



# water

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## INSIDE



**Grower turns to tank technology for irrigation**

Page 2



**Dairy farmers tackle water quality challenges**

Page 4



**Animal feeding operations get help keeping creeks clean**

Page 5



**Excess electricity aids aquifer recharge**

Page 6

# Dairy farmers tackle water quality challenges

By STEVE WERBLOW  
For the Capital Press

Using an innovative online tool to schedule late winter and early spring manure applications, Terry and Troy Lenssen of Lenssen Dairy in Lynden, Wash., can give soil microbes a chance to convert slurry nutrients into plant-available forms before spring growth starts in earnest, while also protecting local waterways from runoff of nutrients and bacteria.

The Application Risk Management tool — known by the acronym ARM — developed by the Whatcom Conservation District uses a complex formula to analyze local weather forecasts, soil type, crop



Photos by Steve Werblow/For the Capital Press  
Terry Lenssen of Lynden, Wash., uses cover crops, forages, corn and careful planning to utilize nutrients from his cows' manure while protecting local waterways from runoff.

density, water table depth and other variables to determine whether the risks of runoff or leaching are low enough to

permit a manure application. ARM protects more than the creek and the commercial shellfish beds downstream — it pro-



Whatcom County dairy producers must use several tools to harvest the benefits of manure while protecting local waterways and groundwater from excess nutrients.

protects the Lenssens' bottom line. "We got better yields on grass by at least 1.5 tons per acre on fields we were going out on earlier," said Terry Lenssen.

To qualify to use ARM, the Lenssens worked with district staff to conduct a risk analysis, update their state-mandated nutrient management plan, and establish a monitoring program with sampling wells at one-, two- and three-foot depths. The monitoring wells indicated that using the tool helped the brothers reduce nitrate leaching, says Lenssen.

The Lenssens' 260 acres of forage crops utilize the nutri-

tions of manure per year. Heavy growth and mild winter weather generally yield five cuttings per year, cycling nutrients back to their 710 cows.

The brothers also practice "relay cropping." As they cultivate 270 acres of corn ground in early summer, they blow on 30 to 50 pounds of grass seed per acre. After the corn is harvested, a lush cover crop is already in place to protect soil from erosion, capture nutrients in the soil, and filter sediment from stormwater. The brothers apply manure, harvest the grass for plant in the spring, then plant corn again.

"It's usually winter Italian

ryegrass or cereal rye," said Lenssen. "They grow well over the winter, take manure in the spring, and they're good feed."

The Lenssens are not alone in their concern about water quality issues, said Steve Paulsen of the U.S. Environmental Protection Agency's National Health and Environmental Effects Research Laboratory in Corvallis, Ore. Paulsen works on EPA's National Aquatic Resource Survey — known as NARS — which assesses the quality of U.S. streams, rivers, lakes, wetlands and coastal waters.

Paulsen noted that the 2016 NARS report shows 45 percent of America's rivers and streams contain excess nutrients; in the Pacific Northwest, 31 percent of the rivers and streams are high in phosphorous and just 12 percent have excess nitrogen. Meanwhile, approximately 23 percent of the nation's rivers and streams — including 8 percent in the West — exceed thresholds for enterococci, bacteria that include E. coli.

"It's exciting to see that farmers like the Lenssens are finding protection of water quality is a big plus for their operations," Paulsen said. "As more and more farmers discover this and apply innovative strategies, we expect to see the pollution numbers found in the national surveys improve."

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W17-4/818