

# 2003 Farm and Ranch Irrigation Survey



NATIONAL AGRICULTURAL STATISTICS SERVICE (NASS)

## IRRIGATION SURVEY RESULTS RELEASED NOVEMBER 15, 2004

*The 2003 Farm and Ranch Irrigation Survey (FRIS)* provides data about the agricultural irrigation industry at the national and State level, as well as for specific Water Resources Areas (WRA). The 2003 Farm and Ranch Irrigation Survey is the sixth survey devoted entirely to the collection of on-farm irrigation data for the United States.

Irrigation data have been collected from all farms and ranches in the census of agriculture since 1890. However, the FRIS data supplements the basic irrigation data collected from operators in the census. The 25,014 operations sampled for 2003 FRIS were selected from farms and ranches that reported irrigated acreage for the 2002 Census of Agriculture.

The 2003 FRIS includes first-time statistics on water transfers, pumps powered by solar energy, expense for irrigation labor, primary method of water distribution by crop, and the percent of sales from irrigated crops.

### FRIS FACTS

- For the first time, FRIS shows more acres irrigated with sprinkler systems than with gravity flow systems.
- Total energy costs in 2003 are \$1.55 billion, up 17% from the 1998 total.
- The 5 leading States ranked by total acres irrigated in 2003 are California, Nebraska, Texas, Arkansas, and Idaho.
- In 2003, 62,260 farms with irrigation spent \$657 million on hired and contract labor for irrigation activities.
- Farmers and ranchers spent \$1.13 billion on irrigation equipment, facilities, and land improvements in 2003, a 3% decrease from 1998.

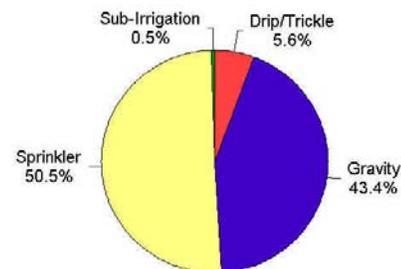
### Acreage Irrigated

Of the 2.13 million farms and ranches in the United States in 2002 approximately 14% were irrigated. The U.S. acreage of farmland irrigated totaled 52.6 million acres in 2003. This is a 3% decrease from 54.2 million acres irrigated in 1998.

### Irrigation Methods

For the first time, FRIS shows more acres irrigated with sprinkler systems than with gravity flow systems as acreage irrigated by sprinkler systems rose 8% and acres irrigated with gravity flow systems fell 15%. Drip/Trickle acres rose 32% in 2003, but subirrigation acres, at 279,522, were only half of those in 1998.

### Irrigation Water Use by Method of Distribution: 2003



Source: USDA - NASS 2003 Farm and Ranch Irrigation Survey

Although sprinkler systems were used on just over half of the irrigated acres in the U.S., the primary method of irrigation varied by State. California, the leading State in irrigated acres, used gravity flow systems on 60% of their irrigated acres and sprinklers on only 20% of the irrigated acres. In Nebraska and Texas, the next highest ranking States, sprinkler systems were used on 75% and 71% of their respective irrigated acres.

## Water Applied

The total quantity of water applied during 2003 dropped 11% from 1998, even though irrigated acres only declined 3%. Sprinkler systems applied an average 1.3 acre-feet of water per acre while gravity flow systems averaged 2.0 acre-feet per acre.

Farms	Acres Irrigated	Acre-Feet Applied
220,163	52,583,431	86,894,031

Source: USDA - NASS 2003 Farm and Ranch Irrigation System

The number of farms and ranches using water from off-farm suppliers fell 16% to 86,405 in 2003. The cost per acre for off-farm water rose slightly to \$41.73, even though the cost per acre-foot of water applied grew 13% to \$18.29. Farmers and ranchers also reported transferring 452,821 acre-feet of water in 2003.

## Energy and Water Conservation

Over the past 5 years, 70,336 farms implemented changes in equipment or management practices that reduced energy or water use. Nearly 39% of these farms reported reduced energy costs and 58% reduced the amount of water applied.

The number of farms using private irrigation specialists or crop consultants to help reduce irrigation costs or conserve water nearly doubled to 32,462 farms. An additional 13,036 farms used electronic information services (DTN, Internet sites, and links to private or public databases) as an information source.

## Expenses for Maintenance and Repairs of Irrigation Equipment and Facilities

Total expenses for maintenance and repairs in 2003 were down 3% from 1998 to \$491.7 million.

Expenses for Maintenance and Repairs of Irrigation Equipment and Facilities: 1998 and 2003			
	1998	2003	Percent Change
Farms	138,725	119,952	-14
Acres irrigated	44,364,141	40,014,045	-10
Total expenses	508,199,000	491,705,000	- 3
Dollars per farm	3,663	4,099	+12

Source: USDA - NASS 2003 Farm and Ranch Irrigation Survey

## Energy Expenses

Farmers and ranchers powered 11,284 fewer pumps in 2003, but their energy expenses for the 497,443 pumps used rose 17% from 1998 to \$1.55 billion. Electricity continues to be the leading energy source accounting for 61% of the total energy costs.

Energy Expenses for Pumps (Total - \$1.55 billion)	
Electricity .....	\$953 million
Diesel fuel .....	\$282 million
Natural gas .....	\$281 million
LP gas, propane, and butane .....	\$ 34 million
Gasoline and gasohol .....	\$ 2 million

Source: USDA - NASS 2003 Farm and Ranch Irrigation Survey

Another 360 farms also reported irrigating 16,430 acres with 411 pumps which were powered by solar or other renewable energy sources.

## Investments in Irrigation Equipment, Facilities, and Land Improvement

In 2003, farmers and ranchers spent \$1.13 billion on irrigation investments with 85% used for replacements or new expansions and the vast majority receiving no public funding assistance.

Investments in Irrigation Equipment, Facilities, and Land Improvement: 1998 and 2003			
	1998	2003	Percent Change
Farms	70,304	86,174	+23
Acres irrigated	25,594,276	26,674,941	+ 4
Investment (\$000)	1,161,404	1,125,125	- 3
Dollars per farm	16,520	13,056	-21

Source: USDA - NASS 2003 Farm and Ranch Irrigation Survey

## Irrigation Labor

In 2003, 62,260 farms with irrigation spent \$657 million on hired and contract labor for irrigation activities, with 90% going toward hired labor.

An electronic version of the *2003 Farm and Ranch Irrigation Survey* report will be available free through the NASS Web site at [www.usda.gov/nass/](http://www.usda.gov/nass/).

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