



By Larry Reichenberger

Building better soils

The next step—boost soil biology

Agriculture has focused on saving soil for nearly 80 years. Now that effort is joined by a new mantra: Improving soil health. Across the country and around the world, soil scientists and innovative farmers are championing the art and science of building better soils—improving a soil’s quality by managing the complex biological system that lives beneath the surface of the ground.

Soil biology is a black box—90% of the world’s organisms live underground—but most farmers know little about how they work and how they impact their production potential and profitability. Even renowned no-till advocate Dwayne Beck admits to being in awe of that ability.

“The greatest thing I’ve learned in 30 years of no-till farming is humility in the face of the tremendous ability that Mother Nature can build into a healthy soil. No-till isn’t about a lack of tillage, it’s about managing the soil to benefit that soil biology,” says Beck.

Ray Archuleta, a member of the Natural Resources Conservation Ser-

vice’s Soil Health and Sustainability Team, says its goal is to help farmers better manage soil by understanding microorganisms and the functions they perform. “Most growers think they apply fertilizer to feed a crop, but 60% of applied fertilizer never reaches the plant. It is the complex interactions between soil microbes and the crop that feed the plant. Eliminating tillage, diversifying rotations, and planting cover crops to protect the soil surface helps increase carbon in the soil, and more carbon equals better soil function,” he says.

Get started. As with many good ideas, building better soils should have started yesterday. Those who did are beginning to reap the rewards. Ohio farmer Dave Brandt has seen 35 years of no-till and three decades of cover cropping improve soil quality and save \$135 per acre in input costs. North Dakota farmer/rancher and soil health advocate Gabe Brown’s 20-year no-till, cover crop, and livestock

program has increased organic matter levels two to three percentage points.

“Every one-point increase in our soil organic matter level increases our soil’s water-holding capacity by 3 inches and the nitrogen availability by 50 pounds per acre,” Brown says. “It takes time, but some things improve in only a few years. You just have to decide you’re going to do it, and make the management adjustments.” ■