

Challenges come home to roost

Some scientists think that favorable, stable climate conditions that we have enjoyed the past 50 years may not be the norm. On my farm in North Dakota, we have seen dramatic fluctuations.

In his 1976 book, *The Genesis Strategy*, climatologist Stephen Schneider introduced the idea of scientific and social consequences of climate. He made a compelling case for the fact that the dramatic increase in global grain production between 1940 and the 1970s was due at least as much to favorable, stable climate conditions as it was to the development of new technologies. He also argued that these climate conditions were not the norm, and that we should plan for less favorable conditions in the future.

Schneider has since become one of the leading scientists in the study of climate change, arguing that greater climate instability will almost inevitably be part of our future. This is an issue that should be front and center in our considerations regarding sustainable agriculture which is, by definition, about the future.

The central question

The central question for sustainable agriculture is how to maintain productivity into the future. For several years, we at the Leopold Center have been trying to anticipate the changes that farming will likely face over the next 25 years, and how we can adapt farming practices. So far we have identified a number of changes that will challenge agriculture during that time frame. Among them are the depletion of fossil fuels, increased human population, persistent poverty and climate change.

I think about these and other challenges with respect to my own farm in North Dakota. Like most farmers, I hope I still have a little time to figure it all out but I'm not sure we have the luxury of time on our side.

When I became director of the Leopold Center, I planned to spend the first two weeks of August every year as my vacation and help bring in the crops on my farm. Harvesting

wheat, rye, flax and oats during the first two weeks of August has been almost as dependable as the sun rising in the east. The weather is almost always favorable for harvest – hot and dry – but this year has been different.

An unusual season

In fact, my farm's climate scenario has been out of kilter for nearly two years. During the spring and early summer of 2003 it almost never quit raining, which is unusual for North Dakota. Then it stopped raining July 2 and not another drop of rain fell on our farm until the ground froze in November. For the first time in the 70-year history of our farm, we had two fields of rye that never sprouted last fall due to the dry conditions.

Spring rains this year gave us good moisture for seeding in mid-April and things seemed to return to "normal." But by late May we began to experience almost nonstop precipitation. We had 14 inches of rainfall on our farm between Memorial Day and July 4th – our normal moisture total for an **entire** year!

It stayed cool and damp the rest of the summer. The two weeks I spent on the farm this August seemed like April – highs in the 60s, lows in the low 40s, light drizzle most days. Needless to say, we did not get much harvesting done,

and it continued to rain. As I write this in mid-September, we have had above normal temperatures with no forecast of frost until October. Ironically, September could be the only frost-free month in North Dakota this summer.

Anecdotes are real

I know this is all anecdotal and two seasons don't necessarily establish a trend. But as I meet farmers throughout the Plains, they all seem to be talking about how "abnormal" the weather is. On the farm, anecdotes are real.

This kind of climate instability is exactly what most climatologists have been saying that we need to anticipate and make plans to deal with. For me, figuring out how to modify my farming operation to cope with the challenges ahead is no longer a theoretical construct. And I probably need to figure it out now!

Given the tight operating margins most farmers face, we don't have room for many losses. It will be important to devise more resilient agricultural production systems that can absorb and survive more climate variability. The sustainability of my farm, and everyone else's, probably depends on it.




Photo courtesy the National Oceanic and Atmospheric Administration.

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