

Kansas

2021 Ogallala Aquifer Virtual Summit White Paper

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2018 Summit-Inspired Activities

The state of Kansas continues to foster interstate communication to identify opportunities to collaborate with other states on water matters and to share best practices to conserve and extend the usable lifetime of the Ogallala aquifer. Prior to the 2018 Ogallala Summit, Kansas prioritized working primarily with neighboring states, Nebraska and Colorado, on Ogallala aquifer issues and concerns. The 2018 Ogallala Summit gave Kansas state officials the opportunity to share information with other Ogallala states and provided a fresh setting to enhance communication and collaboration with Nebraska and Colorado.

Sharing of Information with Neighboring States

The 2018 Ogallala Summit provided Kansas the opportunity to share the successes of policy tools, designed to allow local water users to develop and implement conservation plans, with other Ogallala states. One policy tool shared was the *local enhanced management areas*, or LEMAs, which are conservation plans developed by local groundwater management districts (GMDs). LEMAs are an effective tool in Kansas used to reduce groundwater withdrawals. A key to the successful implementation of these plans is the emphasis on local solutions, with state and GMD support. At the 2018 Summit, several states took interest in this specific policy tool and reached out to Kansas to learn more about the potential to use this kind of tool in their own states. For example, partners from Colorado asked representatives from GMD #4, the district that pioneered the state's first LEMA as well as the state's only district-wide LEMA, to share information about the conservation measure in northwest Kansas.

Enhancements in Communication and Collaboration

The 2018 Ogallala Summit sparked a renewed interest in understanding the issues and opportunities across the Ogallala states and expanding collaboration among

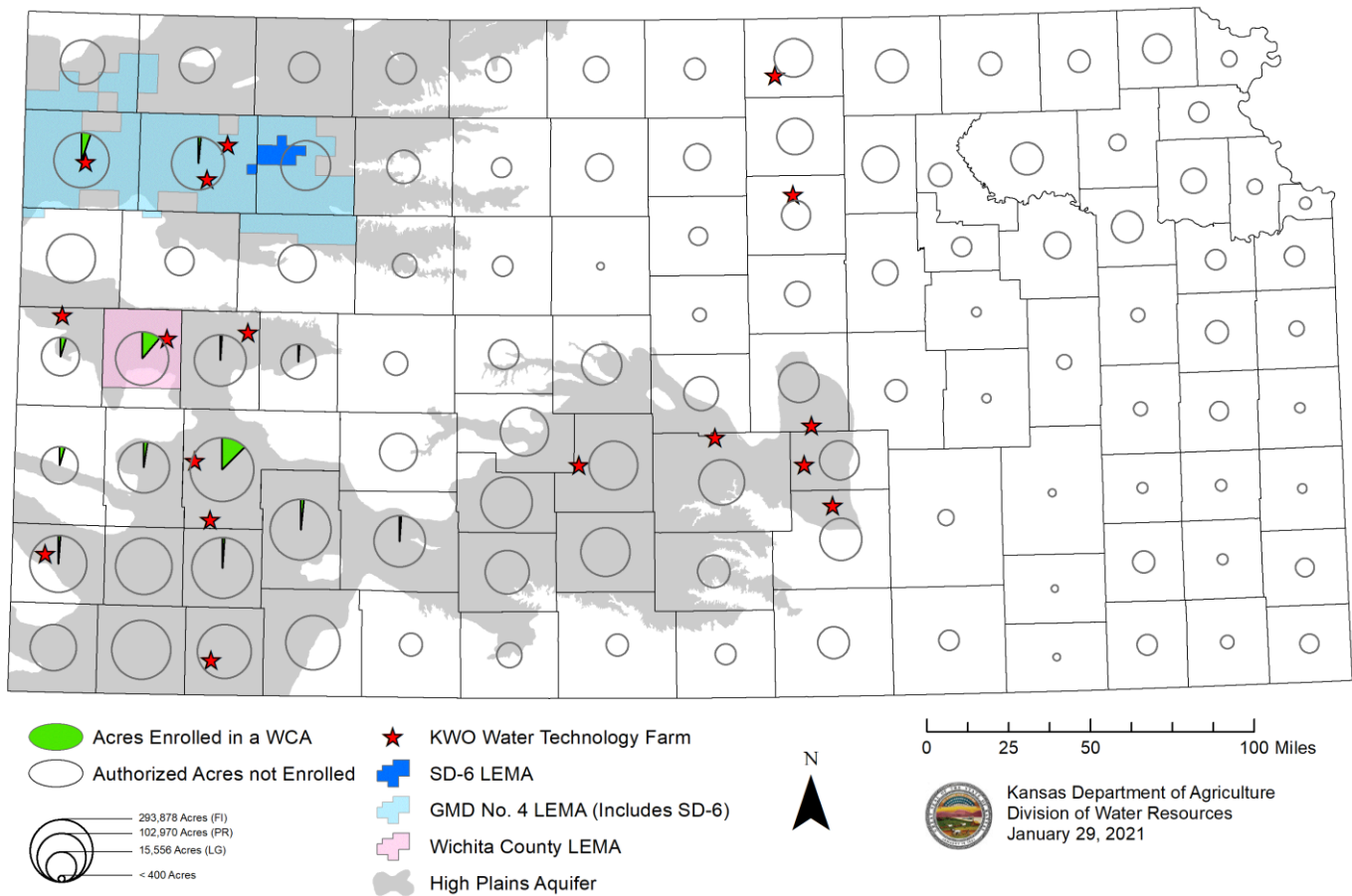
them. In fact, several of Kansas' western regional advisory committees indicated in their regional action plans the need for cross-state-boundary communication and collaboration to develop strategies to extend the life of the Ogallala aquifer.

