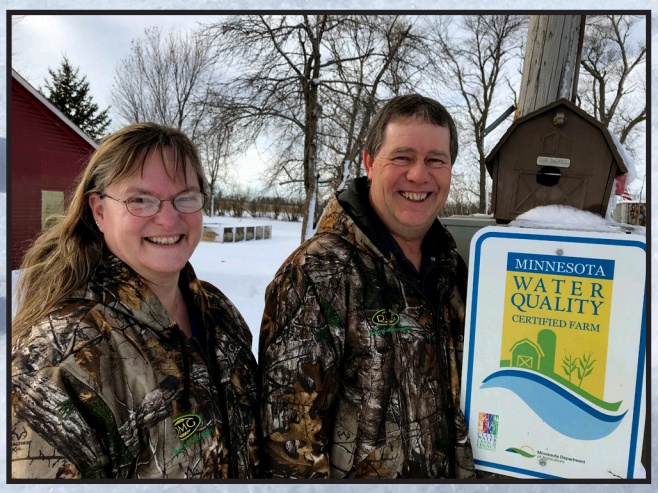
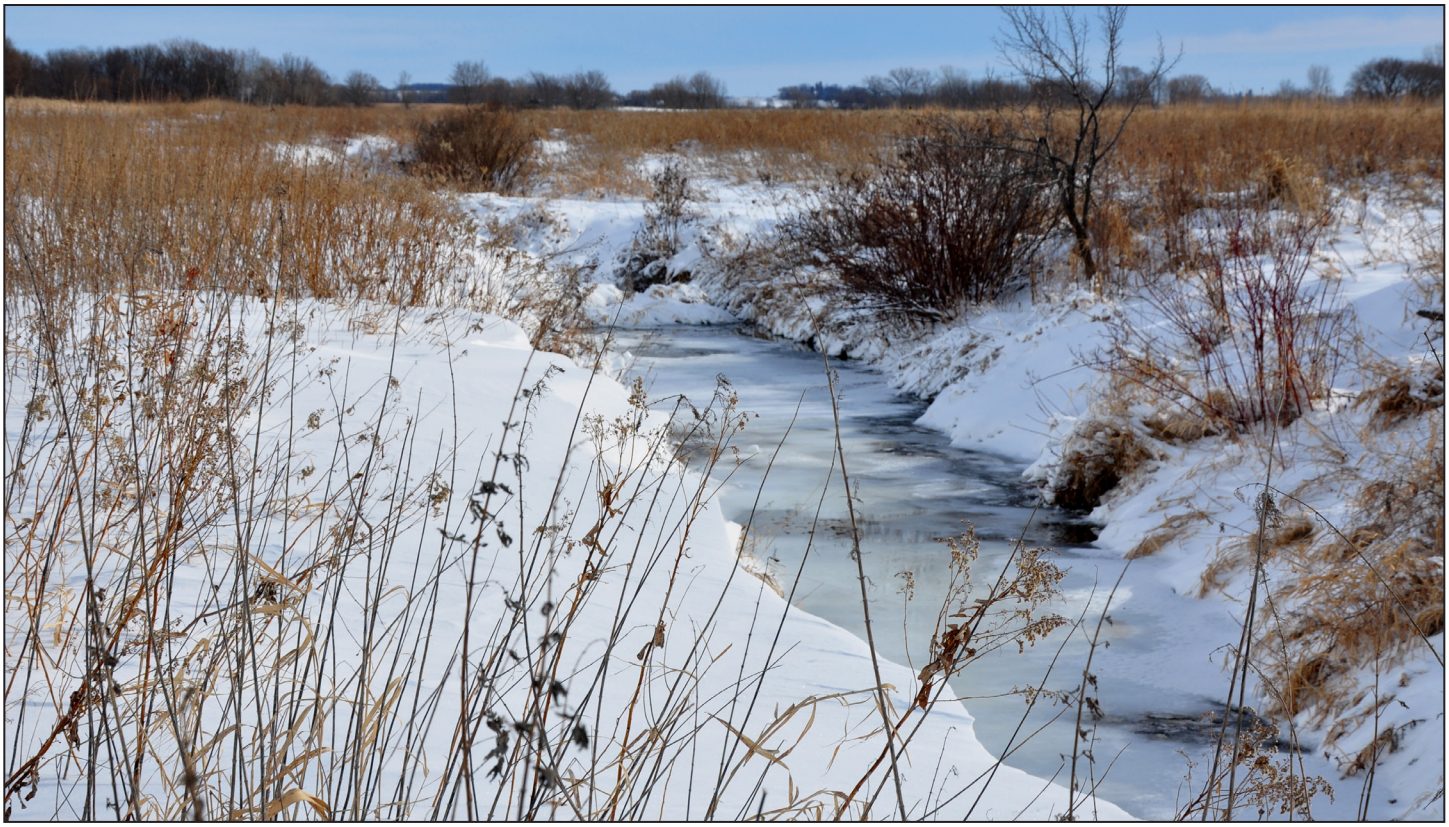
MINNESOTA AGRICULTURAL WATER QUALITY CERTIFICATION PROGRAM

