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It's Not Too Late

Progressive farmers in western Kansas have reduced pumping to prolong the life of the aquifer.

by Sara Gugelmeyer

Irrigation has been a blessing for western Kansas. Technology has turned a relatively dry climate into an oasis of bountiful crops. But groundwater is a finite resource and vigorous pumping over the last 50 years has many farmers in a pinch. Research shows it's not too late to prolong the resource and it may not compromise profitability as much as one might think.

Going dry

"There's no denying we're running out of water," said Kansas State University Ag Economics Professor Bill Golden. He has spent the last 10 years collecting massive amounts of data from the Kansas Geological Survey (KGS) and western Kansas farmers that was used to create models on how water use and restrictions affect individual and rural economics.

"I make future predictions of the Ogallala Aquifer," Golden said. "I try to predict when the water will run out, what the crop impacts will be, what crops are going to be grown and then consider a scenario that reduces water use today."

Golden pointed out water is absolutely necessary to small rural communities in western Kansas. The major employers are the cattle industry, namely packing plants, feedyards and dairies. In such a dry climate, it takes irrigation to grow feed for those cattle.

"If we don't do something," Golden said, "western Kansas will go dry."

Jim Butler, chief of geohydrology at KGS, a research and service division of the University of Kansas, agrees with Golden. Although there are select areas in western Kansas where there is more water, generally speaking, in a few decades, things will start getting much worse. If western Kansas doesn't reduce pumping, it will not end well, Butler said.

Like so many in western Kansas, farmer and cattleman Brett Oelke of Hoxie is facing a water shortage.

"Just because of the decline of the Ogallala Aquifer, we have some wells that we can't pump as much as we'd like to, so we are managing those wells on a limited-water basis," Oelke said.

Focus on conservation

That's part of the reason Oelke was one of many farmers in Groundwater Management District (GMD) 4 who helped organize self-imposed restrictions in what's called the Sheridan 6 (named for its area designation on the GMD map) Local Enhanced Management Area (LEMA). In the Sheridan 6 LEMA, about 71 landowners are restricted to pumping 11" of water per acre, per year. The area covers 99 sections or roughly 63,360 acres in Sheridan County.

It was not a decision made on a whim. Oelke, who is on the advisory committee for the Sheridan 6 LEMA, explained it took about eight years from the first meeting to when the official restriction was placed by the state's chief engineer January 1, 2013.

For the most part, everyone in the area was in agreement something had to be done because of the declining aquifer. Some, like Oelke, already knew how to grow crops with less water, but other farmers had a bit of a learning curve.

"It takes a while for farmers to learn to use less water," Golden said. "You've got to have sympathy with production agriculture. They have what I call a recipe for growing corn. They know if they use this seed, this much fertilizer and this much water, they are going to grow a good crop year in and year out."

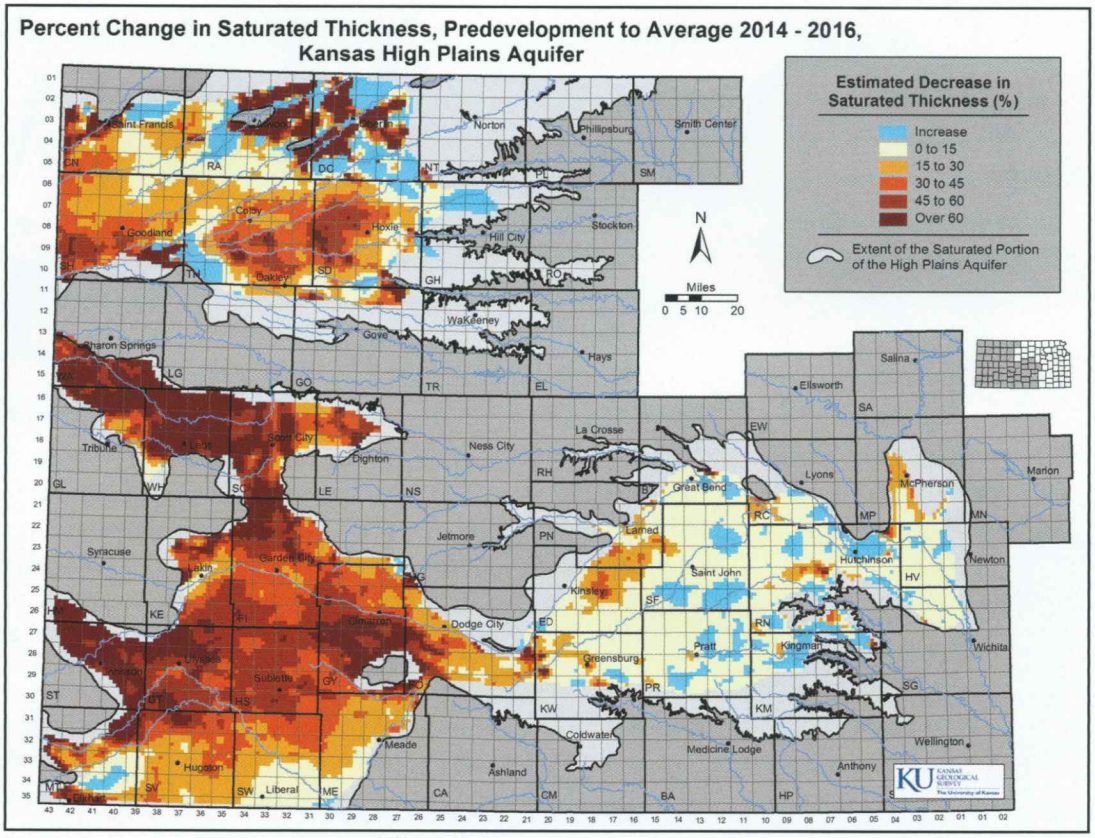
The Sheridan 6 LEMA calls for a 20% reduction in water use, the only one of its kind in the state. Oelke said they chose 20% because data from KGS showed that would extend the life of the aquifer in their area 20 years.

