

PROFILES IN soil health

Kevin Cooper
Nevada, Iowa
122 acres
Crops: corn, soybeans
Planting: no-till
Covers: oats



unlock the
SECRETS
IN THE
SOIL

Top Ag Teacher Learning to Farm with Cover Crops.

Iowa's 2017 Ag Education Teacher of the Year is practicing what he teaches while farming his 122 cropland acres in Story County, near Nevada. Kevin Cooper has no-tilled his corn and soybeans for about a decade and this year added cover crops by seeding 30 acres of oats into soybeans in August.

Cooper, a longtime teacher at Nevada High School, purchased farmland in 2001. Although much of Story County is known for its flat topography, Cooper's farm ground is located in the southeast part of Story County where gently rolling hills prone to soil erosion are common.

According to NRCS Soil Conservationist Hillary Olson, one of Cooper's former students who helped him develop his conservation plan, the oats are Cooper's introductory lesson to farming with cover crops.

"The oats will help with erosion control and keep living roots in the soil for a longer period of time," said Olson. "Radishes or turnips might be another options to help break soil compaction and to help with the soil biology."

Olson says once Cooper gets comfortable managing cover crops on the 30-acre portion of his farm, she recommends seeding all 122 acres to a winter hardy cover crop, such as cereal rye, or to a cover crop mix that will provide many benefits.

Cooper conventionally tilled his soils until 2004, a year in which heavy rains caused visibly disturbing silt fans at the bottom of Cooper's 12 percent slopes. That's when he decided to make a change. "I had been watching other farmers no-till with good success," said Cooper, whose FFA chapter no-till test plots always performed well. "It was like, 'I've got to do something different.'"

The switch to no-till has been a complete success for Cooper. He mentioned the following benefits as some of the most noticeable:

» **Erosion control.** First and foremost, Cooper felt

he needed to reduce the amount of soil leaving his fields. When he tilled the soil, he experienced sheet and rill erosion, where soil peels away in layers, eventually forming visible rills when the soil washes away. Now that his soil is covered year-round, there is far less erosion.

- » **Healthier soil.** Cooper says less soil disturbance is reinvigorating his soils, and he is seeing more biological activity with more earthworms and other beneficial insects.
- » **Improved crop yields.** Sequestering carbon and increasing organic matter in the soil is helping to improve corn and soybean yields. "My yields have been good, if not better with no-till," said Cooper. "I yielded about 220 bushels per acre with corn this year."
- » **Money savings.** Less time in the field tilling means saving money on fuel. Healthier soil also means fewer inputs and better yields.
- » **More time for school activities.** Although Cooper says he enjoys farming, he also has a passion for sharing his knowledge with his students. It's not uncommon to see Cooper's ag students on his land to witness planting and harvesting activities. "My ag program has benefitted greatly from the conservation work out here," he said.

Cooper added that eliminating tillage activities has made a big difference in his life. He runs the school's FFA program; his ag class enrollment has increased; he started the Iowa High School Renewable Energy Conference; and he recently spearheaded a \$1 million facilities expansion of Nevada High School.

Rewarded for Conservation Efforts

Although Cooper began no-tilling just a decade ago, terraces and grassed waterways provided some erosion protection for years. He also has many trees to help with wind erosion, and to attract wildlife.

Cooper says he plants soybeans between cornstalk rows. "If it's too wet or cold in the spring, the stalks act like a 'wick' taking excess moisture out or bringing heat into the ground," he said. "In the fall, any standing stalks are cut off easily with a combine sickle and go out the combine like confetti."



Kevin Cooper talks to NRCS Soil Conservationist Hillary Olson, a former student, about potential locations on his farm to add cover crops next year.

Cooper's conservation ethic and smart agronomic decisions over the past decade allowed him to qualify for a Conservation Stewardship Program (CSP) contract through USDA's Natural Resources Conservation Service (NRCS) in 2017. CSP helps farmers build on existing conservation efforts by providing an annual payment to maintain current levels of conservation and implement new conservation practices to help take farm operations to another level.

Through CSP, Cooper seeded a cover crop for the first time in 2017. He hired a custom applicator through Hagie Manufacturing Company to interseed oats into 30 acres of soybeans in August. Many farmers wait to plant cover crops into soybean ground until after harvest, but with the Hagie highboy interseeder farmers can seed earlier, allowing for earlier cover crop establishment.

"I was really impressed with the Hagie cover crop interseeder," said Cooper. "I even brought some students out here to watch the seeding."

For more information about soil health, conservation planning and programs, please visit your local NRCS office or go to www.ia.nrcs.usa.gov.