



The best approach environmentally is also the best approach economically in the long run – Dr. Dwayne Beck

written by Kate Proctor



“Tillage is to agriculture what fracking is to petroleum,” Dr. Dwayne Beck, from the Dakota Lakes Research Farm told the audience at the Innovative Farmers 2015 conference. We have passed the

time for incremental change – farmers must take bold action in order to recover from decades of soil degradation caused by extractive agriculture, he stressed.

“Our ancestors came to North America from Europe in search of resources to mine, and agriculture has predominately been an extractive industry since the development of tillage tools,” he noted. “Once we started plowing, we started seeing degradation – we were able to increase the speed and extent with which nutrients can be removed from a resource, but the resource has been degraded.”

The Dakota Lakes Research Farm is owned by farmers and affiliated with the South Dakota State University. It is located about six hours south of Brandon, Manitoba near the Missouri River and its primary goal is to identify, research, and demonstrate methods of strengthening and stabilizing the agriculture economy. The summers are drier and the winters colder than what we experience in southern Ontario, but there are lessons to be learned from Beck’s work.

Beck became interested in the effects of tillage on a non-degraded grassland soil and studied the soil for 20 years, looking at erosion and degradation. He and his team found that the best approach environmentally was also the best approach economically in the long run. They were able to conclude that 80 per cent of the total input costs incurred can be traced directly to outside energy inputs, mostly fossil fuels.

This discovery led to setting a goal that the research farm will be fossil fuel neutral by 2026. “We will no longer be miners but managers of ecosystems,” Beck said. We need to match the water and mineral cycles with natural systems. This means considering transport, organic matter, productivity, not adversely affecting the environment, and not mining the soil of nutrients. “Accomplishing the goal has forced us to think differently about the future – we need transformational NOT incremental change!” said Beck.

Beck sees that improvements to farm ecosystem health and profitability can be made by doing a better job of managing rotational crops, eliminating tillage, and considering the system as a whole, rather than in small parts.

Beck stressed the importance of focusing on ecosystem processes – the water cycle, energy flow, and community dynamics. When considering the water cycle, look at what happens to the water on your farm. Does the rain feed the ground, or erode the soil? “We identified that the best way to make water go in the ground was to do no-till. “

When considering the mineral cycle – think about whether the minerals are available. Have the minerals been transported, leached, or eroded from environment? “I can capture carbon from the air, but I need to buy phosphorous if I’m going to send wheat to China,” said Beck.

While Beck acknowledged that there is a lot still to be learned about the dynamics of soil health, lack of commitment is the biggest threat to soil conservation. “The best time to have started this was 20 years ago. The second best time is today,” he said. It is vital to move beyond making incremental changes and stop constantly looking backwards.

***Interested in hearing more?
Check out Dwayne’s complete
presentation on the
Innovative Farmers website at www.ifao.com.***