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Cover crops, livestock assist no-till

By Larry Dreiling

One of the tenets of no-till farm practices has always been to let the farm work for the producer, rather than have the producer work the farm.

Gabe Brown, Bismarck, N.D., is one of those producers who have decided to use what he calls the "biological horsepower" of no-till to take his farm to higher profitability.

Since taking up no-till in 1994, Brown has become recognized as a major booster of the practice to anyone who will listen to him, even a group as diverse as the Natural Resources Defense Council, which named him this year's recipient of a Growing Green Award. Brown spoke at the No-till on the Plains winter conference earlier this year, one of many events he's been invited to address.

Brown is primarily a "black and red hybrid" cow-calf producer, yet he uses cover crops in no-till on his 2,000-acre operation in order to improve the health of his soils to increase organic matter while enabling him to reduce his input costs, including a 90 percent reduction in fertilizer costs and a 50 percent cut in herbicide costs.

"It's about healthy profits from healthy soils. It seems like all we in farming ever do is write checks.

"Improving soil health increases my yields while improving water infiltration and utilization," Brown said. "This creates an overall improvement to the environment."

Last year, Brown, his wife, Shelly, and son, Paul, planted 25 different cover crops. Hard red spring wheat, corn, red clover, winter triticale, hairy vetch, peas and oats were considered his "cash crops," but they also planted crops like annual ryegrass, canola, radishes, turnips, lentils, sweet clover, phacelia, sub clover, buckwheat and kale.

"I grow crops I need. What someone else needs to achieve the same result will be different. What people need to be aware of are cool-season grasses, cool-season broadleaves, warm-season grasses and warm-season broadleaves. I have a cash crop from each one of those four types.

"At most times I have cover crops in with each of the cash crops. Either that, or they are in before or after that cash crop. We have a crop, that living root, in each field that feeds soil life. You can say that growing so many different crops is a headache. That's fine. That's your prerogative. I'm just trying to show you what it can mean to your operation."

The majority of these crops are cool-season grasses grown in combination with a cover crop to increase soil biology. The crops are planted into what eventually will become paddocks for Brown's cattle to graze.

"I'm not growing just one species of a crop, but 10 to 13 different species, because it's the power of diversity."

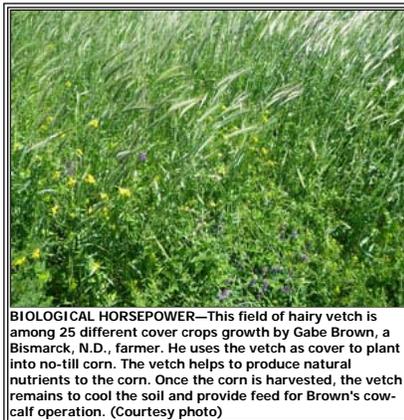
"We all have different soils, different goals, different quality of life things to look at and different crops. What I'm saying works no matter where you live," said Brown, who peppers his language with aphorisms.

"If you want to make small changes, change the way you do things. If you want to make big changes, change the way you see things," Brown said. "Too many of us close our minds to new ideas.

"Take for example, how we use commercial fertility. When we fertilize plants with commercial fertility products, the plant uses only 10 to 60 percent of that product. When you write a check for commercial fertility, you will lose anywhere from 40 to 90 percent of the value of that product. It may be available in future years or it may go down the drain tile or over the soil surface and into a river. It's not available to the plant. Yet, every year, we write a check for that. Why do we do that?"

American farmers are often truly disconnected from the land, Brown said, and it's costing them money because they don't really know what's in it.

"The greatest roadblock in solving a problem is the human mind. So often, it's us as humans



BIOLOGICAL HORSEPOWER—This field of hairy vetch is among 25 different cover crops grown by Gabe Brown, a Bismarck, N.D., farmer. He uses the vetch as cover to plant into no-till corn. The vetch helps to produce natural nutrients to the corn. Once the corn is harvested, the vetch remains to cool the soil and provide feed for Brown's cow-calf operation. (Courtesy photo)

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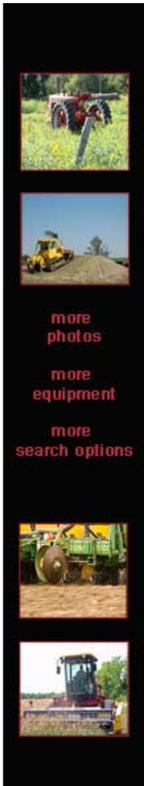
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deciding on solving a problem. We're afraid of other ways of doing things. I have people I look to help me solve problems," Brown said.

