Updating groundwater rules: Balancing modern farming and water quality concerns

by Steve White
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JUNE 15, 2023: Lon Bohn raises corn between Gibbon and Ravenna and serves on the Central Platte Natural Resources District Board (Photo Credit: NTV News)

GIBBON, Neb. — “Antiquated” rules for protecting groundwater are getting an update. The changes may impact farmers and reflect efforts to more carefully control nitrogen fertilizer.

He makes his living in the dirt, but Lon Bohn lives in the space age. Satellite data tells him when to fertilize, a far cry from farmers of a generation ago.

“Nitrogen was cheap, it was easy to apply, and we saw some results. We thought more was better,” he said.

But sampling of water across Nebraska finds many wells high in nitrates, linked to health problems like cancer. It’s a problem that didn’t develop overnight, and turning it around takes times.

“Because of the way natural systems work, it takes years, maybe decades, once you realize you have a problem to make a change,” Bohn said.

Water technicians at the Central Platte Natural Resources District say rules written in 1985 need to be modernized.

“We need to continually do a little better both on NRD regulation side and producer side,” said Courtney Widup of the CPNRD.

The updated water plan approved by the CPNRD makes a few key changes. If groundwater levels are in decline, it could trigger more regulations. They’re also concerned about water

quality as they lower the threshold where nitrate levels are high enough to bring new restrictions.

“In areas we haven't seen improvement, not improving at rates we'd like to see, we need to step it up and increase those triggers,” Widup said.

Bohn says farmers have economic incentives to use less fertilizer as costs have skyrocketed. He’s also adopted technology that tells him when to irrigate and fertilize.

“Now we have more precise ways of measuring that, and we can keep water in the top two feet because that's where the fertilizer is,” he said. “We don't want to flush it down.”

As an elected member of the board regulating groundwater along the central Platte, he said the new plan better reflects science while also anticipating new advances.

“We've changed, and I'm glad the plan has changed,” he said.

Bohn says farmers have taken steps to use less water and nitrogen but says there’s work to do, and the plan provides a framework to make sure things improve.

“We're headed there. We're going to get there,” he said.

Widup said the CPNRD board has adopted an updated plan that takes effect July 1, 2023. The board will then review rules and regulations at a later time.

Substantial changes include:

1) Water Quantity Phase I trigger will change to a range of 0-25% of the Maximum Acceptable Decline (MAD). Phase II would apply to any area with declines greater than 25% of the MAD. Phase III would be changed to 50% decline in water levels relative to the MADs. If water levels in a given GWMA continued to decline and reached 75% of the MAD, the GWMA would be at a Phase IV level. A Phase V designation would be implemented if that MAD is 100% reached or exceeded.

2) The preferred option for groundwater quantity management controls related to each phase is measuring devices and a limit on the volume of groundwater pumped. Phase I has no additional management requirements. Phase II remains as is with limitations on transfers and supplemental wells. When the Phase III trigger is reached, measurement devices will be required on all active irrigation wells in the GWMA, and the owner or

operator of every active well will be required to report annual water usage to the CPNRD. At the Phase IV trigger, CPNRD would allocate groundwater use to prevent the GWMA from reaching the MAD. If the initial allocation is insufficient to prevent reaching the MAD, and that MAD is reached or exceeded, this would trigger a Phase V designation, requiring a reduction of the allocation.

3) Ground Water Management Areas 7 and 9 were subdivided due to differences in irrigation development that have occurred across those GWMAs.

4) Water Quality Phase III trigger will be lowered to 10.1 ppm nitrate. Phase I remains 0-7.5 ppm, Phase II will be 7.6 to 10.0 ppm and Phase III will be 10.1 ppm and above. Phase IV remains an area where nitrate concentrations are not decreasing.