

Changing Calif. climate a threat to crops

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Farmers have always been gamblers, long accustomed to betting on the probabilities of the weather. But for the Napa Valley, where temperatures have been ideal for the wine industry, shifts in the Earth's climate could be a game-changer.

"They're used to rolling the dice every year," said Stuart Weiss, a conservation biologist and chief scientist at the Creekside Center for Earth Observation in Menlo Park, which assists growers and municipalities dealing with the disruptions caused by the changing climate. "Now, though, climate change is stacking the dice."

During the next 30 years, Weiss estimates, the temperature in the Napa Valley will rise by 1.8 degrees - a significant shift for a wine industry whose product can be affected by the smallest of temperature changes. Such a warming would be an 80 percent jump over the historical increase of about 1 degree every three decades, the change recorded since weather data in Wine Country were first kept around the turn of the 20th century.

It isn't just Wine Country that is having to adapt. From the vast fields of fruits and nuts in the Central Valley to wheat farms in the Imperial Valley, changing weather is altering the fundamental conditions for growing food, prompting a reassessment of the way California's largest industry operates.

The U.S. Department of Agriculture's Risk Management Agency, which pays farmers when bad weather ruins their crops, has identified climate change as one of the major risk factors for U.S. agriculture. In a 2010 report, it paid particular attention to the vulnerabilities of California, which produces 95 percent of the country's apricots, almonds, artichokes, figs, kiwis, raisin grapes, olives, cling peaches, dried plums, persimmons, pistachios and walnuts.

"Since the production of these commodities is so concentrated into one geographical area, the climatic impacts in these agricultural markets could be profound," the report concluded.

The agency suggested an adaptation strategy: more research into "drought-tolerant, heat-tolerant and other crop varieties better suited to the changing conditions."

Rising salt level

Those changing conditions include not only the possibility of hotter, drier weather, but also an influx of salt as sea levels rise and ocean water pushes farther into the Sacramento-San Joaquin River Delta.

Daniel Cozad, executive director of the Central Valley Salinity Coalition, a group of farmers, businessmen and government officials, said some farmers in the western valley are already being forced to adapt by switching from salt-sensitive crops like strawberries and avocados to less sensitive - and less profitable - crops like alfalfa and wheat.

The California office of the Risk Management Agency is considering whether year-round farming is a reasonable risk for the agency to assume in the Central and Imperial valleys, where water stresses are intensifying.

In the Central Valley, those stresses have been caused, in part, by a drop in runoff in the San Joaquin and Sacramento rivers during spring and summer months, when it's central to irrigation. Over the past century, the state Department of Water Resources has measured a steady 10 percent decline in runoff from April to July. In recent years, the rate has accelerated to as much as 20 percent.

Fallow fields

The Risk Management Agency might require Central Valley farmers relying on nonirrigated water to fallow some land during the summer months to hedge against potential losses when water supplies fall short. And last year, the agency withdrew its insurance rating for parts of Imperial County, which it determined was uninsurable for proposed wheat farming because of concerns about the reliability of the water supply.

The high volatility associated with climate change has led a team of Silicon Valley entrepreneurs to establish the first insurance company to focus exclusively on insuring against swings in the weather.

David Friedberg was a corporate development executive at Google before founding Climate Corp. in San Francisco in 2006, as farmers found themselves on the front lines of climate change. One likely result of the atmospheric tumult, he said, is rising food prices.

"Farmers are having to hedge and pay for insurance claims," he said. "That increases the price of food, and when they experience losses, we and others pay them for those losses, but that also means their food is not being produced."

A bad year

Napa vintners already are feeling the effects of the changing odds. In 2010, the wine industry had one of its worst years on record when days of record-breaking heat in August were followed by a few freakish days of frost.

"You're ripening earlier, in a warmer time of the year under a warmer climate, so you're getting a double whammy," Weiss said. Even just a week's difference, he said, can affect the quality of a Cabernet Sauvignon.

Jeff Yasui, director of the California office of the Risk Management Agency, said one sign of the growing stress in Wine Country is that over the past four years, the number of wine grape growers who increased their insurance coverage from the base-level policy - which covers half of all losses - to more substantial, and more expensive, protection increased from 28 percent of all policies to 40 percent.

Cherry chill

The state's cherry crop provides a glimpse of the future.

In April, the cherries were blooming in the Colombini family orchard in the San Joaquin Valley, their blossoms a signal that the harvest would be coming in six weeks.

But there was trouble lurking under those delicate blossoms. Jeff Colombini, director of the family company, Lodi Farming, pointed to the erratic blooming of his trees - a flower here and there, but many stunted, half-grown blossoms. That is a sign, he said, of the "stresses that come with not enough chill hours."



Most of the highest-quality cherry varieties in the state are tuned for a November or December chill, which slows down the metabolism of the nascent fruit and elongates the ripening process that comes with the onset of warmer weather.

For a perfect California cherry, the trees need 1,200 to 1,400 hours of "chill time." But Joseph Grant, a UC Cooperative Extension farm adviser in Stockton, said that lately, cherry growers have been seeing more like 1,000 to 1,100 hours per season.

Insurance payout

While the cherry crop recovered late in the season, the effect of the shortened chill, according to Grant, is declining quality of California cherries. They're smaller, and the extended ripening time means the cherries are not as firm.

Last year, California cherry growers received a record \$22.5 million in crop insurance payouts - sending crop insurers into the red. For every \$1 paid into the system for cherry policies that year, \$1.60 was paid to farmers. The USDA paid out almost \$8 million to subsidize the losses.

"What's happening," Grant said, "is that the climate here around Stockton is looking more and more like the climate down in Bakersfield."

This story was produced by the nonprofit Center for Investigative Reporting in collaboration with KQED public radio. For more, visit www.cironline.org. Mark Schapiro can be reached at mschapiro@cironline.org.

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