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## **Building a tradition of diversity and soil health**

PIERRE, SD – When David Neuharth started his 3Y3 Ranch in the 1980s near Hayes, SD, he noticed a trend among area producers.

“Everything in this country and in Stanley County around in the area was pretty much a 50-50 deal,” David said. “Half summer fallow ... and the other half was winter wheat.”

He chalked that up to tradition.

“When you looked around,” he said, “everybody kind of did it that way because that’s the way Dad did it.”

David, however, didn’t have any traditions to build on. He didn’t come from a farming family. “I had the support of my family, but none of my family actually was out in the country and had anything to do with agriculture,” he said. “I had to rely on good people like Dwayne and Ruth and Jason.”

Those good people he mentioned are no-till pioneers Dwayne and Ruth Beck and U.S. Department of Agriculture Natural Resources Conservation Service Agronomist Jason Miller. With their help, the Neuharth family has built a new tradition of diversity and soil health management.

Speaking of the Becks, David said, “Dwayne’s been a very good mentor to me. Him and Ruth have just been awesome to help us.”

With an average rainfall between 16 to 18 inches, moisture is always a concern for the Neuharths. Dwayne Beck, longtime research manager at Dakota Lakes Research Farm, often told David that fallow land is simply a desert. So, with moisture management advice from the Becks, he decided to make the switch from a wheat-fallow rotation to no-till cropping practices.

“I went in to my banker one day, and I said, ‘I want to switch to no-till,’ and he kind of looked at me, and he said, ‘Well, how do you plan on doing that?’ And I said, ‘Well, I’m gonna sell all my tillage equipment, trade it all in for a 750 no-till drill and a sprayer,’” David said. “We jumped in with both feet.”

Of course, there was a learning curve to the new management practices, and the Neuharths had to learn how to manage the residue. David wasn’t always convinced he’d made the right decision. “There was a

number of days I'd be calling Dwayne, and I said, 'This isn't gonna work.' He said, 'Yes, it will. Yes, it will.'"

It worked.

"We've been able to utilize the small amounts of moisture that we do have in a timely basis with the no-till," David said. "It's really gone a long ways for the amount of crops and the yields."

David started the farm's tradition of soil health management, and as he transitioned it to his son and daughter-in-law, Levi and Crystal, who renamed the operation Prairie Paradise Farms, the farm has blossomed into a showcase for diversity. "Levi and Crystal and the kids keep continually taking it a step further," David said, "And that's the exciting part is to be able to pass it on and see these kids take a hold that way."

### **Paving the way for diversity**

David's decision to start no-till farming paved the way for increased diversity on the farm, which is one of the core principles of soil health and a concept espoused by Dwayne Beck.

"What we did is looked at the native prairie as a model and then try to see how close we could come to doing what the native prairie did because that's been successful and would be successful if we left," Beck said. "So how do you mimic that? That's where the diversity thing comes in and then the livestock thing. There used to be animals here – big ones and small ones."

Translating that concept into a cropping system is the key to improving soil health while producing cash crops.

"This area, we don't really have the moisture to do corn and beans and corn and beans," South Dakota State University Extension Agronomy Field Specialist Ruth Beck said. "Those are long season crops. We've got to have some wheat in there and peas, which are a little shorter season, to be able to produce a crop with less moisture usage. But with no-till, it's really important to use that crop rotation because we're not getting rid of that residue, so we've got to move to other crops to help us control weeds and diseases and some of the other pests that come along."

"After we got diverse in the rotations, we started using cover crops, both full season and after wheat harvest," Levi Neuharth said. "We try to get the four different types – warm season grasses, cool season grasses, warm season broadleaf, cool season broadleaf – sometime within the five to seven years on a field to help with the diversity, and sometimes, that comes in a full season cover crop mix to meet that requirement."

The Neuharths have also added several different types of livestock animals to their equation.

"We bought chickens, and then, from there, my youngest son had a milk allergy, and so we got dairy goats, and that got us into the dairy goats. And my wife likes rodeo, so we got horses," Levi said. "We had some cows for a little while of our own. It got really, really dry one year, and we had to sell them off. Since then, we have just rented out our pasture and done custom grazing of our pastures."

The Neuharths use rotational grazing of their pastures and cover crops to improve their soil health.

“We went from just having two to four pastures to having about 40 or 50 different paddocks, and so we will rotational graze those paddocks instead of season-long grazing them,” Levi said. “We have slowly built up our holding capacity of cattle the longer we have been in the rotational grazing.”

