

Low Disturbance, High Success

Ralph Holzwarth, Potter County, SD.

REH Farms, Inc., is a diverse north central South Dakota family operation that has been 100% no-till since 1992. About 6,000 acres are run by Ralph Holzwarth and his wife, Betty; their son, Ted; and their daughter, Bobbi and her husband, Jeremy Schmidt. An older daughter, Laura, and her family live in Phoenix.

REH Farms takes a low-disturbance, high-residue approach to farming. They rotate spring and winter wheat, corn, soybeans, sunflowers and lentils in a diverse, nutrient-rich system that conserves moisture on dryland, preserves and builds the soil and allows the production of more crops on the same acres.

But it wasn't always this way. Like everyone else in their area in the 1980s, the Holzwarths were reliant on a fallow wheat system, weed control by tillage and irrigated corn. However, they became increasingly concerned with their clay loam soil's tendency to crust and seal, barren dust blowing off their sandy ground and storm water running off of fallow ground. After years of watching their soil wash away, they were ready to change their mindset. When the time came, they were so committed to make it work that they eventually led the way for others. Now, about 95% of producers in their area are no-till.

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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: What was your turning point to try no-till?

A: In the 1980s, as Dwayne Beck did his doctorate internship near our farm, we saw that he was having success with no-till. We had reservations about it at first, thinking, "This just can't work. You can't just go into stubble and plant the seeds!"

My wife and I spent a couple of years just watching and learning. In the mid-1980s, we rented a high-disturbance drill. It just didn't work. Then in 1989 we decided to try it again. I really think that after we listened to Dwayne, our hearts said, "There's got to be a better way."

That year, we had some pretty good success with a leased 15' John Deere 750 drill. The following year we bought one. We made mistakes, of course, and it took a few fields of various crops, but this low-disturbance-type system looked better than we thought it would.

We were probably the first in the area to use low disturbance. Our neighbors didn't think it would work, but they did ask us to go over and "plant one field for us." Soon we were planting a huge amount of acres with this 15' drill. We traded it for a 30' drill, and in 1992, we went completely over to no-till.

Q: How do you figure out your rotations and the residue management that comes with it?

A: By taking fallow out of the rotation, rotating other crops and building residue, we are able to hold down the evaporation rate of water and have something to plant every year. Weather often dictates your rotations, too.

Now we rotate spring and winter wheat, corn and a broad-leaf such as soybeans or sunflowers. When corn was high priced, we stretched out the rotation to allow more corn. We have also gotten into field peas and lentils, which have given us even more options.

In our system, we look at containing residue. Having a lot of small particles allows them to come loose, blow around and bunch up. We don't do any chopping, rolling or dragging with stalks. More long stems hold everything in place. We spray, plant, harvest and that's it. Our goal is to spend more money hauling more grain away to market than running equipment on the field.

And if residue is getting too thick in one area, we'll follow

with broadleaves, such as lentils. We have a nice inch of fluffy residue naturally composting into the soil.

In areas that need it, we also use cover crops for adding residue, for transitioning from a short-season crop or for controlling moisture, such as in areas where a wet spring has left some acres unplanted. It also helps us increase organic matter.

Q: How does water conservation factor into your farming methods?

A: We're in an 18" rainfall area, so everything we do is an effort to try to save any moisture that Mother Nature gives us. No-till has given us that extra moisture over the years. From 1995 to 1997, we had tremendously wet years. That difficult time taught us a lot about what we could do with a little extra moisture, and we learned that we had to put more corn, soybeans and sunflowers into the operation.

Q: What changes have you seen in your soils?

A: We used to have 1.5% to 2% organic matter; now it's at 3% to 4%, with some high-producing areas up to 4.5%. That has changed our whole thought process. Our pH levels have also gone down from 7.5 to the 6's.

We used to think, "Well, how can this ground get looser if you don't till it?" However, the water was hitting the soil – and then going sideways.

We never thought the soil would mellow like it did. We can put in a probe 4' deep. Fallow ground is hot, and earthworms don't like it. Now, we see worms and worm holes. The corn roots naturally follow the water down the holes; they have a better root structure and won't go sideways into the compaction pan. Water goes deeper into the soil, and more quickly. This May, we got 6.5" of rain in just over 10 days. But we had no standing water, even after a 3.5" rain.

Q: I tried changing practices, but it didn't work out. Why should I try again?

A: You have to look at why you failed and how you can improve it. Not everything goes perfectly. Every year, Mother Nature throws a little different curve at you. I'm not a perfectionist, but I think there is something new to try the next year. You have to make this commitment that you will have a different mindset.

You also have to make it fit your farming operation. I've



Ralph Holzwarth, son Ted and wife Betty, plant a diverse rotation to manage their soil moisture, build organic matter and maximize acres. If their residue gets too thick in some areas, they'll plant a broadleaf, such as lentils. This field of lentils was planted into corn residue.

heard some people say they can't do this because they don't have enough acres or they don't have the right equipment. In that case, I suggest hiring some help or leasing some equipment at first. Not everyone can do exactly the same thing.

Q: What are some of the more unique changes you've seen with this system?

A: We had challenges going from 35-bu. wheat to 130-bu. corn, such as grain storage and updating trucks. But we've maintained equipment costs, because our rotations allow for a lot of different little crop windows.

Fertilizer costs have maintained, but yield goals keep going up. We're seeing higher nitrogen (N) utilization during the year, such as planting for 60-bu. wheat and coming off with 100! Where is that fertilizer coming from? A deeper root system, more soil activity and biological life. Residue on top that breaks down naturally – without tillage and burying carbon – is breaking down faster for available nutrients.

We've had more successes in the last 15 years than all the previous years put together. With this no-till system, farmers in our area have had financial success, so we're seeing a lot more kids returning to farming. It's a very good indication that what we are doing now is working.