‘It Starts With Soil Health’

Gabe Brown Shares His Farming Evolution Story — Including Sunflower’s Role in Its Success

Gabe Brown’s approach to farming and ranching is simple: Take care of the soil, and the soil will take care of you.

“It all starts with soil health. We, as producers, have come to accept a degraded resource in this country,” says Brown, who farms and ranches just east of Bismarck, N.D. “All soils are degraded. My soil is still degraded, and I’ve been focusing on improving it for 20 years. The important thing to know is that we can improve our soil’s health and that improvement will pay us dividends.”

Back in 1993, Brown sold his tillage equipment and went 100% no-till. He’s been no-till ever since. “My reason for going no-till was to save time and moisture, but now I know there are even more important reasons,” he explains.

The years 1995 through 1998 proved to be difficult. Brown lost crops in all four years to drought and hail. The bank would not loan him any more money, so Brown was forced to figure out how to stay in business and get his land to be productive without a bunch of input costs.

“I started planting more legumes and finding different crops that fit into a rotation,” Brown recounts. “Back then, it had nothing to do with soil health. It had everything to do with staying alive and staying liquid so I could keep farming.”

His new approach worked. He not only managed to make his farm financially successful; he significantly improved the health of his soil, too. In 1991, soil tests showed his fields were 1.7 to 1.9% organic matter. In July of 2013, his soils tested from 5.3% to 6.1% OM.

“We’ve tripled the organic matter in the soil,” Brown points out. “That’s the carbon and nutrient density in the soil. Our soils are now so healthy and productive we haven’t had to use any synthetic fertilizer on our own land since 2008. My cost of production is much lower than most other producers. And my yields are good, too. I have a proven yield for corn of 127 bushels an acre. The county average is 100 bushels an acre, so I’m significantly above county average.

“But that is not what is important. What is important is that I have significantly lowered my cost of production while improving my soil resources. In 2012 it cost me $1.44 to produce a bushel of corn. The average in North Dakota is close to $4.00 a bushel.”

Despite this year’s low price of corn, Brown says he’s still able to make money. And he credits that to the health of his soil. “When your soils become healthy, you are able to reduce your input costs so much that you can become a least-cost producer,” he explains.

“With an increase in organic matter comes an increase in the water-holding capacity of your soils. When I started, we could store about four inches of moisture in the top four feet of our soil. Now I can hold over 20 inches, which means I can store pretty much all of the moisture that falls on my fields. This has also helped our soils become resilient to drought.”

Sunflower plays a key role in Brown’s operation.

“We like sunflower in our rotation because it is a warm-season broadleaf crop and brings us diversity. Sunflower cycle those deeper nutrients that other shallow-rooted crops can’t,” he notes. “Sunflower has always been very profitable for us.”

Sunflower is just one of many species Brown includes in his rotation. In any given year, he’ll plant oats, barley, spring wheat, sunflower, corn, peas, alfalfa and winter wheat. Those are just his cash crops. Then there are the cover crops — more than 30 species, including everything from Phacelia to radishes, from clovers to kale, and from millet to flowers.

“I want to have a rotation that has all four crop types: cool-season broadleaf, warm-season broadleaf, cool-season grasses and warm-season grasses,” Brown explains. “Sunflower fits that warm-season broadleaf bill, and that’s why I like having it in my rotation.

“The thing about my sunflower is I’m not shooting for the highest yield. We want the diversity. While some guys are yielding 3,000 lbs/acre, I’m more around the 1,800-2,000-lb/acre yield, and that’s OK. For me, it’s not about yield, it’s about profitability and what we have done for the resources.

“I plant multiple species of covers with the sunflower. Others may feel that my fields look like a mess but I know the benefits I derive from them,” Brown remarks. “These covers serve many purposes. First, they feed soil biology, thus eliminating the need for synthetic fertilizers. Second, they provide armor on the soil surface to both protect the soil from erosion and to keep soil temperatures cooler, thus reducing evaporation. Third, they provide a home for predator insects. These predator insects mean I don’t have to spend money on insecticides. For every insect species that is a pest there are 1,700 species that are benefi-
cial. Why would I want to use an insecticide that will also kill those beneficial species? The flowering species of covers, such as phacelia and buckwheat, attract the pollinators — and we all know the importance of pollinators.”

Word of Brown’s operation has spread. He spends several months each year speaking to groups about soil health, and each summer at least 2,000 people visit his ranch to get a first-hand look at how he manages his land.

“We’ve had people from all 50 states and 16 foreign countries visit our ranch,” says Brown. “I tell them I can make this model work anywhere in the world where there is production agriculture. Obviously, you don’t use the same crops and cover crops, but the principles are the same.”

Brown says there are five basic principles he suggests producers follow:
1. Use minimal soil disturbance, preferably no-till.
2. Use a diverse crop rotation. Brown plants everything from sunflower to wheat to clover and even turnips. There’s always something growing in his soil, and often more than one crop grows in a field at the same time. “Too many people think when you grow two species together they compete with each other. It doesn’t work that way at all,” Brown says. “They work together. When you grow a legume and a grass together, you get better production. That’s more like nature. Nature is diverse.”
3. Protect the soil. That means always having armor on the soil surface. Bare soil leads to weeds and soil erosion.
4. Keep a living root in the ground as long as possible. Use cover crops before and after cash crops.
5. Integrate livestock into your operation. Brown says livestock will help your soil move to a healthier level.

Brown says following these five basic principles will improve your soil health — but he cautions producers not to jump in all at once. For one thing, current crop insurance policy doesn’t allow companion crops, so those who plant companion crops will no longer qualify for crop insurance. For Brown, that’s OK; he does not take crop insurance. Still, he says, this is a process, one that should be eased into.

“I encourage producers to commit to this practice on a small piece of land for five years,” he says. “I’ve never had some-

Though the ‘flowers are a bit thin in this spot, the photo simultaneously provides a good illustration of this Brown field’s cover crop mix. The main ones are hairy vetch, Phacelia, Daikon radish, kale, crimson clover, barley, buckwheat and flax.

Because, Brown says, by gradually changing the way you farm and care for the land, your soil health will gradually improve as well. That, he emphasizes, is something you can take to the bank. — Jody Kerzman

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