



Rock County easements target nitrate reduction

Native grasses replacing row crops have shown the most dramatic results in efforts by Rock SWCD, Rock County, Rock County Rural Water, BWSR, state health and ag departments

“ We went through tons of different entities to try to get to where we are now, so we’re really fortunate to partner with BWSR.

— Ryan Holtz,
Rock County Rural Water

LUVERNE — Three recent easements within the wellhead protection area that supplies 75% of Rock County with drinking water are expected to result in the biggest drop in nitrate levels in decades.

At 294 acres, John and David Piepgras’ Minnesota Conservation Reserve Enhancement Program (MN CREP) enrollment accounts for more than 10% of the highly vulnerable wellhead protection area bordering the Rock River. It was seeded into

permanent cover this spring; final agreements are in the works. Two more landowners each enrolled 40 acres in Reinvest in Minnesota (RIM) wellhead easements. That land will be seeded this fall.

The total acreage — and location adjacent to two of the highest-producing wells — is significant.

“This is where most of our water that we produce comes from. We believe it is a huge impact,” said Ryan Holtz, Rock County Rural Water manager/director.

Permanent native grass cover is the key.

“Planting perennial vegetation

The 294 acres that John and David Piepgras enrolled in MN CREP are within the wellhead protection area that supplies most of Rock County with drinking water. Contributed Photos



The voluntary Minnesota Conservation Reserve Enhancement Program targets environmentally sensitive land in 54 counties in southwestern Minnesota. Landowners enroll in the federally funded Conservation Reserve Program (CRP), administered by the USDA’s Farm Service Agency, for 14-15 years. They simultaneously enroll that land in a state-funded, BWSR-administered perpetual conservation easement. The land remains in private ownership. It is not open to public hunting.



was what really dropped the numbers in the wells,” Arlyn Gehrke, Rock Soil & Water Conservation District engineering technician, said of past work — including different types of easements and changes in farming practices.

The first conservation easements within the wellhead protection area were recorded in 1994. Twenty years later, the Minnesota Department of Agriculture and the Minnesota Department of Health offered cash incentives for reduced nitrogen application. Farmers successfully changed the way they applied nitrogen fertilizer. They planted cover crops. Collectively, it made a difference.

Replacing row crops with native grasses remains the fastest and most effective way to decrease nitrate levels.

The Piepgras brothers’ first easement, a 40-acre CREP enrollment seeded with native grasses in 2006, cut Well 14’s

The Piepgrases and their families still hunt on the land, usually with a crew of about a dozen who range from a teenage girl to men in their 80s who grew up in the shadow of the Depression when pheasant hunting was important for food. David Piepgras, fifth from left, and John Piepgras, kneeling at front right (with one hand on the dog), posed during a recent year’s hunt. John Piepgras said hunting and being involved with the renter and his family on the farm reawakened a connection with the land. “It’s how it looks. It’s how it feels. It’s how it smells. There’s a culture that goes with a place like Rock County. It’s getting back into the agriculture. It’s the people.”

nitrate levels by about one-third — from about 11 ppm to 7 ppm. After their second easement, a 20-acre RIM enrollment in 2010, testing showed Well 14’s nitrate levels between 4 ppm and 5 ppm — roughly half of the original levels. Over the course of a year, nitrate levels now average 6 ppm to 8 ppm.

“Ever since, we’ve been working on getting permanent easements on the rest of these wells,” said Doug Bos, assistant director of Rock County SWCD/Land Management.



Gehrke



Bos

The coarse and porous soils cause any nitrogen that does leach to reach the aquifer quickly.

Taking the land out of production meant nitrogen was no longer being applied. The grasses buffered the well from runoff.

Gehrke said he expected nitrate levels to drop within two to three years as a result of the most recent easements.

“We need to make sure that these wells stay at the level they’re at or drop in nitrates because our demand is always going up,” Holtz said.

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For my brother and me and the farmer who’s on (the land), the environmental considerations as well as realities of markets and farming and what’s happened in recent years in terms of flooding — it just made sense.