## **What are the benefits?**

All the different crops and livestock in the Neuharth operation work together.

“Some of the benefits in the diversity of the crops – I think they probably help with fighting our diseases and maybe our weed pressures. You don't seem to see as much of a problem on a resistant weed because you're being more diverse in your rotations,” Levi said. “It helps with that and the different insects. I also think that it helps with the use of moisture. Having the diversity, getting your rains at different times for different crops, you don't have all your eggs in one basket.”

The different types of livestock work together to benefit the farm, as well. The cattle return nutrients to the soil through their manure and urine, and the Neuharths use their goats to help control weeds.

“They're more of a stripper grazer,” Levi said. “They will strip down the weeds and forbs first.”

“We have the goats that are grazing around water areas and they're helping with thistle control without using chemical,” Crystal Neuharth said, “because when a goat eats a seed, it becomes sterile, and so it doesn't reproduce after that.”

The family's free-range chickens also serve a purpose. “The chickens can come behind, and they can get the grasshoppers under control or the ticks and spread the manure out,” Crystal said.

## **Recognition**

The Neuharths have worked closely with NRCS Soil Conservationist April Boltjes, who helps them with their grazing plan and with their involvement in the Conservation Stewardship Program. She has been impressed by what she has seen at Prairie Paradise Farms.

“They've done a great job managing their grasslands,” Boltjes said, “so I thought that with how they are so proactive on the whole soil health kick that they should be recognized for the great job that they've done managing the grasslands.”

Boltjes nominated Levi and Crystal for the South Dakota Society for Range Management Excellence in Range Management Award. The Neuharths were one of four winners in 2017, and they presented a poster about their operation at the Society for Range Management National Convention that year.

Levi stressed, however, that awards and recognition aren't why he and his wife focus on conservation. “What's most important to me is to try to better my land so that I have it here for my kids and for their kids,” he said. “Without the soil we don't have much because the soil is what everything starts from.”

## **Taking advantage of resources**

The Neuharths aren't making their soil health journey alone. They have learned from and received help from many people over the years.

“We had quite a few different people that assisted us and we went to for answers,” Levi said. “The Becks are our number one mentors. My dad went to them first, and I've gone to them quite a few times. April

Boltjes at NRCS has been of great help with our CSP and our rotational grazing of our pastures. Jason Miller has been a very good help with us for our fertilizer recommendations and for cover crop mixes.”

Producers who want to make positive improvements to their soil health can benefit from a community of people committed to conservation.

“I am on the Soil Health Coalition Board. All those are farmers, producers, that are on the board, and they are a great help in any questions that a person might have,” Levi said. “We've also had good support with our banker. He's stuck with us, and he sees what we're doing and thinks that we're doing it the right way.”

Taking advantage of available resources is an important first step in adopting soil health management practices.

“Visit with your local office NRCS office. Work with the district conservationists there,” NRCS Agronomist Jason Miller said. “We'll come out and work with you on your ground, take a resource inventory of the of your farm or ranch, and we'll come up with a suite of practices that we think can improve your operation, both economically and environmentally. If they can't do it on the local level, there're specialists throughout the state that can help you.”

Levi cautions producers to be patient when switching from conventional farming to soil health practices.

“Don't give up on it,” Levi said. “There's plenty of support out there, and no question is a dumb question. There's plenty of people to answer your questions, and so just don't give up on it, and the earlier you can start on it the better.”



*Image Courtesy of SDSHC and USDA-NRCS South Dakota*

Levi and Crystal Neuharth operate Prairie Paradise Farms near Hayes, SD, with their children Johnathan, Justin, and Kaydee.

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*Image Courtesy of SDSHC and USDA-NRCS South Dakota*

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*Image Courtesy of SDSHC and USDA-NRCS South Dakota*

SDSU Extension Agronomy Field Specialist Ruth Beck (left), pictured here with Crystal Neuharth, has helped the Neuharth family in their adoption of no-till and soil health practices.

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*Image Courtesy of SDSHC and USDA-NRCS South Dakota*

Levi and Crystal Neuharth started raising dairy goats because their youngest son has a milk allergy.

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*Image Courtesy of SDSHC and USDA-NRCS South Dakota*

David Neuharth began a tradition of diversity and soil health management on his operation for his family.

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