After learning of Texas' irrigation education program, Kansas' state government agencies, federal agency offices, and several GMDs started to explore the possibility of creating and implementing a local or multi-state Master Irrigator program. As of February 2021, GMD #4 has begun work to develop a course curriculum, and several other entities are working to build consensus on a plan that fits their own local needs with the hope of implementing a Master Irrigator program soon.

Another program that sparked the interest of Summit attendees from Kansas, including members of GMD #1, was the Testing Ag Performance Solutions (TAPS) program developed by the University of Nebraska-Lincoln (UNL). After exploring the program and learning about the resources needed to administer a TAPS program in Kansas, GMD #1 elected to support the participation of their members in the Nebraska program rather than create a separate Kansas program. To date, at least three Kansas teams are enrolled in the UNL-TAPS program and K-State Research and Extension continues to collaborate with UNL and a new similar program in Oklahoma.

Additionally, the 2018 Ogallala Summit was also instrumental in the development of the Irrigation Innovation Consortium, a university and industry collaboration that aims to help accelerate the adoption of water and energy efficient irrigation technologies and practices through public-private partnerships. The Consortium is led by Colorado State University, Kansas State University, Texas A&M University, UNL, and Fresno State University.

WCAs, LEMAs and KWO Water Technology Farms



OTHER ACTIVITIES UNDERWAY

Expansion of Kansas Water Technology Farms

Water technology farms have become the flagship program for demonstration and education of irrigation technology improvement in Kansas. Since the pilot partnership's conception in 2018, the network of farms has expanded in number and breadth, from mainly western Kansas within the Ogallala-High Plains addressing water depletion concerns, to farms in eastern Kansas addressing water quality concerns. The Kansas Legislature dedicated \$75,000 to support participating farms, and the Kansas Water Office (KWO) assigned a full-time employee to coordinate water technology farm activities. In 2019, field days at the 15 water technology

farms attracted more than 360 local producers and stakeholders.

Development of the Finney County Sustainability Initiative

Located in western Kansas, Finney County includes the cities of Holcomb and Garden City as well as several unincorporated communities. The agriculture and food processing sectors in Finney County contribute a total direct economic output of approximately \$2.58 billion and support 4,776 jobs in the county (Kansas Department of Agriculture, 2018). Groundwater from the Ogallala aquifer is the primary source of water supporting the county's economy and communities, with

some additional water provided by the Arkansas River. In the past ten years, some areas of the county have seen declines of more than 70 feet in the water table impacting farmers' ability to irrigate (Kansas Geological Survey, 2017). Several local water right owners, including those reported to be the highest water users across the aquifer in Kansas, are seeking ways to reduce the rate of decline in the Ogallala aquifer in this region (Dillon, 2018).

In 2019, members of the Finney County community, including The Garden City Company, Wheatland Electric, Brookover Feedyard, Circle C Land and Cattle, Kansas Dairy Development, City of Garden City, and Tyson Foods, began meeting to identify opportunities for collective conservation action, with the vision to make the county a model for natural resource conservation and sustainable food production. These stakeholders have committed themselves to identifying opportunities to reduce water use and collectively commit to a sustainable and resilient Finney County. Increasing the access to and use of water management technology was identified as an immediate opportunity to improve water conservation.

Research on Declining Groundwater Quality

Like many other states, Kansas faces challenges regarding the quality of drinking water as a result of some farming and past industrial practices. While public water supplies are closely monitored and regulated, and communities are required to treat their water to federal drinking water standards, private well owners are required to do none of these things. The main contaminants found in drinking water are nitrates and chlorides and are found in pockets of private wells across the state of Kansas. In 2019 and 2020, the state paid notable attention to uranium contamination along the Upper Arkansas River alluvial valley in southwest Kansas. More than 15 years ago, data collected by the Kansas Geological Survey brought attention to the declining quality of groundwater in the Arkansas River region due to a combination of farming practices and naturally occurring uranium sources upstream. Currently, several

Kansas state agencies are working together on a two-year study spanning 2019 to 2021 to collect new data in the areas adjacent to the Arkansas River and surface irrigation canals in Hamilton, Kearny, Finney, Gray, and Ford Counties. The State of Kansas provided the opportunity for domestic well owners in those areas who use their well or wells for drinking water purposes to have their water tested at no cost. This resulted in the testing of over 200 wells. The results were provided back to the well owners and will be used in the broader study to determine overall regional groundwater quality.