— David Piepgras, on enrolling land within the wellhead protection area into a MN CREP easement

Some of that demand comes from younger farmers attempting to get their start in farming by raising livestock. Bos said their first step is to see if RCRW can supply enough water.

“The economic impact for Rock County Rural Water to our county — I don’t want to say it’s unmeasurable, but we have difficulty finding good quality water for our young farmers,” Bos said.

The U.S. Environmental Protection Agency’s standard for nitrate in drinking water is 10 parts per million. Nitrate levels are more than twice that in some of the 11 wells serving Rock County Rural Water’s 3,000 customers. Levels in individual wells range from 1 ppm to 25 ppm.

MDH has linked nitrates to blue baby syndrome.

Last year, RCRW supplied its customers with about 300 million gallons of water. The three wells capable of producing half of the water can’t be used because their nitrate levels are too high. RCRW mixes water from the wells to keep nitrates at acceptable levels. It also purchases water from the South Dakota-based Lewis & Clark Regional Water System.

“It was a bona fide opportunity to contribute something meaningful to wildlife and soil and water protection,” John Piepgras, 82, said of the 2006 enrollment.

He and his brother David followed their 2010 RIM easement with the most recent, recorded in 2018, which put all but 80 acres of the farm into easements.

“Clearly, our No. 1 objective was to participate in a meaningful program of conservation,” John Piepgras said. He ticked off the



Wellhead Protection Details

WATER SOURCES: Rock County Rural Water serves about 75% of Rock County, including the towns of Beaver Creek, Hills, Kanaranzi, Magnolia and Steen. It pumps water from 11 shallow wells to 800 connections serving about 3,000 people. Last year, RCRW produced about 300 million gallons. It mixes water from its wells to ensure nitrate levels remain below the limit of

10 parts per million. That Minnesota Department of Health risk limit is based on the concentration deemed safe to consume daily over a lifetime.

PROTECTION AREA: The Minnesota Department of Health mapped the 4,500-acre drinking water supply management area. It borders the Rock River, **above**, and includes a 2,706-acre highly vulnerable wellhead protection area.

benefits: an opportunity to improve the water supply, prevent soil erosion, increase wildlife diversity and preserve hunting land.

John Piepgras, whose career was in engineering and business, lives in the Chicago suburbs. David Piepgras, 80, a consulting neurosurgeon at

Mayo Clinic, lives in Rochester.

The Piepgrases grew up in Luverne. They inherited the land from their father, Elmer, whose boss at the grain elevator left him a farm in the 1980s. The longtime renter, who with his family has lived on and farmed the land since the Piepgrases acquired

it, suggested the initial easement, and will continue to live onsite and manage the property.

David Piepgras said he was concerned about nitrates, especially after seeing aquifer maps.

Over time, changing farming practices and intensive row-cropping had exacerbated nitrogen-carrying runoff. A couple of years of unusually heavy rains, low yields caused by flooding, and low commodity prices prompted the brothers to take stock.

“John and I started to get the message that maybe we could do something better with that land than planting corn and beans on it,” David Piepgras said.

The easement programs compensate farmers for land taken out of production.

“Without RIM and CREP we would not be able to offer adequate financial dollars,” Bos said. We looked at a couple other easement options and there wasn’t enough dollars per acre to make it attractive.”

In the case of the two 40-acre easements, RCRW agreed to buy the land after it was enrolled.

Forty-two people own land within the highly vulnerable wellhead protection area. Ten easements totaling 667 acres, made possible by nearly \$2.5 million in state funds, have been enrolled to date. The three most recent and pending easements are made possible by a combined total of \$4.4 million in state and federal funds.

“Our goal is (to enroll) enough area in permanent grass to provide clean water,” Bos said.



The Minnesota Board of Water and Soil Resources’ mission is to improve and protect the state’s water and soil resources by working in partnership with local organizations and private landowners.
Website: www.bwsr.state.mn.us