Brenda and Alan Kaiser raise no-till corn and soybeans plus hogs and beef cattle just outside Belgrade. Theirs is among 64 farms in Stearns County enrolled in the Minnesota Agricultural Water Quality Certification Program. **Photo Credits:** Ann Wessel



Fine-tuning conservation

NRCS assistance makes it easier for Minnesota agricultural producers to attain water quality certification. A Stearns County no-till operation intensified irrigation, pest and nutrient management; tried cover crops.

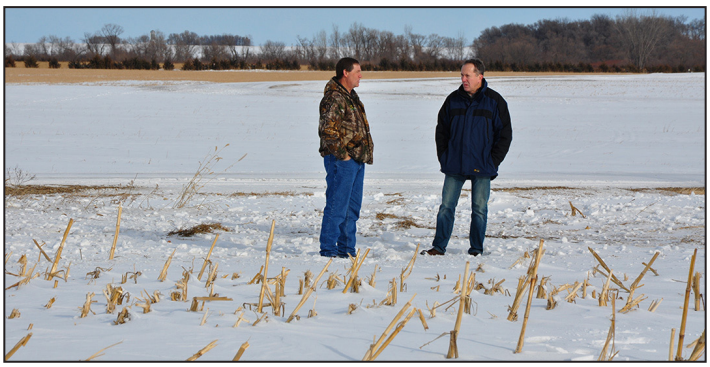


BELGRADE — With a well-established no-till practice, buffered ditches, plus managed irrigation and fertilizer rates, Alan and Brenda Kaiser's Stearns County farm easily qualified for the Minnesota Agricultural Water Quality Certification Program.

A three-species, 125-acre cover crop trial made possible through an Environmental Quality Incentives Program (EQIP) Regional Conservation Partnership Program award bolstered the crop and livestock operation's already high scores and augmented water-quality improvements.

The Kaisers received their 10-year certification in September 2016.

MAWQCP benefits are twofold: recognition and 10 years of regulatory certainty. As long as a farm meets the standards described in its original plan, it won't be required to immediately comply with any new regulations for the next 10 years.



Top: *Native plants buffer a ditch on the Kaisers' farm. Having buffers plus a no-till practice in place greatly improved the farm's score when it was being considered for the MAWQCP. Next, the Kaisers intend to improve pollinator habitat.* **Left:** *Alan Kaiser discusses possible next steps with Mark Lefebvre, Stearns County Soil & Water Conservation District nutrient management specialist, in January.*

> **"There are more farmers probably doing it than the normal consumer realizes. We're already doing it."**
>
> — Alan Kaiser,
> on agricultural practices benefitting water quality

Alan Kaiser described his primary motivation:

"The recognition and trying to be proactive, to say farmers are doing the best they can. The regulatory certainty, I feel, is almost secondary."

The Kaisers grow 560 acres of corn and soybeans, run a 750-hog-capacity finishing operation, and raise 20 head of beef cattle in Crow River Township.

Over the past 11 years, Alan and Brenda converted all but 60 of their tillable acres to no-till. They started with beans and a neighbor's machinery.

Since 2009, they've used EQIP financial and technical assistance to switch to no-till corn, convert to a low-pressure irrigation system, manage irrigation water and nutrient application, try prescribed grazing, plus build an animal waste storage facility and an animal mortality facility.

Through the NRCS' Conservation Stewardship Program, the Kaisers fine-tuned nutrient and pest management, and improved wildlife and pollinator habitat. They're

in the process of reseeding one paddock a year for rotational grazing.

NRCS programs reduce the financial risk of trying a new practice. After initial fluctuations — including a dip in corn yield for a couple of years — the Kaisers now figure labor and fuel costs offset decreased corn yields. (Soybean yields remained comparable to neighbors'.) They spend less time in the field. They save on machinery wear-and-tear.

The biggest gains are more difficult to quantify.

