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K-State's Mobile Irrigation Lab

Educating Kansas About Water Conservation

by Shelby Axtell

The Kansas State Research & Extension's Mobile Irrigation Lab (MIL) is in its fourth year of educating Kansas producers about water conservation and irrigation equipment maintenance. With Kansas having more than 25,000 pivot irrigation systems across the state, researchers saw a need to educate producers about proper maintenance and management of center pivot irrigation systems.

Dr. Danny Rogers, extension irrigation engineer for K-State Research & Extension, said the MIL is a way to educate producers on how to save water and money when irrigating with center pivots. Dr.

Mahbub Alam, extension irrigation specialist at K-State's Southwest Research-Extension Center in Garden City, Kan., and Dr. Gary Clark, irrigation specialist and department head for biological and agricultural engineer at K-State, are also involved in the MIL.

Close to 600 individuals have attended MIL trainings sessions, so far, across Kansas, Rogers said. These trainings are conducted mainly through extension outlets and at various irrigation meetings.

"We are promoting the importance of maintenance issues for sprinklers, because like planters and sprayers they also need to be maintained," Rogers said. "Just because water is coming out of their (producers') sprinklers, doesn't mean life is good."

Most producers assume that if water is coming out of the sprinkler, then it is also being distributed evenly. However, Rogers said, this is not the case all of the time, and producers can lose yield due to uneven water distribution. One producer's center pivot had a section that was not installed

correctly, and was under-watering about 12 acres of the field to such a degree that yield losses were likely to range from 60 to 80 bushels per acre, Rogers said.

The MIL allows researchers to travel to a producer's field to conduct infield evaluations. This allows researchers to make adequate recommendations of new or alternative management

ideas for the producer. Researchers use Irrigauges to evaluate the water distribution of center pivot irrigation systems. Irrigauges are non-evaporating water collection devices that are placed along the center pivot or linear lateral to collect water from a complete pass of the center pivot.

The water caught in each Irrigaugue allows researchers to determine if water is being evenly

distributed or if nozzles need to be changed. Rogers said the most common problem is having a big nozzle where a little nozzle should be and visa versa.

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- Dr. Danny Rogers, K-State



Computer software training is conducted on the MIL's lab tops. Producers are able to get hands-on software training and personal interaction with MIL personnel.

Photo by Dr. Danny Rogers.



During field evaluations, water flow and pressure of nozzles also are checked. This requires the sprinkler to be irrigating, resulting in evaluators getting very wet.

Photo by Dr. Danny Rogers.

With so many different field characteristics and weather changes, Rogers said, it is hard to accurately assess a center pivot in just one visit. In the near future, plans are to conduct multiple evaluations on several demonstration fields to monitor the effect of a variable well yield on the performance through an entire season. This will allow researchers to better assess field conditions in order to make better recommendations on how to adjust for these situations.

The MIL not only provides infield evaluations, it also has computer software training on programs such as FuelCost and KanSched. FuelCost is an irrigation energy cost evaluation program, and KanSched is an evapotranspiration based scheduling tool that helps producers set efficient irrigation scheduling.

In 2006, KanSched II will be released. KanSched II will allow farmers to incorporate alfalfa and other forage options, Rogers said; the current KanSched version was not designed

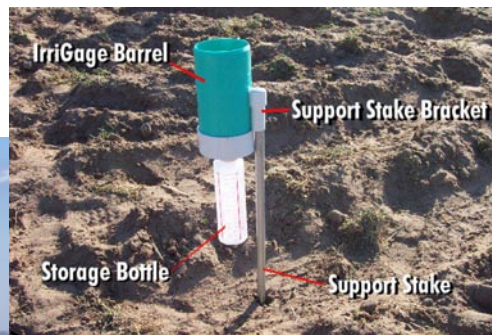
to do alfalfa and forage schedules. Other advantages include an increase in the number of crops, a forecast feature that can look ahead five days to tell a producer when to start irrigating again, and it also will allow producers to group fields with similar characteristics. Producers can download these programs and others at no cost from <http://www.oznet.ksu.edu/mil/Tools.htm>.

Although the MIL trailer is no longer pulled to field sites, it will continue to be used as an educational tool, Rogers said. The trailer will be displayed at county fairs and other events to bring water conservation awareness to the general public.

“We hope this will be an effective outreach for providing water conservation education to the general public,” Rogers said.

Through the MIL, an irrigation system can be made more efficient which in turn will conserve Ogallala Aquifer irrigation water, as well as save the producer money and energy. The MIL is also bringing awareness to Kansas about conserving water. For more information on the MIL go to <http://www.oznet.ksu.edu/mil/cwa/>.

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A series of Irrigauges are placed out to the right of the center pivot for an evaluation. Irrigauges are water collecting devices used to evaluate water distribution of the center pivot. It can tell if too little or too much water is being distributed out of a nozzle.

Photo by Dr. Danny Rogers.



The MIL trailer used to be pulled to field evaluations, but now will soon be traveling to county fairs and exhibits bringing water conservation awareness to Kansas.

Photo by Dr. Danny Rogers.

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