



ACH22-18/October 2024

The number of farms irrigating declined by 18,760 farms between 2018 and 2023, from 231,474 to 212,714, a decrease of 8.1%. In 2023, these farms irrigated 53.1 million acres with 81.0 million acre-feet of water. The amount of land irrigated and the total amount of water used for irrigation also declined. Irrigation needs vary depending on weather and the commodities grown. Five states accounted for half of all irrigated acres and more than half of all water applied. Wells provided over half of the water used for irrigation, and sprinkler systems were the most widely used distribution method.

212,714
irrigating farms



53.1 million
irrigated acres



81.0 million
acre-feet of water



Number and Location

In 2023, there were 212,714 farms in the United States that irrigated at some point during the year, an 8.1% decrease since 2018. They irrigated 53.1 million acres (about one-fourth of their farmland), applying 81.0 million acre-feet of water, a decrease of 2.8% from 2018. The average amount of water applied per acre was 1.5 acre-feet, unchanged from 2018.

Five states – Arkansas, California, Idaho, Nebraska, and Texas – together accounted for 50.1% of U.S. irrigated acres in 2023 and 55.1% of total irrigation water applied.

Irrigation provides water to fields in the open and to commodities grown under protection. Acres in the open accounted for nearly all irrigated acres.

The 2023 Irrigation and Water Management Survey collected detailed data on irrigation methods and water use on U.S. farms, ranches, and horticultural operations.

U.S. Farms that Irrigated, 2018 and 2023

	2018	2023	% change
Number of farms	231,474	212,714	-8.1
Land in farms (acres)	222.0 mil	202.6 mil	-8.8
Irrigated acres	55.9 mil	53.1 mil	-5.0
Acre-feet applied			
U.S. total	83.4 mil	81.0 mil	-2.8
Average per acre	1.5	1.5	

The total amount of water applied declined 2.8% between 2018 and 2023.

Top States Irrigated Acreage and Water Use, 2023

	Irrigated Acres		Water Applied (acre-feet)	
	million		million	avg per acre
California	7.8	California	22.6	2.9
Nebraska	7.3	Nebraska	6.8	0.9
Arkansas	4.6	Idaho	5.4	1.7
Texas	3.7	Arkansas	5.2	1.1
Idaho	3.2	Texas	4.6	1.2
Colorado	2.4	Arizona	3.9	4.3
Kansas	2.3	Colorado	3.7	1.6
Mississippi	1.7	Washington	3.6	2.1
Washington	1.7	Kansas	2.6	1.1
Montana	1.6	Oregon	2.5	1.7
U.S. Total	53.1	U.S. Total	81.0	1.5

California applied the largest total amount of irrigation water, 22.6 million acre-feet.

Arizona applied the most water per acre, an average of 4.3 acre-feet.

Acre-foot

The amount of water required to cover one acre to a depth of one foot. This is equivalent to 43,560 cubic feet or 325,851 gallons.

Water Sources and Distribution Systems

Producers relied on three sources of water for irrigation: ground water from on-farm wells, surface water on the farm, and off-farm water from a variety of sources and suppliers. They relied on sprinkler systems, gravity systems, and a variety of drip, trickle, or other low-flow micro systems to distribute the water.

Water Sources, 2023

	Irrigated Acres	Acre-feet Applied	
	million	million	% of total
Ground water from wells	35.7	43.9	54
On-farm surface water	5.9	8.6	11
Off-farm water	13.7	28.5	35
Total	53.1 ^a	81.0	100

^a Total is less than the sum of individual sources because some irrigated acres have more than one water source.

Ground water from on-farm wells accounted for 54% of irrigation water applied.

456,058 Wells

In 2023, 114,889 U.S. farms used 456,058 wells for irrigation. The wells provided 54% of all water for open fields and 67% of water for protected areas. Farms utilizing ground water on average had 4.0 wells.

Of the wells:

- 36% had flow meters to measure the amount of water supplied
- 74% had backflow prevention devices to prevent cross contamination

Most wells required dedicated pumps to move ground water to the surface, but 3,597 free-flowing wells on 2,228 farms did not require a pump.

Distribution Systems, Acres in the Open, 2023

	Farms	Irrigated Acres
	number	million
Sprinkler	106,253	30.8
Gravity	67,994	18.3
Drip, trickle, and low-flow micro	60,160	6.4
Hydroponics	139	<0.1
Total	201,429 ^a	53.1 ^a

^a Total is less than the sum because some farms and acres have more than one distribution system applied.

Sprinklers were the most widely used distribution system, covering 30.8 million irrigated acres in the open.

241 feet

The average well depth in 2023. The average depth to water at the beginning of irrigation season was 96 feet.

Irrigation Expenses

Energy costs for pumping well and surface water amounted to \$3.3 billion; the average cost per farm was \$20,698.

Infrastructure costs for equipment, facilities, land improvement, and computer technology were \$3.0 billion. Water purchased from off-farm sources amounted to \$1.1 billion while labor costs rose to \$2.1 billion.

Irrigation Expenses, U.S. Total and Average per Farm, 2023

	U.S. Total (\$ billion)	avg per farm w/ the expense (\$)
Energy for pumping	3.3	20,698
Infrastructure	3.0	34,623
Labor (hired and contract)	2.1	39,935
Water purchased	1.1	18,916

About the Survey

The 2023 Irrigation and Water Management Survey (IWMS) was conducted with producers who indicated in the 2022 Census of Agriculture that they had either irrigated or had land equipped for irrigation.

For more information on the IWMS and the Census of Agriculture, go to:

www.nass.usda.gov/AgCensus

Horticulture Operations

Horticulture operations irrigate both fields in the open and areas under protection. In 2023, these operations irrigated 598,980 acres in the open, a 17,044-acre increase from 2018. They also irrigated 1.7 billion square feet under protection, an increase of 197 million from 2018. Some types of horticulture crops, such as sod, are grown almost exclusively in the open.

Top Crops Irrigated by Horticulture Operations, 2023

In the Open (acres)		Under Protection (million sq feet)	
Sod	274,268	Floriculture and bedding	891.9
Nursery crops	250,673	Nursery crops	478.7
Floriculture and bedding	33,884	Food under protection	209.8
Cultivated Christmas trees and short woody crops	20,017	Propagative materials	157.7