

Research activities that are responding to the extreme drought

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Ongoing Study Areas (Field research in progress or research analyses in progress)

Subsurface Drip Irrigation (SDI) Studies (Design, operation and management)

SDI has the potential to save significant amount of irrigation water and also to ensure that expended irrigation water can result in an efficient and profitable crop yield even under extreme drought conditions.

- Optimizing SDI capacity and corn plant population
- Comparison of SDI and simulated LEPA sprinkler irrigation for corn
- Optimum dripline depth for corn production
- Utilization of swine wastewater through SDI and simulated LEPA sprinklers
- Application of beef wastewater through SDI

The above studies are conducted with a well-leveraged combination of federal and KSU resources. Approximately 0.3 FY and 0.4 TY are utilized in these endeavors.

Another SDI study listed immediately below is funded by Corn Commission and KSU funds. Approximately 0.1 FY and 0.2 TY are utilized in this study.

- Reducing irrigation needs through high frequency, but limited, SDI for corn

Irrigation Macromanagement Studies

Improved irrigation macromanagement at the beginning and end of the corn irrigation season can do much to ensure valuable irrigation water is correctly allocated in the given year or saved for future years. A correctly allocated acre-inch of water can easily be worth \$25-50 to the producer with an even larger value when rolled-over in the state economy. Two underfunded studies are being conducted in this area. Attempts are being made to seek further funding so that these studies can be expanded.

- Improving criteria for terminating the corn irrigation season
- Effect of early season water stress on corn production

The above studies are conducted with KSU resources. Approximately 0.15 FY and 0.2 TY are utilized in these endeavors.

Center Pivot Sprinkler Irrigation Studies

Incanopy center pivot sprinkler irrigation is rapidly growing in western Kansas because of its perceived water savings. These water savings are only achieved if proper management techniques are utilized for the given hardware. These studies are examining those techniques. Two underfunded studies are being conducted in this area. Attempts are being made to seek further funding so that these studies can be expanded.

- Effect of height for widely spaced spray-type nozzles in corn
- Effect of sprinkler type and height on partitioning of irrigation in fully developed corn

The above studies are conducted with KSU resources. Approximately 0.15 FY and 0.25 TY are utilized in these endeavors.

Technology Transfer

It should be noted that the Irrigation Project at KSU-NWREC has a very active technology transfer program that can immediately respond to problems such as the drought. We maintain two irrigation websites (<http://www.oznet.ksu.edu/sdi/> and <http://www.oznet.ksu.edu/irrigate/>) and also participate in annual state and regional irrigation meetings. Currently SDI meetings are planned for Sedgwick and Republic counties on December 17-18 and the regional Central Plains Irrigation Conference is planned for February 4-5, 2003 in Colby, Kansas.

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SDI website: <http://www.oznet.ksu.edu/sdi/>

General irrigation website: <http://www.oznet.ksu.edu/irrigate/>

Career publication list of Freddie Lamm: <http://www.oznet.ksu.edu/sdi/Reports/2001/FRLCarPub.pdf>

SDI technology transfer activities: <http://www.oznet.ksu.edu/sdi/Reports/2000/techtran.pdf>