

Crop Production

# Brothers compare no-till cover crops

By ANN TONER

**C**OVER crops were the focus of a late-summer no-till field day at the Berns Brothers farm near Bladen. Brian and Keith Berns used a USDA Sustainable Agriculture Research Education grant to investigate cover crops after wheat.

The brothers have used soil moisture sensors installed at three different sub-soil levels and photography to monitor and catalog the growth and water use of 17 different cover crops and eight cover crop mixes. The cover crops were planted into standing wheat stubble on July 24. Some of the information is accessible on their Web site at [www.notillcovercrops.com](http://www.notillcovercrops.com).

Next year, the Berns will catalog the performance of corn planted into the various cover crops.

The brothers also planted 50 acres of a cover crop mixture that they are grazing in 3½-acre paddocks with 20 cow-calf pairs. They are investigating cover crop consumption after different lengths of grazing.

The Berns brothers and invited speakers told the attendees that there are several compelling reasons for a no-

**At a glance**

- There are many reasons why you may want to try cover crops.
- Brian and Keith Berns used a SARE grant to examine the possibilities.
- Some cover crops can also serve as grazing for livestock.

till farmer to consider a cover crop. A cover crop:

- blankets the field and protects the soil from wind and water erosion
- builds soil organic matter
- aids soil structure and sequesters carbon

■ feeds earthworms and soil microbes

■ has a root structure that helps rain and snowmelt penetrate deeper into the soil, where it can be stored for next season's use

In addition:

■ A legume cover crop can fix nitrogen in the soil.

■ A non-legume cover crop can pull leached N and other soil nutrients to the surface to sustain growth. When the cover crop dies, the nutrients are available at the surface for next year's cash crop.



**GROWING GREEN:** Brad Young, (left) Prairie States Seeds, Wausa, inspects a cover crop mix, while Brian (center) and Keith Berns discuss their tests.

■ A cover crop can be a source of livestock grazing, although that reduces its effectiveness by about 20%.

■ A cover crop can provide a mat that reduces tractor wheel tracks in the field in the spring.

The brothers tried several species of millet as cover crops, although they said at the field day that millet growth and coverage were disappointing, possibly due to a lack of N. In addition, some varieties produced seed heads, which could lead to volunteer issues next spring.

They also planted grain sorghum and a sorghum-sudan grass that shows promise for grazing cattle.

Sunflowers grew well, and their tall stalks will catch snow during winter. Some years, sunflowers may mature enough to be a harvestable second cash crop.

The brothers also looked at several legumes, including soybeans, mung

beans, lentils, common vetch, alfalfa and clover. Legume covers have the advantage of fixing N for next year's crop.

The Berns planted several brassica species, including turnips, dwarf essex rape, several types of radishes, and turnip-kale and turnip-rape hybrids. Brassicas are effective at recycling nutrients and nurturing and promoting soil microbes that can break down old crop stalks.

They also planted several cover crop mixtures of grasses, legumes and brassicas. "Cocktail" mixes cover the ground well and seem to thrive on the diversity of neighboring plants. Mixtures have root systems that pull their moisture from different soil levels. They aerate the soil so that water can infiltrate.

*Nebraska Farmer* will follow up with the Berns brothers with final cover crop water-use information when the cover experiment is done for the year.

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