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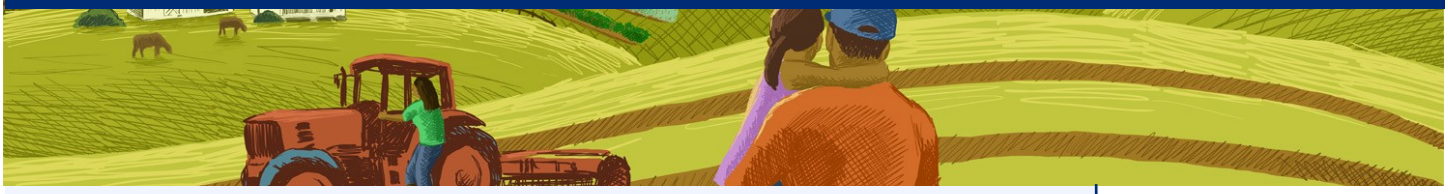
Wisconsin Irrigation and Water Management

Results from the 2018 Irrigation and Water Management Survey



In 2018, U.S. farms irrigated 55.9 million acres with 83.4 million acre-feet of water. The number of farms irrigating and the amount of land irrigated increased slightly between 2013 and 2018, while the total amount of water used for irrigation declined. Irrigation needs vary depending on weather and the commodities grown. Five states accounted for about half of irrigated acres and water applied. Wells provided half of the water used for irrigation, and sprinkler systems were the most widely used distribution method.

231,474
irrigating farms
55.9 million
irrigated acres
83.4 million
acre-feet of water

Number and Location

In 2018, there were 231,474 farms in the United States that irrigated at some point during the year, an increase of 2,237 farms since 2013. They irrigated 55.9 million acres (about one-fourth of their farmland), applying 83.4 million acre-feet of water, a decrease of 5.8 percent from 2013. The average amount of water applied per acre was 1.5 acre-feet, down from 1.6 in 2013.

Five states – California, Nebraska, Arkansas, Texas, and Idaho – together accounted for 50 percent of U.S. irrigated acres in 2018 and 56 percent of total irrigation water applied.

Irrigation provides water to fields in the open and to commodities grown under protection in greenhouses or other structures. Acres in the open accounted for nearly all irrigated acres in 2018.

The 2018 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: 2013 and 2018

	2013	2018	% change
Number of farms	229,237	231,474	1.0
Land in farms (acres)	214 mil	222 mil	3.8
Irrigated acres	55.3 mil	55.9 mil	1.1
Acre-feet applied			
U.S. total	88.5 mil	83.4 mil	-5.8
Average per acre	1.6	1.5	

The total amount of water applied declined 5.8 percent between 2013 and 2018.

Irrigated Acreage and Water Use – Selected States: 2018

Irrigated Acres		Water Applied (acre-feet)		
	million		million	avg per acre
California	8.40	California	24.5	2.9
Nebraska	7.67	Idaho	6.61	1.9
Arkansas	4.25	Texas	5.35	1.3
Texas	4.09	Arkansas	5.07	1.2
Idaho	3.39	Nebraska	4.86	0.6
Minnesota	0.55	Wisconsin	0.29	0.6
Wisconsin	0.52	Minnesota	0.25	0.4
Iowa	0.17	Iowa	0.06	0.4
U.S. Total	**55.9**	**U.S. Total**	**83.4**	**1.5**

California applied the largest total amount of irrigation water, 24.5 million acre-feet.

Arizona applied the most water per acre, an average of 4.7 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

Wisconsin 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 to open fields.

Water Sources, Acres in the Open – Wisconsin: 2018

	Irrigated Acres	Acre-feet Applied	
Ground water from wells	475,100	269,659	92%
On-farm surface water	40,832	21,334	7%
Off-farm water	8,431	2,438	1%
Total	518,312 [1]	293,908	100%

[1] Total is less than the sum of individual sources because some irrigated acres have more than one water source, and may not add due to rounding.

Ground water from on-farm wells accounted for 92 percent of irrigation water applied to acres in the open.

Distribution Systems, Acres in the Open – Wisconsin: 2018

	Farms	Irrigated Acres
Sprinkler	1,467	536,698
Gravity	59	244
Drip, trickle, and low-flow micro	499	3,476
Total [1]	1,790	517,394

[1] Total is less than the sum because some farms and acres have more than one distribution system applied and multiple systems of the same type.

In Wisconsin, sprinklers were the most widely used distribution system, covering 536,698 irrigated acres in the open.

5,166 Wells

1,733 Wisconsin farms used 5,166 wells in 2018 for irrigation. The average pumping capacity for all pumped wells was 650 gpm.

Of the wells:

- 34 percent had flow meters to measure the amount of water supplied
- 81 percent had backflow prevention devices to prevent cross contamination

166 feet

The average well depth in 2018. The average depth to water at the beginning of irrigation season was 49 feet.

Irrigation Expenses

Total energy expenses for pumping well and surface water in Wisconsin amounted to $18.1 million.

Infrastructure costs for equipment, facilities, land improvement, and computer technology were $11.6 million. Water purchased from off-farm sources amounted to $288,000.

Equipment Expenses

Wisconsin farmers spent $9,256,000 during 2018 on new or replacement equipment and machinery of which 73% was scheduled replacement or maintenance.

Wisconsin farmers spent $368,000 on new well construction.

Farmers in Wisconsin who irrigated spent $1,778,000 on computers, control panels, and computer controlled valves and hardware for irrigation water management during the survey year.

About the Survey

The 2018 Irrigation and Water Management Survey (IWMS) was conducted with producers who indicated in the 2017 Census of Agriculture that they had irrigated sometime during the past five years. It is the successor to the Farm and Ranch Irrigation Survey.

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

www.nass.usda.gov/AgCensus

Horticulture Operations

Horticulture operations in Wisconsin irrigate both fields in the open and areas under protection. In 2018, these operations irrigated 11,485 acres in the open. They also irrigated 13.7 million square feet under protection. Some types of horticulture crops, such as sod, are grown almost exclusively in the open.

Top Crops Irrigated by Horticulture Operations – Wisconsin: 2018

In the Open (Acres)		Under Protection (mil sq ft)	
Sod	9,233	Floriculture and bedding	7.76
Nursery crops	1,634	Nursery crops	2.92
Propagative materials	12	Food under protection	2.42
Floriculture and bedding	104	Propagative materials	0.91

(D) Withheld to avoid disclosing data for individual operations.

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