The seeds of change
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The USDA released an updated cold-zoning map for plant producers in the United States. Half of the country was reclassified to a zone 5 degrees F warmer.
AGRICULTURAL RESEARCH SERVICE; U.S. DEPARTMENT OF AGRICULTURE; PHOTO ILLUSTRATION BY RACHEL VAN BLANKENSHIP/USA TODAY NETWORK; AND GETTY IMAGES

USDA updates plant hardiness map for growers, gardeners

Clara Migoya Arizona Republic | USA TODAY NETWORK

Plant growers and gardeners in the U.S. have new guidance for which perennial plants could flourish, or perish, in their area. • The U.S. Department of Agriculture published a new version of its Plant Hardiness Zone map earlier this month, an online tool that classifies growing regions based on extremely cold temperatures. • About half of the country was reclassified to a slightly warmer zone, based on weather data and improved methods of analysis, while the other half had no change. But even before the revised map was released, some growers said they'd already seen differences in conditions.

Record heat killed about 100 peach trees at Pinnacle Farms in Arizona this summer. The region is one that has been reclassified as a half-zone higher – and warmer.

"That means, basically, the things that used to grow here no longer grow here as readily," said Janna Anderson, the orchard's owner.

The USDA's plant hardiness map of the country displays 13 zones divided by a difference of 10 degrees Fahrenheit, moving from coldest to warmest. Each zone also has half-zones indicating 5 degrees of difference. The state of Arizona spans zones 5 through 10.

The new version, created by the USDA's Agricultural Research Service and Oregon State University, is based on 30 years of data from 13,412 weather stations, almost twice as many as the old map. The expanded data set and the use of new mapping technology created a finer-scaled map with more accurate zoning, according to the USDA.

Users can now search their zone down to the zip-code level. Some of the urban heat-island effects are also captured on the map, showing lower temperatures in the countryside and large green spaces, compared with fully-paved areas.

The new online tool also includes tips for growers and links to relevant research by the agency.

Plants are held in a nursery at the Desert Botanical Garden before they are ready for distribution.
PROVIDED BY JAKE FREDERICOC

How do growers use the zones?

Plant hardiness zones are commonly used by many agricultural producers, nurseries, plant suppliers and landscapers, who label plants and growing regions based on the classifications.

Growers use zone ratings as a metric of when they might ship plants. Risk management agencies use them as a tool for rating crop insurance standards. Researchers use the data to understand the dynamics of plant distribution and survival.

It's a risk management tool specifically focused on a plant's ability to survive extreme winter cold, "and for the U.S., if you were to pick one parameter for woody plants, that would be it," said Peter Bretting, the USDA's national program leader for crop production and protection. "It is the first cut in decision-making for perennials."

While extreme cold zoning "is the best metric to predict the survival of perennial plants in the landscape," it doesn't mean other factors are less important, said Todd Rounsaville, a USDA horticulturist with the National Arboretum's floral and nursery crops research unit.

Growers have to take into consideration a long list of factors, such as moisture, light, summer temperatures, precipitation and wind.

While the new USDA zone map does not account for extreme heat, there are other resources, like the American Horticultural Society's heat map, that do, Rounsaville said.

However, two zones were added to the new USDA map that, on average, have "frost-free" conditions: zones 12 and 13, which only appear in Hawaii and Puerto Rico. With minimum average temperatures above 50 degrees, those zones can also help gardeners and growers elsewhere make decisions about tropical plant production and care.

How heat factors into growing decisions

Treeland Nurseries labels plants based on their cold tolerance and tags them so consumers can make informed decisions. But when it comes to production, zoning doesn't have much weight. Heat tolerance does.

"As growers, we have our plant palette that we stick with and have been growing for 50 to 60 years," said nursery manager Keith Waltemeyer.

He said the Arizona nursery focuses on producing what performs best and "how we can handle the heat." For plants they would struggle to produce but that are still in demand and could survive the Arizona heat, they work with nurseries outside of the state.

A zone change does not mean that what grew before in a region is destined to die, according to map developers.

"It does not mean you should start removing plants from your garden or change what you are growing. What has thrived in your yard will most likely continue to thrive," the USDA stated on its website.

Peach trees pushed over the edge

Not so for Anderson, of Pinnacle Farms, and her peach trees.

Arizona's summer was a record-breaker. The state had the most consecutive 110-degree days, most consecutive 90-degree nights, and hottest month ever, according to the National Weather Service.

"It really pushed a lot of those trees over the edge," Anderson said. "This year, it didn't matter how much we watered them."

Another crucial factor is the number of "chill hours," or hours at 32 to 45 degrees, that trees get. Some fruit trees require about 100 chill hours a year, while others require 800.

A shorter spring season this year, with an extreme swing from winter almost straight into summer, also affected Anderson's orchards.

"Things that would have matured in the spring didn't really make it before it got really hot, and they just died," she said.

Anderson's zone went from 9b to a warmer 10a in the USDA's new map, but she already knew a change was needed. Many of those trees had struggled for years, she said.

The peach trees that did best last summer will stand, but all the others have been replaced by citrus like Cara Cara oranges, mandarins, and oro blanco grapefruit. It was also a good market decision.

"We always sell out of all of our citrus," Anderson said. "There is a really big need for it since all the orchards are gone."