

Easements protect drinking water



Native grasses replacing row crops have shown the most dramatic results in wellhead protection efforts by Rock SWCD, Rock County, Rock County Rural Water and state agencies to reduce nitrate levels



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

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 Piegras' 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 were in the works this fall. Two more landowners each enrolled 40 acres in Reinvest in Minnesota (RIM) wellhead easements. That land was set to 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 (RCRW) manager/director.

Permanent native grass cover is the key.

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

The first conservation easements

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.



The Piepgrases and their families still hunt on the land, usually with a crew of about a dozen. 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.

Wellhead Details

WATER SOURCES: RCRW serves about 75% of Rock County. 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 — an MDH risk limit is based on the concentration deemed safe to consume daily over a lifetime.

PROTECTION AREA: The 4,500-acre drinking water supply management area borders the Rock River, and includes a 2,706-acre highly vulnerable wellhead protection area.

within the wellhead protection area were recorded in 1994. Twenty years later, the Minnesota Department of Agriculture and the Minnesota Department of Health (MDH) 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, work in the wellhead protection area showed.

The Piepgras brothers' first easement, a 40-acre CREP enrollment seeded with native grasses in 2006, cut Well 14's 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. Over the course of a year, nitrate levels now average 6 ppm to 8 ppm.

"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.

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.

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 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



Gehrke



Bos

& 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 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.

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 easements compensate farmers for land taken out of production.

"Without RIM and CREP we would not be able to offer adequate financial dollars," Bos said.

Forty-two people own land in 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.