

So Shall You Reap

Many farming communities think global warming won't hurt them. They're wrong.

By **Jeneen Interlandi** | Newsweek Web Exclusive

You might think a little global warming is good for farming. Longer, warmer growing seasons and more carbon dioxide (CO₂)—what plant wouldn't love that? The agricultural industry basically takes that stance. But global warming's effects on agriculture would actually be quite complicated—and mostly not for the better.

Based on rationales from "climate change isn't real" to "it will increase crop yields so it's a good thing" to "it will cost us money" most of the country's farming sectors along with their elected officials have staunchly opposed taking action to curb U.S. greenhouse gas emissions. Even after securing several significant concessions—including an exemption from emission caps—congressional members from agricultural states mostly voted against the Waxman-Markey bill (a.k.a. the American Clean Energy and Security Act). But if people who work in agriculture are not worried about the effects of climate change on their livelihood, they should be. "The agricultural industry is really reading the science wrong here," says Nathanael Greene, director of renewable-energy policy at the Natural Resource Defense Council.

It's true that some crops will prosper on a warmer planet, but the key word there is "some." According to a 2007 government report, higher CO₂ levels and longer growing seasons will increase yields for fruit growers in the Great Lakes region. But many major American crops, such as sorghum, sugar cane and corn already use CO₂ so efficiently that more of it probably won't make much difference to them.

What will make a difference are all the other things we'll have more of as temperatures rise—namely droughts, bugs and big storms. More droughts mean lower crop yields—especially for Southern states. Researchers at the University of Oregon found that in New Mexico alone, reduced stream flow could cost farmers \$21 million in crop losses. Meanwhile, melting snow in the Western U.S. will increase water availability in spring but decrease it in summer, forcing farmers to change cropping practices.

As pests adapt their migration patterns to our warmer climate, farmers will have to either use more pesticide (anywhere from 2 to 20 percent more, depending on the crop, according to another government study) or plant hardier crops. Floods and hurricanes increasing in frequency and intensity mean farmers will have to brace themselves for still more crop losses, and the federal crop insurance program (FCIP) will have to get used to writing bigger insurance checks. A single record-breaking Midwestern 1993 flood cost them \$2 billion in lost crops.

Farmers on both coasts are already starting to reap some of what the nation's fossil-fuel addiction has sown. Crops in those regions (cranberries in the East and almonds in the West) require a certain number of colder days, or "winter chill" before they break dormancy and begin flowering. Too few cold days disrupts the plants' flowering schedule which in turn affects pollination and hurts yield. A UC Davis study

found that winter chill has already declined by 30 percent in California's Central Valley, and almond growers report that yields are down 20 percent from last year. Shorter winters have had a similar effect on cranberry yields in Massachusetts and New Jersey. "It hasn't really hit the breadbasket yet," says Greene. "But it's definitely hitting the country's periphery."

So, given how much is at stake for them, how are farm states working to shape climate legislation? In response to agricultural demands, the Waxman-Markey bill exempts the agricultural industry from emission caps and cedes control over what activities warrant carbon offset credit to the Agricultural Department, not the EPA. The bill also allows offsets to be granted for no-till farming, a practice in which farmers control weeds with pesticides instead of tilling (tilling releases CO₂ from the soil into the atmosphere). But numerous studies, including ones conducted by the Department of Agriculture, show that in some soils, no-till farming increases emissions of nitrous oxide—a greenhouse gas 300 times more potent—so much so that it's actually worse for the environment.

Some farmers—and some farm state congressional leaders—have argued that because plants convert CO₂ into oxygen (via photosynthesis), agricultural lands store more CO₂ than they emit. As Georgia Senator Saxby Chambliss put it, "Every farmer in America that goes out and plants a field of corn, cotton, soybeans or produce captures greenhouse gases." This is only theoretically true. Photosynthesis takes place in a plant's leaves. The rest of a plant—its stems, roots, and the soil around it—all respire; that is, they consume oxygen and produce CO₂, just like all other living things. The degree to which photosynthesis (oxygen production) outweighs respiration (CO₂ production) on any given farm is still the subject of intense scientific study.

What we can say with certainty is that, like most big industries, farming is fossil-fuel intensive—large quantities of CO₂ are emitted from farm equipment such as irrigation pumps and tractors. In fact, this was the main reason agricultural states opposed the house bill. "Our own analysis found that the higher cost of fuel and fertilizer would result in a net loss for most farmers," says American Farm Bureau Federation president Robert Stallman. "Even with the offset credits, and emission cap exemption, we would still lose."

What about all those studies showing that climate change could cost farms even more in the long run? Stallman says most farmers aren't worried. "We are used to dealing with extreme weather variation," he says, pointing out that his Texas farm has seen 20 inches of rain in a single day, in the middle of a drought. "We've learned to roll with those extremes. If it gets a little more extreme down the road, we can deal with it."

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