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## Water Technology Farms Being Implemented

A new type of farm has been established in Kansas with a primary focus on water conservation in addition to crops and livestock.

Three Water Technology Farms have been created recently in response to public input and identified in the *Long-Term Vision for the Future of Water Supply in Kansas (Water Vision)*. They are demonstration farms that allow the installation and testing of the latest irrigation technologies on a whole field scale.

Throughout the past two years of the public input process of the *Water Vision*, producers shared with the team the state was diverse enough that each tool would not necessarily produce the same results and solutions could not be treated as a one size fits all. Director of the Kansas Water Office (KWO), Tracy Streeter, believed demonstration farms featuring the latest developed technology for water conservation was the best way to test the tools in each region.

“Based on the feedback we received during the development of the *Water Vision*, demonstrating the effectiveness of the latest technology in irrigation water management in various soil and water conditions across the High Plains Aquifer was critical to increasing the confidence and spurring increased adoption by irrigators,” Streeter said.

To help get Water Technology Farms established for research, KWO is providing financial support for the installation of equipment for those adopting a Water Conservation Area (WCA) and participating as a demonstration farm. KWO is also providing financial assistance to Kansas State University’s efforts to provide technical support to all technology farms. K-State became deeply involved in establishing and monitoring the farms to help answer the producers’ specific questions and concerns about the new technology.

“K-State is working with partners to help address questions and concerns so in the future, farmers will fully embrace the technology,” said Jonathan Aguilar, water resource engineer with K-State Research and Extension, based in Garden City, Kansas. “Each farm is set up slightly different, depending on the primary concern the producer has. For example, one farm has three adjacent spans with different modes of application for comparison purposes. In all fields, soil moisture sensors are installed and tested for accuracy as feedback or for its performance in the different soil types.”

The first and largest to be developed for the 2016 growing season is T&O Farms, LLC in Finney County. Owned by Tom Willis, the farm consists of 10 sprinkler systems, four equipped with Dragon-Line™, which provides increased efficiency through precision irrigation by delivering water and nutrients directly into the soil instead of spraying the whole canopy and field, and four equipped with low pressure spray nozzles. Each field has two soil moisture probes. The systems are fully automated with water use, groundwater levels and moisture sensor data tied to a real time website. Technical oversight is provided by Seaman Consulting, Hugoton and K-State Research and Extension.

“I want to prove the concept that we can conserve water and still achieve profitable yields using the technologies we are pioneering on my farm,” Tom Willis said. “My motivation for participating in the technology farm was two-fold. First, I am part of Conestoga Energy, LLC, which has two ethanol plants in western Kansas. Having a reliable source of locally produced corn and sorghum are vitally important for our company and we have a vested interest in helping extend the life of the aquifer for as long as we can.”

Willis further stated, “Secondly, I have a son who is returning home to farm after a distinguished career in the United States Army. Hopefully, these technologies will help extend the life of the aquifer so he and others of his generation can continue to irrigate and farm profitably in southwest Kansas for years to come.”

Two other Water Technology Farms demonstrating results for the 2016 growing season are The Garden City Company/Dwane Roth Farm in Finney County and Integrated Livestock Solutions (ILS) Farm in Pawnee County.

The Garden City Company/Dwane Roth Farm consists of the installation of Dragon-Line™ on a sprinkler system and will evaluate its effectiveness compared to spray and nozzles. The farm is unique as the water source is both ground and surface water. At this farm the irrigation companies were approached by the owner and asked to participate and contribute through in-kind donations of equipment or services.

The ILS Farm is comparing Dragon-Line™ to regular spray nozzles on a higher volume well than those wells being studied in Finney County. A major supporter of funding for most of this project is the Water Protection Association of Central Kansas (WaterPack).

“All of the Regional Advisory Committees covering the Ogallala Aquifer are developing action plans to conserve water,” Streeter said. “Coupling Water Technology Farms with Water Conservation Areas initiated by the landowner will hopefully demonstrate that technology adoption can mitigate any economic impacts and result in reduction in water use to conserve and extend the useable life of the Ogallala.”

Kansas Department of Agriculture is also developing a WCA for the entire T&O Farms, LLC that will document water use reductions Willis has already made.

Interest for additional farms during the 2017 growing season has been expressed. Field days are being planned for the Water Technology Farms for August 2016. A website is being designed to look at the live data from the T&O Farms, LLC. Once finished, a link for it can be found on the *Water Vision* page at [www.kwo.org](http://www.kwo.org).

Sidebar: Partners for Water Technology Farms include: *T&O Farms, LLC, The Garden City Company/Dwane Roth, Integrated Livestock Solutions, Kansas Water Office, K-State Research and Extension, Kansas Department of Agriculture, Kansas Farm Bureau, Kansas Geological Survey, Teeter Irrigation, Conestoga Energy Partners, United Sorghum Checkoff Program, Kansas Corn Commission, Servi-Tech Expanded Premium Services, LLC, Seaman Consulting, Aquaspy, CropMetrics, Hugoton, Southwest Groundwater Management District No.3, Netafim, Helena, Valley Irrigation, WaterPack*