



LSP Myth Buster #12

An ongoing Land Stewardship Project series on ag myths & ways of deflating them.

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Myth: *Global climate change will benefit agriculture.*

Fact:

There is evidence that as greenhouse gases build up in the atmosphere, yields of crops such as wheat, rice and soybeans will increase. Plants use greenhouse gases such as carbon dioxide as a type of “gaseous fertilizer.”

But in the long term, global climate change poses a significant threat to our soil’s ability to produce food at all, no matter what the yield. For example, the U.S. is becoming wetter, and in recent decades the majority of that increased precipitation has come in the form of intensive rainstorms. Since 1970, there has been a marked increase in heavy rainstorm events in the U.S., especially in the Midwest, Great Lakes regions and the Southwest, says the *Bulletin of the American Meteorological Society*. A nice slow all-day drizzle provides ample opportunity for moisture to soak deep into the earth. But heavy downpours that overwhelm the landscape in a matter of hours, sending water running over the top of the ground instead of into it, are increasingly the norm. Modeling studies show “extreme precipitation events” will continue to become more common in the future.

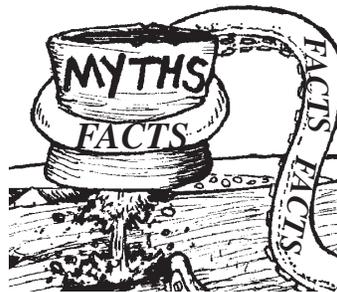
The result? An agro-ecological disaster in the making, say scientists Jerry Hatfield and John Prueger of the USDA’s National Soil Tilth Laboratory. These more intense rains are much more erosive, say the scientists, who examined the impacts of changing precipitation patterns on water quality in a paper published in the *Journal of Soil and Water Conservation*. In a report published by the Soil and Water Conservation Society, it’s estimated that changes in precipitation patterns could be increasing soil erosion by as much as **95 percent** in some areas. That’s a disheartening statistic after all of the recent progress made in reducing erosion rates using no-till, high residue farming and other conservation tillage methods. Soil isn’t the only thing affected by changing weather patterns; the more water that runs off the surface of a field rather than soaking in, the more pollutants it will carry to rivers and

lakes. Liquid manure runoff in particular could be a problem, since it is already saturated with water when applied to the land as fertilizer.

Hatfield and Prueger express concern that even “state-of-the-art” soil management won’t be good enough to deal with these increased erosion rates, and that significant changes in farming practices will be needed to keep soils productive. These concerns aren’t all of the future tense variety. Farmers and soil scientists are already seeing good soil management practices being overwhelmed by intense rainstorms. A study in Minnesota’s Sand Creek watershed showed that chisel plowing, a sound

conservation tillage method that leaves more soil-protecting plant residue on top of the ground, still resulted in about five tons per acre of erosion on a corn field during a particularly heavy rainstorm.

But some farms are finding ways to protect the soil even under extreme conditions. During that same storm, a dairy farm that was planted to alfalfa hay and rotationally grazed pastures lost 53 pounds of soil per acre—or just enough to fill a five-gallon bucket.



More Information

◆ Hatfield and Prueger’s study was published in the January/February 2004 issue of the *Journal of Soil and Water Conservation* (<http://swcs.org/en/publications/jswc>).

◆ A special report, *Conservation Implications of Climate Change: Soil Erosion and Runoff from Cropland*, is at www.swcs.org/en/publications/advocacy_publications/2001.

◆ To read about soil erosion studies in Sand Creek, see the April/May/June 2001 issue of the *Land Stewardship Letter* (www.landstewardshipproject.org/news-lsl.html).



This Myth Buster is brought to you by the members and staff of the Land Stewardship Project, a private, nonprofit organization devoted to fostering an ethic of stewardship for farmland and to seeing more successful farmers on the land raising crops and livestock. For more information, call 651-653-0618 or visit www.landstewardshipproject.org.