7,237	7,214	6,907	6,857	7,296	8,033
Harvested cropland	<i>do.</i>	6,389	6,473	6,444	6,347	6,747	7,624
Irrigated land	<i>do.</i>	5,221	5,284	4,995	4,738	5,034	5,923
Harvested cropland	<i>do.</i>	4,679	4,819	4,660	NA	NA	NA
Total cropland	<i>1,000 acres</i>	2,839	2,741	2,711	2,644	2,788	2,766
Harvested cropland	<i>do.</i>	1,717	1,814	1,780	1,681	1,686	1,702
Irrigated land	<i>No. of acres</i>	1,517,891	1,564,576	1,661,558	1,459,900	1,523,422	1,571,192
Harvested cropland	<i>do.</i>	1,132,266	1,146,996	1,124,863	NA	NA	NA

Counties with the largest irrigated acreage, 1987

Item	Unit	State	Sublette	Carbon	Fremont	Albany	Park
Irrigated land	<i>No. of farms</i>	5,221	201	188	755	163	532
Irrigated land	<i>No. of acres</i>	1,517,891	159,025	145,991	135,774	117,841	112,122
Major irrigated crops:							
Hay	<i>do.</i>	848,392	115,479	104,421	71,018	71,030	41,543
Barley for grain	<i>do.</i>	105,172	0	NA	15,930	0	29,308
Sugar beets	<i>do.</i>	56,932	0	NA	1,453	NA	11,714

Average value per farm

Item	All farms		Irrigated		Nonirrigated	
	1987	1982	1987	1982	1987	1982
	<i>Dollars</i>					
Land and buildings	533,284	732,875	596,545	821,176	452,711	601,738
Machinery and equipment	45,709	52,379	54,067	62,671	35,116	37,147
Farm products sold	73,517	68,426	87,720	80,789	54,903	50,165
Crops, nursery, and greenhouse	33,967	35,204	40,143	39,411	16,866	23,293
Livestock and poultry	76,649	65,789	86,801	74,944	63,758	52,665
Selected production expenses:						
Commercial fertilizers	6,156	6,117	6,638	6,247	3,005	4,725
Other agricultural chemicals	2,263	2,034	2,545	2,213	1,667	1,495
Energy and petroleum products	5,071	6,066	5,947	7,441	3,900	4,028
Hired labor	14,907	11,063	17,072	12,909	10,903	7,052
Contract labor	4,723	3,913	5,378	4,036	3,465	3,609

Irrigation methods, water sources, and pumping energy use

Item	1988			1984		
	Farms	Acres	AF/acre	Farms	Acres	AF/acre
Methods:	<i>Number</i>					
All sprinkler systems	1,442	201,027	1.1	1,160	187,621	1.1
Center pivot	596	120,870	1.2	326	73,848	1.0
Mechanical move	444	39,316	0.5	470	54,434	1.3
Hand move	649	38,234	1.3	611	41,271	0.8
Solid set and permanent	51	2,607	0.8	80	18,068	1.3
All gravity systems	4,048	1,178,776	1.6	4,044	1,359,557	1.6
Gated pipe	1,092	119,095	1.2	1,259	144,256	1.6
Ditch with siphon tube	2,666	541,237	1.5	2,703	729,834	1.4
Flooding	1,399	518,444	1.5	1,345	485,467	1.4
Drip or trickle	50	5,292	1.5	0	0	NA
Subirrigation	60	22,421	1.4	157	20,909	2.1
Sources:						
Wells	436	85,578	1.1	389	85,367	1.4
Onfarm surface sources	982	470,466	1.4	1,265	630,613	1.4
Off-farm water suppliers	3,687	853,409	1.8	3,225	842,673	1.8
	-----Number-----			-----Number-----		
			<i>\$/acre</i>			<i>\$/acre</i>
Onfarm energy use for pumping	1,443	228,039	23	1,057	194,791	22
Electricity	1,116	186,829	24	891	163,917	21
Natural gas	28	4,558	32	21	7,920	68
LP gas, propane, butane	94	9,327	9	46	3,265	13
Diesel fuel	259	26,267	16	164	17,792	15
Gasoline and gasohol	59	1,058	14	66	1,897	19
Off-farm water supply	3,687	853,409	10	3,225	842,673	8