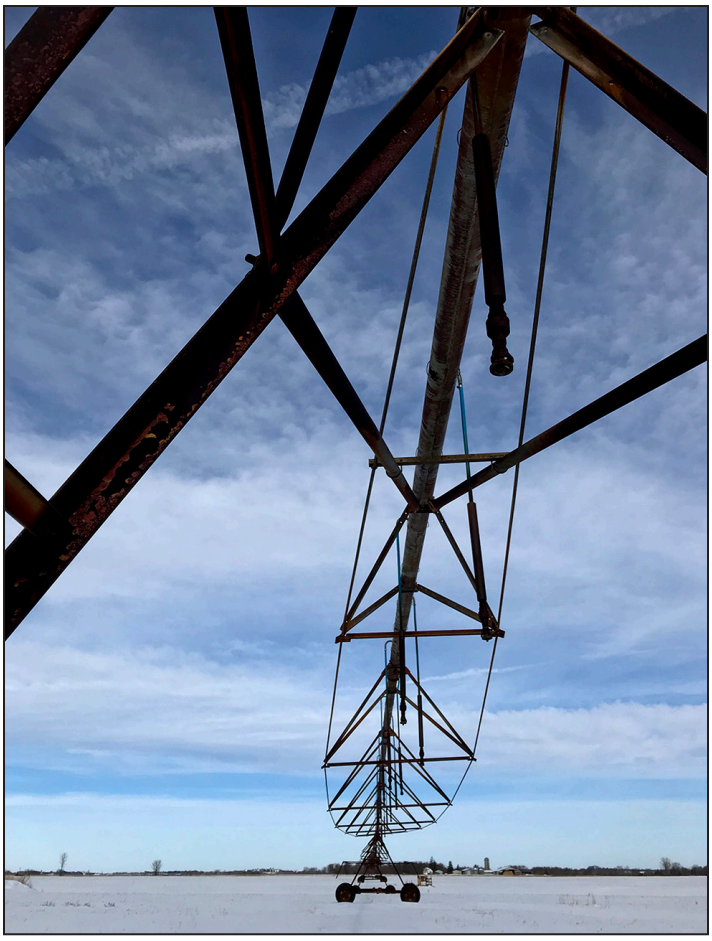
Alan elaborated:

"I think just the health of the soil. That's hard to prove or hard to put a worth on. The easiest way to see it is just go out there and dig a shovelful and look at all the (mycorrhizal fungi) in the soil. Otherwise the ground that's tilled all the time, it's just dirt."

Mark Lefebvre, the Stearns County Soil & Water Conservation District nutrient management specialist who's worked with the Kaisers, agreed.

"The soil structure is better. It's more friable. It's in cubes, almost. If we could put a dollar value on that, it would be easy for us to sell it to everybody, and everybody would be doing it," Lefebvre said.

Changing tillage practices can be the biggest obstacle to farmers seeking water quality certification. Retrofitting equipment is expensive. Buying equipment is expensive. (For example, strip-till machinery can cost $100,000.) Rental options are scarce because demand is still building.



Brenda and Alan Kaiser installed dropdown nozzle conversion kits on their irrigation system. The Kaisers closely monitor water use, fine-tuning their system with assistance from the Conservation Stewardship Program. Assistance from the Environmental Quality Incentives Program allowed for the initial low-pressure conversion and irrigation water management.

Lefebvre

Dairy and turkey farmers in particular were taught to incorporate manure to boost nitrogen levels and bury odors.

"I think it's tradition. They cannot see past tradition," Lefebvre said.

The Kaisers grew up with conservation and alternative practices.

He hunted pheasants and deer on land his father had enrolled in the Conservation Reserve Program. Her father used a ridge-till system. Years after they married and bought a place between their parents' neighboring farms, the Kaisers had the opportunity to try no-till seeding 40 acres of soybeans. The next year, they tried 160 acres. The farmer who owned the drill decided it didn't fit his much

At a Glance

PROGRAM OBJECTIVE: Farmers and agricultural landowners voluntarily implement conservation practices that protect water. Certification conveys that producers are employing conservation practices to protect Minnesota's lakes, rivers and streams. "There are more farmers probably doing it than the normal consumer realizes," Alan Kaiser said.

CERTIFICATIONS: Sixty-four farms in Stearns County and 699 in Minnesota were certified through the Minnesota Agricultural Water Quality Certification Program as of mid-February.

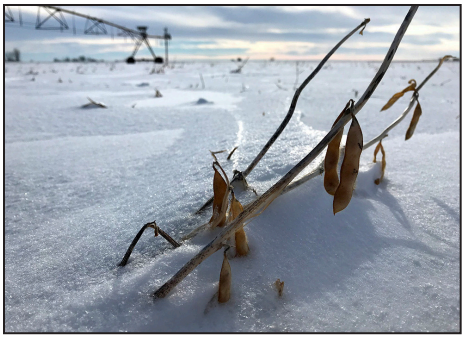
GETTING STARTED: Contact your local soil and water conservation district office.

