

Study: Global warming threatens North Coast vineyards

Global warming could leave half of Napa Valley's famed vineyards unsuitable to grow premium grapes by 2040, according to the latest study to raise questions about the impact of climate change on California's wine industry.

The study, issued this week by researchers at Stanford University, predicts temperatures on the North Coast will surpass 95 degrees far more frequently in 30 years, making it harder to grow high-quality grapes that thrive in cooler temperatures.

Over the last half-century, temperatures have exceeded 95 degrees an average of 20 days every year on the North Coast, according to the study. By 2040, the region will experience 10 additional hot days each year, Stanford researchers predicted.

The extra heat could shrink the size of the area suitable for growing ultra-premium grapes in the Napa Valley by 50 percent, the study predicts, "suggesting a decrease in the overall quality and value of the producible area."

Vintners in Sonoma and Napa counties said they already are learning techniques to cool vineyards and prevent grapes from overheating, but several said they doubt that vineyard conditions will become so dire.

The scientists used global data models and historic temperature data to reach their conclusions. Matt Lamborn, part-owner of Lamborn Family Vineyards and a member of the Napa Valley Grapegrowers, questioned the accuracy of the study because the data was collected on a large, global scale.

"A place like Napa Valley in particular is known for its microclimates. That's what makes it so special," Lamborn said. "There have been some summers that have been sweltering hot, and we jump in and we adjust the way we grow grapes. But to say we'll be losing half of our farmable acreage, that sounds like way too much to me."

However, the study authors said conditions could end up even worse than they projected for winegrape growing in the North Coast in 30 years. In their calculations, the scientists assumed there

would be a 23 percent increase in greenhouse gases in the next 30 years, and a nearly 2 percent increase in global temperatures.

“Compared to the emissions of carbon dioxide that have actually occurred over the 21st century, the scenario we use is actually conservative,” said Noah Diffenbaugh, the study's lead author and an assistant professor of environmental Earth system science at Stanford.

Diffenbaugh agreed that there are uncertainties in predicting climate change. But he said the recent cool temperatures aren't a reason to conclude that global warming isn't occurring.

“If we look at the box score from the Giants game for one game, and look at how many hits the different players had, we wouldn't necessarily conclude which player would have the highest batting average for the season based on that one game,” Diffenbaugh said.

Nobody has a crystal ball when it comes to predicting the weather. But local vintners have been testing new techniques to deal with changing conditions.

“Grape growers are already making changes to how they're growing their grapes, in order to increase shading on the fruit and reduce the effects of high temperatures,” said Nick Frey, president of the Sonoma County Winegrape Commission.

Frey said some winegrape growers are using special trellises or allowing the vines' branches to sprawl out in a canopy that provide more shade to the fruit. But he also didn't completely trust the study's conclusions, because the authors didn't appear to take night temperatures into account.

The industry was in better shape to handle warm temperatures 25 years ago, said Pete Opatz, vice president and senior viticulturist at Silverado Premium Properties. At that point, researchers began developing materials that would help grapes ripen in cooler climates, allowing vintners to pick them before the fall rains.

“Now we've got all these materials in our community that require less heat to ripen,” Opatz said. “We need to redirect our long-term research. We do have a body of science that could really help us in this issue.”

Lamborn, who also owns the company Pacific Geodata, conducted a study by installing micro-sprayers to cool the soil and canopies in a Napa vineyard, and found they could reduce the average temperature surrounding a vineyard by 7 to 10 degrees.

“The results are promising, and that's going to be one option to combat if there is going to be warming,” Lamborn said.

The Stanford study is the latest to examine the impact of global warming on California's wine industry.

In 2004, Diffenbaugh co-authored a report issued by the Union of Concerned Scientists that concluded most of Sonoma and Napa counties could become too hot to grow premium wine grapes within 80 years.

In 2007, a paper by Gregory V. Jones, a professor of environmental sciences at Southern Oregon University, warned that temperature changes of 1 to 7 degrees could bring large shifts in the suitability of wine regions to grow premium grapes.

The Stanford study said areas in Washington will become better suited for growing high-end grapes as temperatures there begin to increase.