

USDA-NRCS

2021 Ogallala Aquifer Virtual Summit White Paper

Ogallala Partnerships & Program Activities

The Ogallala aquifer underlies the Great Plains in eight states, including Colorado, Kansas, Oklahoma, Nebraska, New Mexico, South Dakota, Texas, and Wyoming and covers approximately 174,000 square miles. Ogallala groundwater supports nearly one-fifth of the wheat, corn, cotton, and cattle produced in the United States and is the main water supply for the Plains' population. In much of the aquifer groundwater is being pumped at a greater rate than it is being replenished, leading to significant declines in groundwater levels.

In order to help address the water quality and water quantity concerns impacting the aquifer, the USDA's Natural Resources Conservation Service (NRCS) supports targeted local efforts through partnerships with agricultural producers, soil and water conservation districts, water conservancy districts, state agencies, federal agencies, and many others to provide technical and financial assistance to help agricultural producers implement water conservation and land management practices.

The USDA NRCS offers voluntary incentive-based programs to assist agricultural producers with the planning, design, and implementation of conservation practices. The Environmental Quality Incentives Program (EQIP) offers financial assistance for structural and land management practices. Some examples of conservation practices include low pressure center-pivot sprinkler systems, variable frequency drives for irrigation pumping plants, sub-surface drip irrigation systems, conservation crop rotations, cover crops, nutrient management, pest management, and irrigation water management.

Special emphasis is placed on land use conversion from irrigated land to non-irrigated cropland or conversion to perennial vegetation for livestock grazing or wildlife habitat. Conversion of irrigated land to perennial vegetation is promoted to improve soil health, increase biodiversity within the plant community and wildlife

habitat, while reducing the irrigation pumping demands on the aquifer.

The USDA's NRCS has developed partnerships and program incentives in each of the eight Ogallala aquifer states to help maintain and extend the long-term viability of the aquifer.

Colorado

Since 2010, Colorado NRCS has partnered with local Soil and Water Conservation Districts, the Republican River Water Conservation District, the CO Water Conservation Board, the CO Department of Agriculture, CO State University, the Farm Service Agency and local work groups to target EQIP funding to assist agricultural producers with modernizing irrigation systems and implementing land management practices to improve water quality, reduce aquifer overdraft, and enhance soil health. EQIP funding is also available to assist producers with conversion from irrigated land to non-irrigated cropland or perennial vegetation for livestock grazing and wildlife habitat.

This targeted funding has resulted in over 100 contracts covering more than 41,000 acres with more than \$5 million paid to target conservation practices to reduce pressure on the aquifer. In 2020, Colorado NRCS invested an additional \$700K for producers to continue to promote conservation practices that promote recharge of the aquifer. The Ogallala aquifer will also serve as one of the source water protection areas in Colorado with priority given to the Republican River Watershed.

The NRCS is partnering with CO Master Irrigator Project Advisory Committee on the implementation of the CO Master Irrigator Project. The Master Irrigator Project was developed by a farmer-led committee after learning of the success of the Master Irrigator program that was developed by the partnership in Texas. The CO Master Irrigator Project will be conducting the second annual educational course in 2021.

The EQIP targeted funding opportunity in the Ogallala aquifer region will be enhanced for 2021 with the implementation of EQIP incentives to promote the adoption of management practice payments for up to 10 years. This enhancement of the EQIP funding opportunity will enable agricultural producers to transition to higher level irrigation water management practices as well as convert to non-irrigated cropping systems to reduce the aquifer overdraft.

Kansas

The NRCS in Kansas continues to address source water depletion resource concerns on the Ogallala aquifer. EQIP financial and technical assistance is provided to producers through the EQIP water quantity ranking pool. Assistance under this ranking pool is statewide, however, ranking priority is given to applications located in the Kansas water plan priority groundwater decline areas. Additional ranking consideration is given for applications located in State-established Local Enhanced Management Areas (LEMA), Water Conservation Areas (WCA), and Intensive Groundwater Use Conservation Areas (IGUCA) that have been established in the Ogallala aquifer. Kansas is in the final stages of completing an RCPP agreement with Playa Lakes Joint Venture along with numerous other partners. This agreement works to address both utilization of water and recharge to the Ogallala aquifer. Activities planned under this agreement include assistance to producers in implementing water saving activities for irrigation. It also utilizes multiple program authorities to restore and protect playa function there by increasing aquifer recharge.

Kansas NRCS has EQIP WaterSMART Initiative (WSI) funding available for projects with groundwater management districts and irrigation districts that are utilizing the Department of Interior-Bureau of Reclamation (BOR) WaterSMART program. Kansas NRCS requested and received EQIP WSI funds for the first time in FY 2020. Eight projects have been funded for EQIP assistance to complement the BOR WaterSMART projects. The projects are being implemented by four entities: the Kansas Bostwick Irrigation District in Republic County, the Kirwin Irrigation District No. 1 in Smith County, the Southwest Kansas Groundwater Management District No. 3 in Finney County, and the Webster Irrigation District No. 4 in Osborne County.

Oklahoma

The NRCS in Oklahoma offered an EQIP priority area sign-up from 2014 through 2017 for customers in the Ogallala aquifer region. This resulted in the approval of 22 contracts covering approximately 7,000 acres and funded \$4.5 million dollars in conservation practices. The primary goal was to encourage conversion from irrigated cropping systems to non-irrigated cropping systems for a period of three years to reduce irrigation pumping demands on the aquifer.

