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# PROFILES IN soil health

**Craig Brodersen**  
Charter Oak, Iowa  
1,280 acres  
Crops: corn, soybeans  
Planting: no-till  
Covers: cereal rye



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**SECRETS**  
IN THE  
**SOIL**

## Cover Crops Hold Soil Through Heavy Rain.

Charter Oak farmer Craig Brodersen chose the right year to start using cover crops. He aerial-applied winter hardy cereal rye for the first time last fall into 400 corn acres, and it helped dramatically reduce erosion on much of his newly planted soybean ground this spring.

Several Crawford County farmers received localized heavy rains. As much as five inches of rain fell between Charter Oak and Schleswig in one hour during a mid-May rainstorm. The storm event caused dramatic gullies and visible sheet and rill erosion along many of the area's tilled hillsides, but also in pastureland and no-till fields.



**Soybeans begin to pop** through corn residue and terminated cereal rye on Craig Brodersen's Crawford County farm.

Brodersen, who is a longtime no-tiller, also has several terrace systems which help reduce erosion on his farm. He believes the cover crop, though, ultimately held the soil best and possibly prevented him from replanting. "Even in areas where cornstalks washed away, the cover crop held the soil," said Brodersen.

Pat Corey, resource conservationist with USDA's Natural Resources Conservation Service (NRCS) in Denison, says this year's heavy spring rainstorm washed away a lot of residue on no-till fields around the county. "Even though Craig terminated his rye in early April, the roots still helped hold the soil in place," he said. "That is so important in areas where we are farming steep slopes."

In 2012, Brodersen was awarded a Conservation Stewardship Program (CSP) contract through USDA. CSP is a voluntary program administered by NRCS that pays farmers for conservation performance, and requires them to undertake additional conservation activities called enhancements. Brodersen chose cover crops as one of his enhancements.

"Without much rain last year, I didn't have a great stand of rye in the fall," said Brodersen, "but it looked good in the spring, so obviously the roots were growing."

Along with natural resource protection, cover crops help restore soil health by increasing organic matter and adding living roots to the soil during more months of the year. One of the main reasons Brodersen planted covers crops was to increase organic matter in the soil. "Right now I have about two to three percent organic matter," he said.

"Through cover crops, I hope to get it higher if I can."

Different types of cover crops can perform different functions for producers, says NRCS State Agronomist Barb Stewart. She says, for example, that deep-rooted forage radishes improve water infiltration in the soil, legume cover crops like crimson clover serve as natural fertilizers, and grasses scavenge nutrients that are often lost after harvest or during winter.

Stewart encourages farmers to plant a diverse cover crop mix, depending on their goals. She says NRCS recently developed cover crop mixes, based on resource concern. For example, to help build soil health and scavenge nutrients Stewart recommends



**Earthworms are prevalent** in Craig Brodersen's farm near Charter Oak. They are a sign of healthy, undisturbed soil.

mixing a cereal grain cover crop, such as cereal rye, winter wheat or triticale, with oil seed radishes. "Choosing a mix that includes grass with a fibrous root system and a legume or brassica with a tap root will usually provide the widest range of benefits," she said. "We have about 10 mixes that we recommend based on the time of year and resource concerns."

These mixes are available in the "Agronomy" section of the Iowa NRCS website at [www.ia.nrcs.usda.gov](http://www.ia.nrcs.usda.gov) or from your local NRCS office.

*Even in areas where corn-stalks washed away, the cover crop held the soil.*

*- Craig Brodersen, landowner*



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