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**Kansas water specialists using data to spur aquifer recovery**

Reducing water usage is important to replenishing the High Plains Aquifer

*By Maddy Rohr, K-State Research and Extension news service*

MANHATTAN, Kan. — Throughout Kansas and the Midwest, you don't have to look far to find folks who believe the future of the High Plains Aquifer -- also known as the Ogallala Aquifer -- is important to the region. Water is a popular topic of conversation among rural and urban residents.

Susan Metzger, director of the Kansas Center for Agricultural Resources and the Environment (KCARE) and the Kansas Water Institute, notes the Ogallala Aquifer is the largest freshwater aquifer in the world.

“It underlies eight states, including much of Kansas, so most of the water supply for western Kansas relies on the Ogallala High Plains Aquifer,” Metzger said. “It is a finite resource, receiving some recharge on an annual basis, but we use the water faster than it can be recharged.”

Metzger said conversations about the future of the aquifer often focus on changing individual actions because, as soon as 40 years from now, the aquifer could be 70% depleted. She adds that 40% of Kansas farm acres that depend on irrigation may no longer have sufficient supplies to sustain current pumping rates.

Brownie Wilson, the water data manager for the Kansas Geological Survey, says his organization measures about 1400 wells in the aquifer each January to understand where the baseline is.

“2022 was one of the driest years we had on record in Kansas,” Wilson said. “So what happens is that dry conditions lead to a longer pumping season in our state, and so the water levels didn't have a chance to recover in 2022.”

Wilson added that water recharge levels this year in northwest Kansas and west central Kansas have been close to zero, while southwest Kansas has averaged out and been higher than last year.
Earl Lewis, the chief engineer in the water resources division for the Kansas Department of Agriculture, calls Kansas “data rich” compared to neighboring states due to the state’s annual well measurements and continued research focused on the aquifer.

He said the aquifer’s water levels have stayed fairly consistent since the mid 1990s.

“Back in the mid 1980s, the state of Kansas required that every single (non-domestic) water rights holder submit an annual report to the Kansas Division of Water Resources,” Lewis said. “We got to the point of actually installing totalizing flow meters on almost every water right or every well across the state, and that’s really rare.”

Measuring water use is critical to understanding the aquifer, what is causing the issue and how to remedy challenges, Lewis added. He reminds those with water rights to check their meter reading before the next snow and fill out the state’s required report by March 1.

While the water issue in Kansas is large, Lewis said the basics of the issue are simple.

“We’re taking out more water than what Mother Nature puts back,” he said. “So, your only options are finding a new way to bring more water into the system, or reduce the use of that water.”

Lewis said bringing more water to the system would be very difficult to do, so the focus is on reducing overall water use.

Water conservation areas, local enhanced management areas and research have helped farmers reduce overall water use while still being successful in their business.

“Research institutions are helping us to identify those problems and find solutions that have helped these farmers stay productive while using less water,” Lewis said.

Metzger said the key to helping farmers remain successful includes a transition in technology. From flood irrigation to center pivot irrigation, and now even more efficient drop nozzles, technology has helped reduce water use.

“It really is putting all those parts and pieces of the puzzle together to find a solution,” Metzger said. “This involves using less water as well as figuring out the ways that a producer can do that successfully for their bottom line while still maintaining great food production.”

Metzger said researchers can identify the relationships between water usage and aquifer levels. She said all of that information helps officials determine a budget for localized areas.

“With the data set that we’ve been talking about, we’ve noticed that the aquifer is remarkably consistent in the way it recovers at the end of the pumping season,” Wilson added.

Wilson said the goal is to maintain farmers’ ability to feed the world and make a living at the same time.

“It’s not an easy task, but it’s something that is doable, and we’re seeing that on the ground in certain places,” Wilson said.
Metzger added the Kansas Department of Agriculture Division of Water Resources and the Kansas Water Institute have additional resources to learn more.

“This is an opportunity to own your future,” Metzger said, referring to farmers and Kansas residents. “What you do for the Kansas economy and for the world is so keenly important, and we're here to help you make those changes.”

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FOR PRINT PUBLICATIONS: Links used in this story
Kansas Center for Agricultural Resources and the Environment, https://www.kcare.k-state.edu

Kansas Water Institute, https://www.k-state.edu/next-gen/key-initiatives/interdisciplinary-institutes/water-institute

Kansas Department of Agriculture Division of Water Resources, https://agriculture.ks.gov/divisions-programs/dwr

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