Under previous farm bills, the NRCS in OK has targeted EQIP funding to encourage the adoption of water conservation and best management practices in the Ogallala region. Priority practices included irrigation sprinkler systems, drip irrigation systems, conservation crop rotations, residue management, as well as nutrient and pest management activities to protect water quality.

Oklahoma NRCS continues to address Ogallala aquifer concerns implementing the 2018 Farm Bill. Technical assistance is available to identify resource concerns, conservation planning, and irrigation system design. A statewide Irrigation Water Conservation Initiative funding pool is available for applicants addressing aquifer decline, irrigation water management, and irrigation system efficiency resource concerns. The local conservation districts have identified and prioritized Ogallala aquifer decline to be addressed through Locally-Led Conservation. The county-based EQIP fund pools include ranking points for irrigation related resource concerns. In 2020, a Local Emphasis Area was approved for EQIP applicants. NRCS partnered with Oklahoma State University with assisting producers with pumping plant evaluations and developing an Oklahoma Master Irrigator program. The first training session of the Master Irrigator program for producers and crop advisors is planned for January 2021. Producers who complete the program and have EQIP applications will receive additional ranking points in 2021. Oklahoma Conservation Commission and Oklahoma Water Resources Board are providing producers who complete the program an incentive payment for installation and use of soil moisture sensors.

Nebraska

Up until 2019, NRCS offered the statewide Ogallala Aquifer Initiative (OAI) priority areas in Nebraska when national funding allocations were distributed for the OAI. Beginning in 2019, the decision to prioritize funding for water quantity and water quality resource concerns was moved to the local work group level. The use of Statewide Initiatives is being phased out in Nebraska in favor of relying on the locally led process and working through the local work group structure to identify the local priority resource concerns and develop fund pools accordingly. Each local work group is given an allocation of funds from the state allocation for distribution to the locally created funding pools.

The Natural Resource Districts (NRDs) are the lead of the local work groups who recommend the priority project areas and identify the priority resource concerns that will be addressed with the NRCS EQIP funding. Many of the NRDs and local work groups prioritize groundwater quality and quantity as priority resource concerns in the Ogallala aquifer region. The NRDs also have the regulatory responsibility to manage and protect groundwater in Nebraska. Examples of the priority practices include irrigation water management, irrigation sprinkler systems, micro-irrigation systems, conservation crop rotation, and nutrient management. This method for distributing and prioritizing funds is supported by state and local agencies that participate through the Nebraska NRCS State Technical Committee.

New Mexico

The current priority for the NRCS in New Mexico within the Ogallala aquifer region is to convert irrigated cropland to rangeland or pastureland to reduce aquifer overdraft. This enables agricultural producers to keep the land in production and will help conserve water for the future.

New Mexico has funded numerous irrigation systems to improve irrigation efficiency in the Ogallala region. EQIP funding has been utilized to replace inefficient irrigation systems with modern irrigation sprinkler systems. Future priorities include the promotion of drip irrigation systems to further improve water savings.

NRCS NM is promoting the restoration of playa lakes. Playa lakes have been identified as an important component for aquifer recharge. The restoration practices are designed to increase the diversity of the plant community, provide the necessary rest periods for adequate root development to enhance water infiltration rates, and restore playa function to contribute to recharging the aquifer.

South Dakota

The NRCS and partners in South Dakota have not been actively pursuing activities in the Ogallala aquifer. South Dakota has not been able to effectively participate in the Ogallala Aquifer Initiative due to the extremely small geographic area of the aquifer within the state. The NRCS continues to work with the Ogallala Sioux Tribe on natural resource issues around Pine Ridge and Rosebud, however, their current resource emphasis is not focused on the aquifer.

Texas

The NRCS in Texas has worked with conservation partners to target more than \$100 million in EQIP funding to assist producers with the installation of more efficient irrigation delivery systems and irrigation water management on 500,000 acres over the Ogallala, and retired approximately 12,000 acres of irrigated cropland from production.

In addition to EQIP funding, the partnership in Texas was awarded funding for the Regional Conservation Partnership Program (RCPP). Through the RCPP, NRCS has partnered with groundwater conservation districts to assist with irrigation water management and water quality protection on 175,000 acres in the Ogallala region.

In 2016, NRCS partnered with North Plains Groundwater Conservation District (NPGCD) to assist in the development of the Master Irrigators Program to educate producers on use of advanced irrigation water management strategies, equipment, and soil health principles related to reducing groundwater pumping over the Ogallala.

In its fourth year, the Future Directions project is a partnership effort between USDA-NRCS, the Texas Corn Producers (TCP), and individual farmers on the High Plains and South Plains regions to plan and implement the most advanced technology through EQIP with a suite of conservation practices to include soil health practices, such as cover crops using no-tillage/strip-tillage/nutrient management; variable frequency drives; center pivot conversions; center pivot replacement; and irrigation water management with the use of soil meters and soil moisture meters.

Texas A&M AgriLife Research and the USDA-Agricultural Research Service (ARS) are part of this partnership to conduct evaluations, collect data, and finalize the results. The demonstrations highlight conservation practices and integrated advanced irrigation technologies.

Wyoming

The NRCS in Wyoming, like many other states, is coordinating with the soil and water conservation districts to conduct local work group meetings to obtain input on the priority resource concerns and conservation practices that will be targeted within the Ogallala aquifer. Similarly, practices such as irrigation water management, more efficient water delivery systems, and other water quality practices are emphasized. The NRCS and conservation partners identified the Ogallala aquifer as one of the targeted source water protection areas in Wyoming for 2020.