Midwest maple syrup producers adapt to record warm winter, uncertainty as climate changes

*Human-caused climate change is having varied and unpredictable effects on maple harvests in Wisconsin, Iowa and elsewhere, experts say.*

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The art of maple syrup production flows through generations of Dan Potter’s family history.

His great-grandfather bought the family farm in rural Iowa in the late 1880s and cleared the land for strawberries, clay and whiskey production. Eventually, he transitioned to making maple syrup to add to his whiskey. That started a 140-year-old tradition that has persisted through the Civil War, the Great Depression and both World Wars.

Potter opened his own maple syrup company with his wife and three daughters in 2009. Great River Maple, in Garnavillo, Iowa, is now among the state’s most prolific syrup producers.

This year’s record warm winter caused sap to flow early, bringing challenges for the family-run company. They tapped their first trees on Jan. 22 — more than three weeks earlier than ever before.

“When you take into account that the average season is somewhere around six-and-a-half weeks long,” Potter said, “you’re talking an incredible amount earlier.”

This year’s maple sap season began early in Upper Midwestern states for many producers, who experienced shorter seasons. Some credit those shifts to the year’s [record warm winter](https://www.thegazette.com/weather/this-winter-was-the-warmest-on-record-for-cedar-rapids/). Thanks to [the El Niño effect](https://www.thegazette.com/weather/news-track-how-has-the-el-nino-effect-impacted-iowa-this-winter/), the season ranked among the top 10 warmest.

But Indigenous and non-Native experts say human-caused climate change also is having varied and unpredictable effects on the maple harvest. Farmers and Indigenous communities whose ancestors have tapped trees since time immemorial are altering their practices and planning for an erratic future.

“It seems like from year to year, the season gets a little bit earlier,” said Theresa Baroun, executive director of the Wisconsin Maple Syrup Producers Association. “But nothing, nothing, nothing like this year. If you talk to many older producers, they've never seen anything like this as well. This is just a different, weird year here in Wisconsin.”

**Climate effects**

Even amid increasingly earlier seasons, this year stood out, said Justin Cain, operations manager of Maple Valley Cooperative, of Cashton, Wisconsin, whose members include more than 40 farmers from Wisconsin, Michigan, New York and Vermont.

“Most of my farmers were kind of scrambling to get all their taps in and get their vacuums set up,” he said. “Typically, you don't even think about that stuff till the end of February.”

As of mid-March, cooperative president and maple farmer Cecil Wright and his two business partners had collected about 90% of a normal crop — about 100,000 gallons of maple sap. Wright boiled his first barrel of syrup in early February, about three weeks sooner than normal.

“The weather patterns that we're seeing are typical for the maple-producing areas in more southern areas like Ohio, Pennsylvania, Indiana,” Wright said.

In Cedar Rapids, Iowa, Indian Creek Nature Center tapped its first maple the second week of February, when temperatures already surpassed 40 degrees. The sap flowed. By March 1, though, the taps trickled to a stop. The season was already over — a month earlier than 2023.

Last year, the center collected nearly 2,000 gallons of sap and produced 46 gallons of syrup, one of its best years on record. This year, it collected 500 gallons, just enough to produce 12.

Sap production depends on temperature and microclimates, where just a few degrees difference can make or break a harvest. Flow depends upon freeze-thaw cycles, which generate the pressure to push the liquid up and down the trunk of the maple. As daylight increases and if the weather warms too quickly, tree buds open, ending the season.

“We're all limited to what nature gives us,” Cain said. “The trees kind of do their own thing.”

New England and the Midwest dominate maple syrup production in the United States. Wisconsin — the fourth-largest producer in the country — netted about 400,000 gallons of syrup valued at $13.5 million in 2022.

Because temperature swings drive sap production, the increased variability might actually increase the harvest in the Upper Midwest.

Wright said the growing sophistication of weather forecasting makes it easier to plan ahead. But tapping too soon presents its own risks. Vacuum equipment and tubing, which can be used instead of buckets on maple farms, can freeze during an unexpected cold snap, and early-drilled tap holes will close over time.

“We have to acknowledge that humans are affecting our environment, and we don’t totally understand everything that's happening,” Wright said.

In Wisconsin, sugar maples populate the northern and western portions of the state. Experts expect the trees to persist as climate warms, but the sap is likely to contain less sugar. Experts also expect an earlier harvest, but the timing, which has always varied, is becoming increasingly unpredictable.

Additionally, a lack of snowpack, the spread of non-local species and long [periods of drought](https://wisconsinwatch.org/2023/06/midwest-drought-corn-and-soybeans-suffer-as-forecasters-expect-no-quick-relief-for-farmers/) intermixed with heavy rainfall events could stress or damage maple trees to the detriment of future harvests.

Indigenous communities already are preparing.

**Preserving lifeways into the future**

The production of maple syrup began thousands of years ago when Indigenous people began transforming sap into syrup and sugar.

Ojibwe bands did so in the Upper Midwest, but in the mid-1800s, the federal government forcibly acquired their lands and waters through a succession of treaties. The bands retained hunting, gathering and [fishing rights](https://wisconsinwatch.org/2023/02/great-lakes-pollution-ojibwe-treaty-rights-to-fish/) across what’s now called the Ceded Territory: millions of acres stretching across northwestern Michigan and its Upper Peninsula, northern Wisconsin and northeastern Minnesota.

For Wisconsin tribes, tapping maple trees is a traditional lifeway, or bimaadiziwin in the Ojibwe language. In addition to exercising treaty rights, promoting food sovereignty and strengthening community ties, Ojibwe people harvest from nature as an act of stewardship. If they do not, the Creator will cease to provide those beings.

Climate change threatens those lifeways and, in turn, identity.

Some tribes have developed climate adaptation plans to manage natural resources in a way that protects cultural practices and treaty rights, including the harvesting of maple sap.

Some options include tapping sugar maples in several locations rather than a concentrated gathering. Tree-planting efforts could utilize non-local seedlings from sources that are better adapted to future climate conditions or even related species like red maple.

**A generous harvest**

In Garnavillo, Potter of Great River Maple expected to collect less sap this year, but in some northern Wisconsin sugar bushes, it flowed comparatively freely.

The Bad River Band of Lake Superior Chippewa youth sugar bush, in northern Wisconsin, commenced about two weeks earlier this year, and although the season felt condensed, the trees gave generously. The youth collected 900 gallons of sap during the first two weeks of March, from which they produced almost 20 gallons of maple syrup, or Anishinaabe-zhiiwaagamizigan.

Maria Nevala, of Odana, Wisconsin, and her partner, JD Lemieux, assisted the program.

The two also have their own sugar bush, which they named Ozaawaa Goon, or “yellow snow.”

“We have a lot of little kids running around and every time they say, “I gotta go to the bathroom!’ and I’m like, ‘Go ahead,’” Nevala said.

At Ozaawaa Goon, which she has tapped for about 13 years, they began collecting sap in March, about 10 days earlier. The weather was so warm, Nevala didn’t have to wear snowshoes.

The two use their syrup in community demonstrations, turning it into sugar and candies, and gift much of the rest.

“It’s a real expensive hobby for us,” Lemieux said, jokingly.

As of mid-March, the maple buds hadn’t opened, and they had collected the same amount of sap as previous years, if not a little more.

“What is next year gonna be like?” Nevala said. “It’s unknown. And that could be a good thing or it could be a bad thing. Hopefully, it's a good thing.”

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