Land values and cash rent per acre

Item	Average land value			Average cash rent		
	1988	1986	1984	1988	1986	1984
	<i>Dollars</i>					
Dry cropland	174	195	333	25	15	18
Irrigated cropland	580	688	989	36	45	50
Grazing land	69	92	127	3	3	3

Appendix--Descriptions, Definitions, and Sources of Data

The following descriptions and definitions of the data in the U.S. and State tables and graphs provide a detailed explanation of the terms used. Where appropriate, a short discussion is provided of how the data can be interpreted and where to find greater detail.

Land in Farms by Use

Source: U.S. Department of Commerce, Bureau of the Census, 1987 Census of Agriculture, Vol. 1, State Data, Chapter 1, Tables 1 and 2.

The number of farms reporting irrigated acreage and how that acreage is used is provided for census years 1954-87. Data for 1974, 1978, 1982, and 1987 are not fully comparable with data for earlier censuses because of changes in the definition of a farm. The current definition of a farm, first used for the 1974 Census, is any place from which \$1,000 or more of agricultural products were sold or normally would have been sold during the census year. The previous definition was any place of less than 10 acres with sales of \$250 or more in the census year or with sales of \$50 or more if over 10 acres in size. The change in definition somewhat reduces the number of farms that would have been reported if the 1974 definition had been used for reporting irrigated acreage.

Harvested cropland, whether irrigated or not, includes land from which crops were harvested or hay was cut, as well as land in orchards, citrus groves, vineyards, nurseries, and greenhouses. Land from which two or more crops were harvested in 1 year was counted only once, even though there was more than one use of the land. Differences between harvested and total cropland are accounted for by land used only for pasture or grazing, most of the land in government diversion programs, soil improvement crops, crop failure, cultivated summer fallow, idle cropland, and land planted in crops harvested after the census year.

Selected Characteristics

Source: U.S. Department of Commerce, Bureau of the Census, 1987 Census of Agriculture, Vol. 1, State Data, Chapter 1, Table 3.

Data are presented on the average value per farm of selected capital items, products sold, and expenditures for 1982 and 1987. Dollar figures shown for expenses, product sales, and value of fixed capital items are

actual values and have not been adjusted for changes in price levels between census years.

Value of land and buildings estimates the market value of land and buildings used in the farm business during the census year. Included are land and buildings owned, rented, or leased from others, and rented or leased to others.

The machinery and equipment item accounts for the value of all capital other than land and buildings used in the farm business. This item includes cars, trucks, and tractors; tillage, planting, and harvesting equipment; irrigation equipment; livestock equipment; dryers, pumps, and all classes of miscellaneous tools.

Commercial fertilizer expenses include the amount spent during that year to purchase fertilizer even if the fertilizer was not spread during the year. The cost of custom application is included in 1987 but was excluded in prior years. Other agricultural chemicals include the cost of all insecticides, herbicides, fungicides, and other pesticides, including the cost of application in 1987, but not in prior years. The cost of lime is included in the 1978 data, but not in 1982 or 1987.

Hired labor expenses include gross wages and benefits, any bonuses, and paid leave before deductions. Social Security taxes, health, life, or employment insurance, and any other benefits paid by the operator are included. Contract labor relates primarily to expenditures for labor to perform harvest work, such as fruit and vegetable picking, sheep shearing, and so on, on a contract basis by a contractor or crew leader. Contract labor does not include items mainly considered machine work normally covered under custom work charges.

Irrigated Acreage and Crops

Source: U.S. Department of Commerce, Bureau of the Census, 1987 Census of Agriculture, Vol. 1, County Data, Chapter 2, Table 15.

The tables and graphs presenting the distribution of irrigated acreage and percentage of crops irrigated draws on county data in the 1987 Census of Agriculture for each State to compare irrigated acreage and irrigated harvested cropland in the five counties with the largest irrigated acreage. The acreage of the three major irrigated crops is compared across counties and the State. Each State differs with respect to major irrigated crops.