"We have accepted a degraded resource and now I'm trying to address that. Look at your soil samples and the amount of organic matter in your soils."

Brown showed off a copy of a soil test on some ground he was about to plant into corn. The test recommended adding 150 pounds of nitrogen onto the soil, but he planted corn into ground covered in residue without added nitrogen.

"What happened to all that residue? Leaf tissue analysis at tasseling showed that field was satisfactory for every nutrient. I needed zero added fertility in that field," Brown said. "How can that be? The soil test looked like crap but the leaf tissue analysis looked great, but all that residue has been consumed by soil life. The soil is alive. It's soil life we should be concentrating on. All I care is it works."

Farmers can look at caring for soil health by looking at nearby native range.

"What makes that range productive? Diversity," Brown said.

"When he purchased our operation in 1991 we could run 65 cow-calf pairs and 20 yearlings. Today, we run nearly 400 pairs and 800 to 1,000 yearlings. We did that by focusing on management and soil health."

Cover crops in no-till is the way to soil health, Brown said.

"You can fit in cover crops everywhere if you try, no matter what your rotation is. It's pretty easy," Brown said. "Cover crops are the armor against heat on your soil surface. They allow you to save more moisture. They assist the creatures under the soil, too. Use cover crops that can survive the season.

"We also use flowering plants to attract native pollinators and predators. The good insects make spider webs that can stop some of these predators. Instead of spraying, these beneficials just show up for free. Just give them a home and they'll show up. You won't need to write a check for insecticide."

As an example of a diverse cover crop program, following spring wheat or peas, Brown will go in with a fall-season mix of winter triticale, hairy vetch, canola and sweet clover.

"That's been an absolute slam dunk for us. The triticale has only been winterkilled once and the hairy vetch never has," Brown said. "It hasn't taken away our soil moisture. We've done the tests and we've improved our water holding capacity. Besides, there's really only so much water the soil can hold or it's going to go away. In drought it will eventually recharge.

"It leaves us with lots of options. We can harvest it or plant into it."

Brown adds one caveat. It's a big one, especially in this year as a new farm bill is being discussed.

"You'll have to chat with RMA (Risk Management Agency) and make sure you're legal in your area to do this," Brown said. "Or, I guess, you can live far enough away from the road, if you know what I mean."

Brown admits planting corn is the one area of his operation in which he uses a herbicide.

"We get real uniform emergence and we can go to shorter-day corn varieties. We are planting 72- to 79-day corn. By planting it into the hairy vetch suppressed by the herbicide, the corn was feeding off of the vetch that had come back and grew, had been fixing nitrogen all summer, feeding the soil biology and helping that corn.

"It's thinking about the system as a whole. It's not focusing on just N, P and K. Yes they are important, but over time, you can reduce your rates."

After he's done growing that corn, it's time to feed some cattle on the stubble and remaining cover crops. Calving time on Brown's ranch is in a May-June timeframe to reduce health problems.

"The vetch is done feeding the corn, now it's feeding my cows. They do just fine," Brown said. "The snow is supplying their water. We've gotten to the point where we feed our cows just under 100 days, on average. Our cattle feed on cover crops in 50-degrees-below-zero wind chills. I don't need to supply them with bed a breakfast. They can do it on their own. It allows you to get your cattle off the native range and incorporate them into your holistic cropping system.

"We had 668,000 pounds of beef on one acre. I took us 32 days to graze 20 acres with 328 yearling heifers. We move cattle every couple of hours using polywire and Batt-Latches, which are automatic gate openers. My son just punches the time in, the bungee cable unhooks and cattle walk right in. If you are able to use livestock in this situation, by all means use them."

Brown uses the savings no-till and cover crops deliver in describing his bottom line, which to him is an open book to describe his savings and his profits.

"Last year, the added N, P, and K in my soils equaled savings of \$3,755 an acre," Brown said. "When I do my financial statement on my loan every year to buy my yearlings, I put those savings in my statement in the pre-paid column. Does my banker pay attention to it? Probably not, but it makes me feel good. That's the kind of down payment we can have for the soil in the years ahead."

Brown sold his corn for \$6.48 last year. Minus land costs, his expenses ran him \$1.099 per bushel.

"Corn can drop to \$2 a bushel and I'll still make money," Brown said. "I can't plant corn on corn every year because I rotate, but I still net \$855 per acre.

"All these benefits come free and it's easy to do. You have to change your mindset and focus on the soil and feeding a living system rather than the way you've approached things in the past. You have to look at the picture as a whole."

Larry Dreiling can be reached by phone at 785-628-1117, or by email at ldreiling@aol.com.

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