



# PROFILES IN soil health

Kevin Glanz  
Manchester, Iowa  
Crops: corn and soybeans  
Planting: vertical till  
Covers: cereal rye



## Nitrogen Management Key to Corn Success Following Rye

by Jason Johnson, USDA-NRCS, Iowa  
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Delaware County farmer Kevin Glanz is challenging research studies and squashing the popular belief that planting a cereal rye cover crop ahead of corn hurts yields. Over the past decade, Glanz has developed a nutrient management system that allows him to successfully use cereal rye ahead of both corn and soybeans.

Glanz grew up in the Manchester area and since 1989 has farmed land north of town where he and his wife Sandy raised their three daughters. He also farms three other parcels not far from his home. In all, he row crops about 650 acres.

Several years ago, the challenge of finding help for spring planting caused Glanz to rethink his farming practices. To get everything accomplished, he decided to reduce tillage. "Field cultivating took too much time in the spring," he said.



**A warm, dry early October** allowed Kevin Glanz to harvest soybeans early in 2021.

The following year he started using a low disturbance vertical tillage tool and planting cover crops.

### Cover Crops Before Corn

Many agronomists say cereal rye residue delays soil warming and drying, causing less favorable conditions for corn growth. "I challenge that," said Glanz. "It's more of a nitrogen management situation."

Glanz says he manages nitrogen closely. "You've got to have nitrogen at planting – not pre-plant anhydrous

or a post-plant application. It's got to be there at planting," he says.

Glanz terminates cereal rye three to five days before planting his non-GMO corn. "I plant when it's still green, but it's on its way to brown," he said.

He applies about 17.5 gallons of 28% in a band two inches off the row on top of the ground – which equates to about 52 units of nitrogen at planting. He also incorporates a nitrogen stabilizer and applies boron and zinc for micronutrients.

"Cereal rye ties up about 25-30 units of N in the spring," said Glanz. "It's important to replace that with the planter. I have not had any problems with nitrogen deficiency in my early growth corn."

In fact, in the 10 years since Glanz began using cover crops on all his acres, corn yields have increased 40-50 bushels per acre on his poorest yielding acres.

Glanz says his system has also helped him reduce input costs. "I started cutting back about 10 units of nitrogen every year," he said.

More specifically, Glanz says he's gone from using about 1.2 units of nitrogen per bushel of corn raised to about .7 units of nitrogen per bushel raised. "It's due to all of the good things going on in the soil," he said. "It's not an overnight success. You've got to commit to it and don't look back."

## Cover Crops Before Soybeans

Compared to planting corn into rye, it is more widely accepted to plant soybeans into a green cover crop. Glanz typically plants his beans into cereal rye in late April and terminates his rye in mid-May, but this year he sprayed the rye in late May when it was above knee high. This created a thick mat of residue that resulted in some very good weed control. "There are no failures in no-till or cover crop practices, just unexpected results," said Glanz.

On his home farm, Glanz didn't need to spray a second pass for weeds on 125 acres. "I sprayed for water hemp on some of my other bean acres, but the rye mat laid down so nicely on my farm that there were no weeds to spray," he said. "These are the types of things I've been working for all these years. This is how you make cover crops pay."

Before starting a cover crop program, Glanz recommends asking yourself what you hope to get out of it. "Your end goal will dictate your beginning. What are your goals for the cover crops?" he asks. "This is another crop that needs to be managed."



**Delaware County farmer Kevin Glanz** uses a double rolling harrow vertical tillage tool on his soybean stubble.

The key to successfully incorporating cover crops into the crop rotation is to treat it with the same level of consideration as the primary crop, says Mike Henderson, state agronomist for USDA's Natural Resources Conservation Service (NRCS) in Iowa. "Kevin does a great job treating the cover crop as a productive part of the crop rotation," says Henderson. "He allows the cover crop to grow sufficiently in the spring to develop extensive roots to improve soil structure and prime the soil biology as well as good top growth to provide soil cover."

## Other Ways to Pay for Cover Crops

Reducing fuel consumption is another way Glanz is making cover crops pay for themselves. He uses about four gallons per acre throughout the entire year – compared to about 15-20 gallons per acre for farmers who use tillage. "I take that cost savings and put it toward cover crops," he said. "The whole idea is to reduce expenses."

Glanz says it's important to closely manage and monitor how fields respond to your nutrient management



**Glanz points out residue levels** on his soybean ground after harvesting soybean earlier in October.

program. "It has helped me take steps, year-by-year, to build a cover crop program that pays me back," he said.

Glanz is adamant his type of system can work on every farm. "I'm not different than anyone else. It just takes a different thought process," he said. "We're so stuck in this tillage thought process. I firmly believe tillage is hereditary."

Besides increased yields and reduced input costs, Glanz says a visual indicator – earthworms – show soil health is improving on his ground. Since replacing a chisel plow and field cultivator with a double rolling harrow vertical tillage tool and using cover crops, earthworm populations have increased dramatically.

Earthworms come to the soil surface at night or after a rain to feed on cornstalks, bean stubble, and cover crop residue. Earthworms pull plant material back into their tunnel, leaving a well-defined clumpy mound on the soil surface. Earthworm middens – or poop – enrich the soil as earthworms digest the residue they collect from the surface.



**Cereal rye pops through the soil** just days after planting it after harvesting soybeans in 2021.

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