MAINTAINING CERTIFICATION: At least one audit is scheduled within the 10-year certification period.

ADVICE: "The biggest thing, just don't put your whole farm in it. Because if you do that one year and it was not a good year, now you're done. Just take 40 acres and start that way," Alan Kaiser said.

DETAILS: https://bit.ly/2TAHNtA

LEGACY AMENDMENT: The Clean Water, Land and Legacy Amendment provides the Minnesota Department of Agriculture with part of the funding to administer MAWQCP.



Left: *Alan and Brenda Kaiser converted all but about 60 of their 560 tillable acres of corn and soybeans to a no-till operation. They didn't notice much change in the bean yield.* **Middle:** *Prescribed grazing is among the practices the Kaisers have been able to try since 2009 with EQIP financial and technical assistance.* (Courtesy Photo) **Right:** *The Kaisers have the capacity for 750 hogs in their finishing operation. They moved to their Stearns County farm in 1980, renting at first. In 1986, they converted from a dairy to a hog operation, which they rebuilt after a lightning fire in 1992.*

larger operation, and sold it to them.

"The Kaisers had a lot of conservation practices already existing on their farm when we did the water quality certification assessment," Lefebvre said.

The RCPP funds allowed the Kaisers to try cover crops in 2017. That September, they aerial-seeded cereal rye, radishes and annual rye grass into beans and corn — intending to graze cattle. The beans shaded the cover crop. In the corn, cover-crop germination rates were low. The Kaisers decided to stick to other methods, using the equipment they own.

To seed corn into beans, Alan had modified his John Deere 7000 corn planter, adding trash sweepers in the front and changing the down-pressure springs.

Bean yields haven't varied from others' under irrigation in the region — ranging from 45 to 60 bushels per acre.

Corn yields didn't change much the first year, and then took a 20- to 30-bushel hit the next two or three years before rebounding. Alan explained the temporary dip:

"What you're doing when you till, you're turning those cornstalks and you're turning that stuff in the ground and it's turning over to your nutrients quicker. Where you're laying that on top of the ground … it takes extra time to (turn) that into nutrients."

The Kaisers figured the fuel savings alone balanced a 15- to 20-bushel-per-acre drop in yield. This year, corn yields averaged 200 bushels per acre in the region; the Kaisers averaged 185 bushels per acre.

"There's a lot of advantages to me … that you can't put in dollar signs. Like erosion, for one thing. If you look over our last few years, we don't get a lot of snow cover. You go down the ditches and they're black. We get a snowstorm here, and you drive from town and the ditches will all be black till you get to mine. And then it'll be nice and white, and then it'll be black again," Alan said.

Some no-till adaptations required patience.

"When everybody else is out planting, you want to be out there, too. You wait a week to 10 days, is where I'm at. You really go by soil temperature. I'm out there checking that way more than I ever did before," Alan said. "I can have everything planted in four days on my 275 (acres of corn). If you get four days in a row, I'm done."

Before, springtime corn fieldwork could take two weeks.

Last year, Kaiser planted corn 18 days later than the neighbor. The weather warmed up. Kaiser's crop was up within four days — only two days later than the neighbor's.

Waiting for weeds to reach optimal height before spraying requires patience, too.

"Your bean field looks all weeds and then when they spray it, you see there's beans in there," Brenda said.

NRCS staff verifies that nutrient management practices follow University of Minnesota guidelines. The Kaisers worked on pest and nutrient management directly with a technical service provider from the local co-op.

Because University of Minnesota guidelines indicate about 40 percent more nitrogen is lost without incorporation, Alan does a small amount of tillage. On about 50 acres annually, he incorporates manure by lightly disking last year's beans to prepare for corn planting. That step prevents nitrogen volatilization and increases the value of the manure. The conservation tillage practice — leaving at least 30 percent of the ground covered by residue — allows for flexibility where manure is applied.

Last year, corn yielded 30 to 40 bushels per acre more where manure was applied. Bean yields have increased where manure was applied two years earlier.

A CSP contract will allow the Kaisers to continue the fine-tuning that began with EQIP

"To get the farmer to continue the practice … after the EQIP contract is expired and they're done getting financial assistance, the farmer, I think, really has to believe in the fact that he wants to continue it and it's the right thing to do — both for his soil and for the environment, and for his farming operation," Lefebvre said.

"They really have to believe in the practice for it to be successful."

CLEAN WATER LAND & LEGACY AMENDMENT