Hoxie Feedyard is in the Sheridan 6 LEMA. Because it's a big purchaser of crops and a major employer, the committee did not want to impose any restrictions on the yard's water use. The LEMA does include limitations based on gallons per head, but the levels are well above what the feedyard needs to function.

That mindset is a good example of what Golden pointed out about rural economies.

"Farming is very important to western Kansas," Golden said. "However, the feedlot and dairy industries are much more important to western Kansas' economies. We need to make sure we have the water there to support those."

Besides the Sheridan 6 LEMA, GMD 4 is working on a district-wide LEMA that may be approved to start January 1, 2018. The district-wide LEMA would impose restrictions based on aquifer conditions in each township and, while many will not be affected, some may have to reduce water use as much as 25% or more. GMD 4 District Manager Ray Luhman said some townships may have no restrictions and others could be in the 12.5" to 14.5" per acre, per year range.



The Kansas Geological Survey uses detailed groundwater quantity data to estimate the impact of pumping reductions.

Will it help?

Reducing water use now may sound like a great idea, but some question how much difference it actually will make in the long run.

"They are going to make a heck of a difference," Butler said. "It's a tricky business because we can't see the future, obviously, but assuming average climatic conditions, cutbacks of 20% will produce a significant reduction in the rate of decline in Northwest Kansas."

Some may also wonder if the water they're conserving now will just be pumped away by their neighbors. Golden admitted to some extent that's true, but Butler explained the aquifer isn't like a large body of water under the ground.

"Think about a pile of gravel, sand, silt and clay and the space in which water is moving is the spaces between these grains," Butler said. "Because of all the weight above it, those spaces are very small."

He described the aquifer as a sponge, but with smaller holes. Water cannot move very fast because of the small holes and friction, so for the groundwater to move a mile will take 10 to 30 years. Groundwater actually moves very slowly except right next to a pumping well.

"We always recommend that people think of groundwater like Las Vegas. 'What happens in Vegas stays in Vegas,'" Butler said. "The same thing is true with respect to groundwater. If you reduce pumping, you are helping yourself."

Less water, still profitable

The good news is that using less water isn't affecting profitability, at least in the Sheridan 6 LEMA. Golden compiles economic data from farmers within the LEMA and right outside of it and, in the first three years, there was no difference in the profitability of those farmers with restricted water use and those without. These are preliminary numbers and did not include drought years, but the outlook is good. The first five years will be completed at the end of 2017, but the vote was to continue the 20% restriction for another five.

"We are having a difficult time finding any negative economic impacts from this water-use reduction," Golden said. "All we're finding is that farmers make better use of rainfall and adopt new technologies."

Oelke said he rotates corn with irrigated wheat, which takes less water. And the corn he's growing isn't planted as thick.

"Our management skills had to increase because of this LEMA," Oelke admitted. "We know we can't raise 275 bushel to the acre corn on 11" of water, but we can grow 230. We cut back on inputs - less seed, less fertilizer, less water - so even though we get less income on the backside, we make the same profit."

He pointed out some others in the LEMA were growing different crops, like winter triticale for silage and forage-type oats or sorghum sudan grass, to be swathed and baled.

It's true the water is running out, but that doesn't mean those in western Kansas have to just sit back and watch it happen.

Butler met in January with a group of progressive farmers in northwest Finney County who are considering reductions in water use. KGS is helping provide them with data to determine how many years various percentage reductions will add to the life of groundwater in that area.

"The hour is late in western Kansas. There's no question about it, but all is not lost," Butler said. "There's a lot we can do to extend the lifetime of the aquifer."

Oelke wishes this would have been done 10 years earlier. He hopes it's not too late to stop the decline.

"It takes time to do it right, but don't drag your feet so much that you miss the opportunity to save the aquifer," he suggested to others.

In addition to being a cattle and equine freelance writer from Lakin, Sara Gugelmeyer and her husband run their own cattle operations in Kansas and Texas.