FARMER TO FARMER SUCCESS STORIES

Field Day

Mike Werling, Adams County, Ind.

Mike Werling is a tireless innovator. He shifts effortlessly between conservation efforts such as cover-crop and nutrient trials, equipment testing, interseeding experiments, speaking engagements, farm tours and two-stage ditch and drainage projects. His endless enthusiasm for improving soil health, water quality and fertility on his 350-acre farm in northeastern Indiana conveys the impression of a year-round field day. Werling tweaks and tinkers until he achieves the results he wants, never tiring of working toward bettering his best.

He began no-till in the 1980s, partly to save labor when his dad, Gerhard, scaled back. "What I really hated to see was erosion. That's what started me down the no-till path," he says. "I gradually switched over – a field here, a trial here and a hillside there."

By the mid-1990s, he was 100% no-till and adding cover crops, learning as he went and drawing from the experience of others. His acres have been 100% covered whenever possible since 2004.

A sought-after speaker, Werling collaborates with several conservation initiatives. His business card is a ticket for a farm tour. "I love to show people what I do. Come on out; let's just dig and look at it," he says.

His wife, Judy – who is his sounding board, encourager and business partner – refers to their methods as "farming ugly."

Vol. 4, No. 1
Farmer to Farmer Success Stories are a series of interviews of farmers sharing how they have found success in incorporating conservation into their operation. To follow this series, visit *www.HarvestingThePotential.org*

Q: You're an old hand at this. What is your current process?

A: I divide my acres into a fixed three-year rotation of corn, soybeans and oats. The oats go to corn, the corn goes to soybeans and the soybeans go into oats the following spring again.

My cover crops also follow the rotation. Cereal rye and rape are planted in standing corn. After bean harvest, weather permitting, I plant oats and radish as a cover crop before oats again in the spring. Following the oat crop in August 2017, I planted 37 lb. per acre of a 16-way cover-crop cocktail, which has cereal rye for weed control and a lot of warm-season grasses and broadleaves that winterkill.

I started applying all my nutrients into the ground years ago so they're better used and they don't wash away on the surface. It also allows me to cut my rates. I use the INfield Advantage replicated nitrogen (N) trials to narrow down my N use. At corn planting, I apply starter N and other nutrients, then follow up with makeup N at the V6 stage because the terminated cover crops release their nutrients around tasseling. I soil test 100% of my ground every three years, based on soil type.

While I always burn down the cover crop before planting corn, I started planting soybeans into green cereal rye four years ago. That's when my wife observed I no longer doubted myself about anything. Standing green cereal rye flows through the planter knives better than a heavy, wet mat of dead plants. The soybeans love to grow through cereal rye; it's a companion crop. I terminate within five days of planting. Next year, I'll use a roller-crimper on cereal rye before planting beans. I loved playing with a prototype this year. I'll let the cereal rye grow up to my nose, then crimp it every 4" to 6", which kills without chemistry.

Q: What benefits have you observed over the years using no-till and cover crops?

A: As I kept moving toward less and less tillage, I had less and less erosion. On neighboring fields, though, I could see water running off and topsoil blowing off with the snow into my fields.

The district conservation folks laugh when I say I want to get rid of the little erosion I do have because it's still nothing compared to conventional tillage. Still, my goal is to have zero erosion on my slopes.

One of the biggest changes going from full tillage to no-till is soil crusting. We have high-magnesium soils in

this area, so we always had crusting with tillage. I don't worry about that now. People think I'm nuts when I tell them I will plant my beans 3" deep if that is where the soil moisture level is. The beans still emerge just fine.

I see the results of healthy microbial life in my soil. Tillage knocks out vital mycorrhizal fungi, hyphae and colonies of bacteria, which are then forced to reestablish. Whenever earthworms are active, I have half a dozen in a shovelful at least. Following corn, I hardly have any residue left in the spring. I need more! The diversity of cover crops keeps earthworms feeding.

Since I went no-till, I haven't made any ruts in the field. Adverse weather has less of an effect on soil the heathier it is and the more cover you have. In a wet fall, harvest is easy because improved soil health carries the weight of machinery better.

Every third year I test 100% of my ground for organic matter (OM) by soil type, using a consistent testing method and lab. In 1985, my mean average OM was 2.6%, and in 2015, the mean was 3.1%. I have some samples at 4% and a few at 5%. The majority of the OM increases over the last eight to 10 years are due to cover crops. No-till helps with soil health, but if it is used alone, it does not improve OM.

A Conservation Cropping Systems Initiative test in 2016 showed that my soil's aggregate stability measured two times greater than on my neighbor's conventionally farmed soil. My soil is more stable, and because less water runs off, I get better infiltration. The water is not picking up soil particles and washing them away.

There is also a difference in soil structure compared to conventional tillage. My soil has a cottage-cheese or coffee-ground texture even when it's wet. Before no-till and cover crops, our soil was either hard or muddy. On my no-till fields – even saturated clay soils – you don't sink in the mud, and it doesn't cling to your boots.

The colors of my soils have also changed. My clay knobs used to be unproductive, but now they are the areas where I'm getting my better corn yields. On field days, I dig the soil pits on those clay knobs because the top 10" to 12" have a dark tint – that's OM – where they are not supposed to have any color. That's how you make a soil scientist happy at a field day!

I strive for top profit per acre, not top yield. My INfield Advantage N trials show I can get 220-bu. corn, but the returns are not there. Even with my optimum corn yield of 180 bu. per acre, I'm still under 70% of the Tri-State Fertilizer Recommendations – and that's with cleaner, more concentrated fertilizers. I trial a 50-lb. N rate to see how low I can go, and I still get 166 bu. per acre.

I am applying less herbicide because of my cover crops. This year my corn ground only had a burndown, with no post and no residual. That is a pretty good reduction. The neighbors' complete herbicide programs don't do any better than mine. I'm very careful about scouting and varying my modes of action along with crop rotations, and I don't have resistant weeds.

In early April, rape and cereal rye cover crops emerge out of dormancy on Mike Werling's field, building a rich soil environment for beneficial microorganisms. "If we ate potatoes 100% of the time, we wouldn't do well," Werling says. "To thrive, soil microbial life needs variety, too."

In August 2017, I put 90 lb. per acre of cereal rye on all my corn ground for spring weed control. I'll use that roller-crimper to terminate. A good cover crop – especially cereal rye – as well as beneficial bacteria and beetles really cut down on marestail also.

Q: Can your methods be applied on a larger scale by other growers?

A: Some of the bigger guys say the way I operate is that I see something that works and I do it. I often hear farmers say what I do can't work on their fields, or I have different soils than they do. But everything I do can be scaled up. There are farmers who are 100% cover crops on 6,000 acres.

Q: Why is it important for U.S. farmers to adopt conservation principles?

A: We have to improve our methods or they will become mandatory via regulation. If the carrot doesn't work, they will use the stick. Very harsh regulations have been proposed for the Lake Erie watershed.

If the day ever comes when land values are based on OM, there will be a big payoff. Until then, I'm going to bank on my crop, reducing erosion, keeping my nutrients in place, being a good steward of the soil and improving my soil for the next generation. If I don't do those things, I don't think I should be farming.