

## Brittle Agricultural Systems May Break

by Ralph C. Martin

As I cruised through the Mid-west U.S. on a bus recently with other curious scholars from the University of Guelph, I was startled. There was wilted corn under centre pivot irrigation. We were in Kansas, but probably not in a scene that Dorothy would recognize. Huge wands of life bestowing water slowly rotate from central hubs to quench corn and soybean, under low precipitation. The irrigation was not keeping up. Here was the epitome of environmentally brittle agriculture.

The Ogallala aquifer stretches beneath 175,000 square miles in Kansas, Nebraska, Colorado, South Dakota, Oklahoma, Texas, Wyoming and New Mexico. While touring the first 3 of these states, newspapers were quoting David Steward, Kansas State University <http://www.k-state.edu/media/newsreleases/aug13/groundwater82613.html> warning of the depletion of the aquifer by 2060, unless irrigation water usage is significantly curtailed.

In Nebraska, water is managed in distinct districts with attention to both withdrawal and recharge rates. How can one district manage water effectively if it flows from one area to another? Bill Kranz, University of Nebraska, noted that the Ogallala aquifer consists of saturated soil and its water moves sideways at a rate of only 3 feet per day. That's a slow slurp to Kansas. In some districts of Nebraska there is sufficient recharging to maintain water levels from year to year. However, in other areas, including much of Kansas, the water levels are steadily dropping.

Questions tumbled in my mind as we rolled through dry land vistas. What would happen if there was less research and financial concentration on corn hybrids and soybean varieties and more attention to alternative species, better suited for these environments? How much high fructose corn syrup and corn fed beef do we need and what impact does current consumption have on our health? If water was pumped more cautiously now, might future crops get more crop per drop from the conserved water?

The perennial grass legume mixtures of a Nebraska ranch on sandy soil, managed without irrigation, according to Holistic Management (<http://holisticmanagement.org>)

principles, contrasted on many levels with annual monocropping. The perennial mixtures were adapting to annual variability more effectively than brittle annual monocrops.

There was a palpable sense of socially brittle agriculture in Wheeler County, Nebraska, which counts only 800 citizens. Our bus load increased their population by about 6%. The ranches in this county are large and households are dispersed. Community building is a challenge. To their credit, the local school of only 148 students (kindergarten to grade 12) is ranked nationally in both six man football and girls volleyball. Every boy and girl in the school is expected to participate. Nevertheless, conversations about opportunities for young people to make a living in the county, included an unusual number of sighs.

It's tough for farms anywhere to transition assets and a dependable cash flow business to the next generation. In sparsely populated communities it's a complex calculation requiring considerable emotional intelligence for dedicated farm kids, let alone their prospective life partners. As operations become larger and as land and asset potential sale values increase, there are delicate issues to resolve with young farmers' siblings who choose an urban path while still expecting some inheritable benefits. The temptation for families to cash out is understandable, regardless of who buys.

It was apparent that some farms in the Mid-west are also economically brittle. Although the 2012 U.S. farm bill is not yet approved, U.S. corn farmers still receive direct payments, counter cyclical payments, relatively generous terms for crop insurance and indirect benefits from support payments to set up ethanol plants which buy bushels of corn. Kevin Brooks, an Illinois agricultural economist told our group that the drought year of 2012 was the 'best' year for crop insurance payments to enrolled farmers. Since the U.S. federal government assumes the bulk of the risk, farmers tend to spend too liberally. Therefore, land prices rise to dangerously high levels and equipment purchases extend beyond operational requirements.

Contingencies which nervous agricultural economists see as potential spoilers are rising interest rates, falling land values, and thus lower collateral, and less demand for ethanol than originally anticipated. Most farmers we met, disparaged the U.S. farm bill and politicians are cautiously thinking out loud about its high costs to the U.S. public. If

it does not continue to backstop corn and soybean production, trends could change dramatically.

Why does any of this matter in Ontario? Prices are set by U.S. production volumes and the Chicago Mercantile Exchange, regardless of what we produce here. Nevertheless, from my perch behind the bus window and at numerous stops, Mid-west agriculture appeared to be brittle. With potential for it to break at one or more points of environmental, social and economic vulnerability, the prudent response of the Ontario agricultural community is to develop our resilient agricultural systems to withstand shocks from the south.

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