

My Contribution to Millions of Years of Research

A Farmer Reflects on his Land's Past, Present & Future When it Comes to Soil

EDITOR'S NOTE: Southeastern Minnesota farmer and Land Stewardship Project member Curt Tvedt recently talked to LSP staffer Shona Snater about why he is excited about building soil health on his farm. Below is an excerpt of Tvedt's thoughts.

The soil scientists say there are more living species in a tablespoon of soil than there are people on the planet; that, I cannot wrap my mind around. A whole universe under our feet. I believe it was Leonardo da Vinci that said, "We know more about our solar system than we know about the soil we walk on." I believe it is still true today.

But let me give you a bit of historical context as it relates to my farm. This land we're on had originally been wooded prairie. My great-grandfather came here in 1854, and the land had probably been farmed 60 to 70 years before my dad purchased the farm in 1941, and he actually started working with the Soil Conservation Service (the precursor to the Natural Resources Conservation Service) shortly after that. At that time, the land basically wouldn't take any water. It was just yellow-red clay, and it had been farmed up and down the hill. It was in bad shape. There was a quarter-of-a-mile that had seven ditches that my dad couldn't cross with his Farmall M tractor because they were washed out so bad. The land was sloped, so to conserve the soil, my dad planted contour strips 100 feet wide, and he farmed 30 acres of sweet clover, which he plowed under as a green manure to build the soil. If I recall correctly, my dad got 30 bushels of corn per acre and 15 bushels of oats the first year to feed the family on. The soil was pretty beat up. I can remember my dad getting tears in his eyes when we would get an inch of rain and the gully would be running yellow-red with dirt.

That was where the concern for the soil all started. When I bought the farm from my dad, after he had spent his lifetime conserving the soil, he was scared that I would take it the other way, forget about the conservation and let it all wash away again. I started with 160 acres growing primarily corn silage and hay. Every time I put a few soybeans in, I got a lot of erosion; it loosened up the soil too much. So I said no, I am not going raise

soybeans like this.

There are two factors that drive my way of farming. One of them is if the ground is gone, my resources are gone. The other thing: I don't want to be part of the cause of problems in my community like flooding. That is why I am getting excited about cover crops. It is not only what's on top of the ground that is important, but also what is



During an LSP field day, Curt Tvedt describes how he planted soybeans into a rye cover crop. (LSP Photo)

happening under the surface.

Even to this day, after a rain I usually hop in the pickup to see what is going on. I am 74-years-old, and I have these creeks that I have been watching for quite a while. I'll notice when a culvert is running over with water, and then I will go to another culvert and it is not running over. So I ask myself, what is going on? The flood flashpoint has really raised in the last 12 years. It is like a toilet effect, where we get that big flush of water, a big whoosh, and then it runs all over the roads, tearing them up, and then the water drops right back down again. As a youngster I really didn't see that kind of

problem happening. There was quite a bit of hay and pasture in this area that has been taken out. I don't know if we can farm as intensely as we have been farming and be able to incorporate cover crops, but that is why I am experimenting, especially with soybeans.

For example, two summers ago I had a neighbor come in and plant soybeans into the rye cover crop growing on one of my fields. Because of wet weather, the cover crop had grown taller than planned, and the result was a lot of biomass on the field. Normally, one would kill off the cover crop and then plant the soybeans through the dead residue. But my neighbor didn't think he would be able to plant through the massive mat of dead rye that would be present in that case. So instead, we no-till drilled my soybeans right into shoulder-high rye, and I got told by some respectable people that I was crazy.

I drove over the rye with a big roller after planting the soybeans. It is absolutely amazing the power of a seed. A soybean in particular has got a lot of oil in it, so it has a lot of energy, but the rye mat was thick. The beans' cotyledons have to get up to reach sunlight because they only have so much energy. I went out and looked at it after about day 10, and I almost went back out there to till it up because you couldn't see any rows. Yet, the beans pushed themselves up and through the mat, and I found some that had even grown sideways. It was amazing—95 to 98 percent of the seeds germinated in that stand.

When I harvested that 32-acre field, I averaged 50 bushels per acre, which is the same as the Minnesota state average that year. Those beans went in June 3rd—a month behind—and it took them 10 days to get through the mat of rye that I had rolled. I had no broadleaf weeds; the rye mat acted as a natural weed control. Plus, I had no erosion. My organic matter has increased from roughly 1 percent to over 4 percent. That's good news when it comes to retaining moisture: the Natural Resources Conservation Service says for each 1 percent increase in organic matter, it allows the soil to store 27,000 gallons more water per acre.

I think researchers like Dwayne Beck and farmers like Gabe Brown hit the nail on the head when they say the prairies were built without tillage and they were successful and fertile.

What did Mother Nature do? How many years of research and development does she have? Millions? I don't know. That is why the rest of my farming years are going to be designed around research, and learning how to best conserve and build back my soil. □