The source of the uranium is well-known; a combination of low-efficiency irrigation (gravity/flood) and chemical fertilizer, resulting in large volumes of nitrate-rich water moving down through the soil to the Pierre shale which contains uranium. Nitrates react with the shale to release uranium and the uranium-contaminated water then flows along the shale back to the river where it is diverted again and again, passing through the same cycle of fertilized irrigation to return to the river even more contaminated. Significant reaches of the Arkansas River in Kansas are now considered “losing reaches” where the visible surface water stream disappears, flowing instead into the riverbed and banks, and finally into the groundwater system. In this “closed basin” setting, uranium carried in from upstream increasingly concentrates in the groundwater, a condition that is expected to worsen over time. Kansas is working with Colorado to identify opportunities for the states to work together to address this problem that challenges water users in both states, but strategies for mitigation and prevention are nascent and underdeveloped.

Other Notable Activities

- The development of a district-wide LEMA in GMD #4 in northwest Kansas.
- The growth in acres enrolled in Water Conservation Areas (WCAs) to 53 plans covering more than 86,000 acres with a goal to conserve nearly 12,000 acre-feet of water per year.
- The development of the Wichita County LEMA in GMD #1 in west central Kansas.

KEY CHALLENGES

Current Federal Policy and State Conservation Efforts

While it is exciting to see how the innovation of technology in farming is helping sustain economies while reducing water use, it is important for states to ensure government policies and programs keeping up with evolving conservation efforts. One recent proposed update is the 2018 Farm Bill provision to be included in the Conservation Reserve Enhancement Program (CREP) that would “allow dryland farming on CREP acres if the purpose of the CREP agreement is to address regional drought concerns.” This provision has been strongly supported by Kansas and several Ogallala states as a powerful tool to facilitate the transition away from irrigated farming practices.

As part of an agreement in the Republican River Compact between Colorado, Kansas, and Nebraska, Colorado agreed to reduce its irrigated acres in the basin by 25,000 acres. Potential compensation from a CREP contract to permanently retire water rights, with the ability to maintain a dryland level of farming, would be among the best possible outcomes to sustain the region’s economy and community. However, in the process of its own rulemaking, the federal government has identified an internal conflict between CREP’s purpose, and the dryland farming provision Congress authorized in the 2018 Farm Bill, stalling the adoption of the provision. Kansas will continue to work with neighboring states to advocate for implementation of the dryland provision in the CREP and to identify other opportunities to influence federal policy to help facilitate best water management practices.

Legal Challenges Highlighting Water Resource Issues

Kansas is seeing an unprecedented number of legal challenges in response to the new, statutorily created LEMA and WCA conservation tools, and ever-increasing demands on a finite water supply.

GMD #4 District-Wide LEMA

After contesting the development and adoption of the GMD #4 district-wide LEMA, a group of affected water right owners went to court in 2018 to dispute the LEMA law’s validity “...on grounds that the law violates the state constitution, federal constitution, or a provision of federal law.” The LEMA law was upheld in court, but the decision is appealable.

City of Hays / R9 Ranch Water Right Change Applications

The City of Hays in west-central Kansas owns an irrigated ranch 60 miles to the south and has begun the administrative process to use the water from the ranch as a municipal supply. A group representing farmers near the purchased ranch has filed a lawsuit disputing how the state determined the amount of water that could be changed from irrigation use to municipal use and what the state has determined is reasonable use of the local aquifer. The lawsuit is ongoing.

GMD #5 Rattlesnake / Quivira LEMA

In the fall of 2019, after more than two years of collaborative efforts between the state and GMD #5 to develop a LEMA to begin to address the decades long, chronic impairment of the Quivira National Wildlife Refuge in south-central Kansas, the state issued draft orders to curtail water use to some degree for over 1,300 water rights. In response to the draft orders, local interest groups persuaded a U.S. Senator to intervene on their behalf to convince the refuge to hold off on requesting protection of its water right.

While these legal challenges are costly, time-consuming, and sometimes contentious, in the end the state hopes that the challenges will result in increased local awareness of water issues and a clearer understanding of the law by water users.

Maintaining a Vision of Hope

Year after year, state water officials, researchers, and policy leaders present information on the status of the Ogallala-High Plains aquifer to interested groups, especially in the Ogallala region of the state. However, the overarching situation remains largely the same as it has been for decades – the aquifer is being depleted, more quickly in some places than in others, and if water users in the area do not do something soon, life as they know it will drastically change for the worse as the water runs out.

The message has consistently been a well-intentioned call to action, yet it has resulted in the misconception that the challenges are too great to overcome. However, a climate-adjusted water use analysis shows that Kansas' first, and longest-running LEMA, outperformed its conservation goals. Additionally, though it is too soon to rigorously evaluate them, water right operators participating in WCAs and technology farms are reporting encouraging water use reductions. As Kansas works to promote widespread participation in voluntary conservation programs, state officials must continue to highlight the crisis of declining aquifer levels, while tempering the negative outlook with evidence of individuals and local regions significantly improving the future of water in their areas of the state. All is not lost, as there are ways to improve the future. Water conservation tools do work, but water users must act while there is still time.

References

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