The Bureau of the Census is prohibited from publishing data that would disclose the operations of an individual farm. Because the number of farms in a given size category or other classification is not considered a disclosure, this information may be given even though other information is withheld. The acreage of an irrigated crop in many counties, particularly in the Western States, is identified with a (D), signifying a disclosure problem. This indicates that there are too few operators reporting that data item or some other situation that would result in disclosing data for individual farms.

Methods of Water Distribution

Source: U.S. Department of Commerce, Bureau of Census, 1984 and 1987 Farm and Ranch Irrigation Surveys.

The method of water distribution comes from a survey consisting of a 5-percent sample of farmers reporting irrigation practices in the 1982 census and a 7.3-percent sample in the 1987 Census of Agriculture. Data on farms, acreage, and acre-feet of water applied are shown for four types of sprinkler systems, three types of gravity systems, drip or trickle, and subirrigation.

State data on water distribution methods are only reported for 20 principal irrigation States. These States account for about 94 percent of the irrigated acreage in the conterminous United States. For the remaining 28 States, comparable data are combined at the Water Resource Region (WRR) level. The information provided on the methods of water distribution for these States is for the WRR containing the largest share of a State's irrigated acreage. For example, the State of Missouri is divided into parts of three WRR's: Missouri, Upper Mississippi, and Lower Mississippi regions, but the water distribution methods occurring in the Lower Mississippi WRR were shown for Missouri because over 75 percent of the State's irrigated acreage lies within that WRR.

Sources of Water, Energy Expenses, and Onfarm Pumping

Source: U.S. Department of Commerce, Bureau of Census, 1984 and 1987 Farm and Ranch Irrigation Surveys.

The same provision on reporting by State or WRR holds for water sources as for methods of distribution. While some farms use more than one source of water for irrigation, the data show that most rely on only one source. It is difficult to assign acreages to sources

where more than one is used. For that reason, the most accurate data on water sources relate to farms using wells, onfarm surface water, or off-farm surface water as the only source.

Wells are usually located on the farm. Pumps are usually needed to lift water to the surface, and in most situations, to move it to the field. However, there are free-flowing or artesian wells used for irrigation that have sufficient pressure to bring water to the surface without pumping. Some wells are located so that water flows by gravity to the fields, but these represent a very small proportion of all irrigation wells.

Onfarm surface sources are not controlled by a water supply organization. These sources include streams, drainage ditches, lakes, ponds, and reservoirs on or near the farm.

Off-farm supply is water from off-farm project water suppliers, such as the U.S. Bureau of Reclamation; irrigation districts; mutual, private cooperative, or neighborhood ditch companies; commercial companies; or community water systems.

Expenses for onfarm pumping of irrigation water are provided in terms of total and per acre energy expenditures in actual dollars for 1984 and 1987. Expenditures are disaggregated into the five principal energy sources commonly used for irrigation pumping: electricity, natural gas, LP gas, diesel, and gasoline. Pumped wells and pumping of onfarm surface sources make up the bulk of these expenses. All flowing or artesian wells were excluded from pumping expenditures. Since the Farm and Ranch Irrigation Survey is the data source for energy expenses, all previously discussed provisions of that source apply to these data.

Land Values and Cash Rent

The sale and rental value of irrigated and dry cropland and grazing land is derived from an annual land value survey conducted by the Economic Research Service, USDA, with data from the 1984, 1986, and 1988 surveys. County offices of the Agricultural Stabilization and Conservation Service (ASCS), USDA, provide estimates based on knowledge of local sales and rental agreements during the past year. The county data are used to create weighted average values for each State.

Market values and rents include usual improvements like fences, tiles, terraces, and so on, and a normal amount of idle, farmstead, road, and other unused land. Excluded are the value of residences, farmstead

buildings, or any major developments such as mining or recreational facilities. Estimated values are full market value for each land category, not just for agricultural purposes. Thus, values of land near major metropolitan areas reflect urban influences on land values.

Water Sources, Use, and Disposition, 1985

Source: U.S. Geological Survey, *National Water Summary, 1987: Hydrologic Events and Water Supply and Use*, Water Supply Paper 2350, 1990.

State tables of water sources, use, and disposition provide information on both total and agricultural water use in each State. Information on agricultural water use includes the quantity and percentage of water withdrawn from the various sources, the major user, and the disposition.