



# PROFILES IN soil health

Justin King and Bruce Unruh  
Burlington, Colorado  
3,000 acres  
Wheat, corn, soybeans, milo  
Covers: Diverse species



## Colorado family's farm operation and future... Rooted in 'The Living, Breathing Soil'

Bruce Unruh understands, the soil is alive. And he'll tell you that like all living things, the soil functions better when it's healthy.

"It's kind of like when we are sick, we don't work as well. The soil is the same way. If something is off, it just doesn't work," he said.

Unruh's realization that "soil is a living, breathing thing that needs attention," is what led him to change his 3,000-acre farming operation to focus on the principles that improve the health and function of his soil.

But growing wheat, corn, soybeans, and milo on the semi-arid plains of Eastern Colorado where the average precipitation is only 17 inches a year, makes applying some of those soil health



**Justin King, left, and NRCS Soil Conservation Technician Justin Stephen** find numerous earthworms in the soil which is growing diverse cover crops.

practices more difficult than in other regions where moisture is abundant.

"We are trying to learn which cover crops work for us and which don't," he said. "Because of the moisture issue here, improving soil health is going to be a long-term effort. It's not going to happen as fast here as in places where there is more moisture."

Even amid minor setbacks, the Burlington, Colorado farmer is seeing incremental success. “Last year the cover crops got up about 10 inches tall and then they just ran out of moisture and so they dried up, but there were plants that stood all winter,” he said.

That modest standing cover, he said, protected his cropland from erosion over the winter, helped the soil absorb more moisture and provided habitat for the soil’s microorganisms.

Unruh admits that using cover crops, no-till, and diverse rotations in combination isn’t a common farming practice here, but believes change is the key to his operation’s long-term success – even if that change is unconventional.

“I think we have to change our thinking a little bit,” Unruh said. “It’s not the way Dad did it, or Grandpa did it. It’s a new day.”

As a Burlington Conservation District Board member for more than 20 years, and as a participant in USDA’s Natural Resources Conservation Service’s Conservation Stewardship Program, Unruh has always farmed with a keen eye on conservation.

But farming while integrating soil health principles requires a different management mindset – one that involves constant learning and the quick formulation of solutions in the face of agronomic and climate variables. “Every year is so different that everything you learned last year probably won’t apply to this year,” he said.

Despite that uncertainty, Unruh is already seeing signs of success. “I feel really good about it. We’ve eliminated 1-2 sprayings a year and I think the crops behind the cover crops are looking better,” he said. “And we’ve been able to cut back a little bit on fertilizer, too.”

Son-in-law and farming partner, Justin King, said the Soil Health Tool confirmed those apparent fertility improvements. “We ran the test the first time on a couple pieces of ground and it didn’t call for much nitrogen, even for 180 bushel corn,” he said.

But some of their area colleagues remain unconvinced their soil health-building methods will work. “Some of our neighbors have had bets before



From left, NRCS District Conservationist Kristi Gay, Soil Conservation Technician Justin Stephen, Bruce Unruh and Justin King examine a field of cover crops.

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 –Bruce Unruh

on whether our soybeans will make it, so I know whenever they look at our cover crops they have that same bet and wonder ‘What are those crazy guys doing now?’” he said.

Still, Unruh’s and King’s harvests are increasingly rewarding. “During the last couple of years it’s been really good watching continuous wheat grow when everybody else tells us that it is not going to work,” King said. “We have been able to raise 60-bushel continuous-crop wheat, and we feel pretty good about that.”

A big part of their success, he said, is rooted in the soil. “I think a lot of it has to do with our practices between the no-till and crop rotations,” King goes on to say. “It allows us to have more pores in the soil that soak up the moisture. And the more residue we can keep on top of the soil, the better off we are in keeping the moisture we have received.”

*“Farming with soil health means that we will hopefully still be here farming for them in 20, 30 or even 50 years.”*

*—Justin King*

Recently welcoming a new set of twin daughters to the household, the Kings now have three daughters. According to King, farming to improve soil health is the way to ensure the long-term health, function and profitability of the soil – and by extension, the family’s farming tradition.

“Farming with soil health means that we will hopefully still be here farming for them in 20, 30 or even 50 years. I think if you look at the way we were farming 100 years ago and the way we farm today, it is completely different,” he said. “If we continue to grow in ways that improve the soil, I think they will still have a farm here that they can operate.”

If it turns out his three girls decide not to farm, King has one more farming goal: “I’m hoping that I’m as lucky as Bruce was in having a son-in-law who wants to come back and farm.”

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