

# Warming Warning for Fla. Farmers

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As we are seeing, climate change is much more than rising coastal areas. The [Gainesville Sun](#) continues its series today, July 24f, 2016 with the following article.

Comments by OSFR historian Jim Tatum.

-A river is like a life: once taken, it cannot be brought back-

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## Warming warning for Fla. farmers

By Kevin Bouffard

GateHouse Media Services

LAKELAND – Florida strawberry growers already have experienced a dress rehearsal for the impacts of climate change during the past two seasons.

“We’ve had a lot of climate variability in recent years,” said Vance Whitaker, assistant professor of strawberry breeding at the University of Florida’s Gulf Coast Research and Education Center in Balm. “I actually think the last two strawberry seasons have been test cases for global warming.”

At the beginning of the 2015-16 strawberry season in November, the above-average hot weather delayed flowering and fruit production on the young plants, pushing the first crop well into December, he said.

That had a devastating effect on farm income because Florida strawberry growers depend on the extremely high prices they can get in those first few weeks, when the state is the only domestic producer of strawberries.

In the season just past, the hot weather did not come until January, and it had the opposite effect, he said. The strawberry plants already had bloomed by that time, so the warm weather led to rapid growth and a production surge. An oversupply would typically drive farm prices down, Whitaker said, but Florida growers benefited from rainy weather in California and Mexico, its chief competitors, that drove down strawberry production in those places. That expanded the market for Florida strawberries, saving the season for the state’s growers.

“A very small difference in weather can affect the season, and that’s what happened,” Whitaker said.

But the Florida strawberry industry can’t count on both weather events happening concurrently in future seasons, he said. In a more normal year, overproduction in Florida brought by warmer weather would threaten growers financially if California and Mexico production stays average or, especially, above average.

Whitaker and other scientists in agriculture, climate and

economics discussed the potential impact of global climate change with The Ledger in light of a study released June 28 in the journal "Science". It calculated probable economic harms and benefits for the more than 3,100 U.S. counties under several scenarios for worldwide emissions of heat-trapping gases.

The study by scientists from leading U.S. universities – including Berkeley, Chicago, Princeton and Rutgers – looked at agricultural impacts and found southern states would suffer the most severe impacts because their already warm climates would become hotter.

Agriculture in colder northern states would actually benefit from longer growing seasons. But the study measured only the effects on the largest U.S. crops – corn, wheat, soybeans and cotton.

"I think that's one of the weaknesses of the study: It eliminates Florida and California, which are specialty crop states," Whitaker said.

The U.S. Department of Agriculture defines specialty crops as fruits, vegetables, tree nuts, and horticultural plants, and nursery crops. That pretty much encompasses everything grown in Florida, except for some corn and cotton.

Nevertheless Whitaker and the other scientists agreed with the study's general thesis that warmer weather will make it more difficult to grow crops in Florida.

"It's expected that hotter weather would reduce yields of other crops (not measured in the study)," said Christa Court, assistant director of the Economic Impact Analysis Program at the University of Florida's Institute of Food and Agricultural Sciences.

The "Science" study uses an "integrative assessment model," which employs predictive models from climate, sociological, economic and other sciences. Court has experience working only with the kind of economic models used by the study.

The study doesn't report any climate-related yield losses in Polk County, which has none of the four crops, but in other Florida counties it projects yield losses in the period 2080 to 2099 to rise as high as 22.5 percent in Leon County and more than 20 percent in seven other counties, most of which are in the Panhandle. It measured yield losses in 22 of Florida's 67 counties.

"It's not a stretch at all to say it would have a negative effect on the way we grow in Florida," said David Zierden, the state climatologist at Florida State University's Center for Ocean-Atmospheric Prediction Studies. The impact would stem not just from warmer temperatures, the study found, but from an increase in weeds, insects, and other pests and diseases associated with warmer temperatures.

So citrus growers can't take comfort from the absence of statistics, said Fred Gmitter, professor of citrus genetics and breeding at UF's Citrus Research and Education Center in Lake Alfred.

A warmer climate would make it more difficult to grow citrus in the current growing region.

The migration of citrus groves from South to North Florida would reverse the trend the citrus industry has seen for more than 100 years, he said. Major freezes in 1894 and 1895 drove citrus out of the Panhandle into Central Florida, and three major freezes in the 1980s drove groves further south.

The northern migration may already be happening, Gmitter said.

“There’s a Georgia citrus growers association now. That was unheard of 20 years ago,” he said. “It’s getting warmer up there and better for growing citrus.”

The “Science” study has major weaknesses, however.

Court, Whitaker and Zierden agreed a major flaw was that the study assumed growers and other groups affected by the changing climate would make no adaptations to those conditions.

“On the economic side, one of the main assumptions is a static economic model based on 2012,” Court said. “What they’re telling you basically is the U.S. economy is going to stay stable over that period (until 2100).”

In agriculture, it assumes taking no measures such as breeding new plant varieties better suited for a warmer climate and less water, said Court, Gmitter and Whitaker, the latter two in the business of plant breeding.

Other possible adaptations include migration of growing area and changing crop-growing technology, such as irrigation and fertilizer practices, Court said. Although the study looks at several scenarios on the possible rise of carbon dioxide, the main threat driving climate change, the authors base their direst predictions on the worst-case scenario posited by the United Nations Intergovernmental Panel on Climate Change in its most recent 2008 report, said Zierden, who has also done research with that climate model.

The scenario, he said, “is not entirely realistic.”

The United States, despite the Trump administration’s rejection of climate science, and the rest of the world will continue to make changes to reduce the risk, he said.

And while the current computer models can show the direction of

climate change, he added, the current state of computer climate modeling is not nearly robust or sophisticated enough to make reliable long-term predictions.