Oklahoma State University Invites Dr. DeJonge to Discuss Deficit Irrigation

Thanks to the assistance of the Oklahoma Water Resources Center, USDA-ARS agricultural engineer Dr. Kendall DeJonge visited to discuss research on deficit or limited irrigation. With deficit irrigation, less water is applied to crops during certain growth stages in an attempt to maximize yield relative to water input. The technique is being proposed as a way to help support agriculture in areas with limited water supplies.

Dr. DeJonge’s work is focused on the Limited Irrigation Research Farm in Colorado, where his group is comparing limited to full irrigation methods on corn and sunflower. His research is attempting to maximize water productivity through strategic management for growth stages. For example, the corn vegetative stage needs water to establish a strong stalk for wind resistance, the reproductive stage needs water to maximize yield, and the maturity stage only needs enough water to survive.

With knowledge of each role’s water needs, Dr. DeJonge described his current focus on an “80/100/50 regime” to explore 80% water input for the vegetative phase, 100% for reproductive phase, and 50% for maturity. In the future, DeJonge expressed interest in using the gathered information to develop a formula for farmers to determine how to use water more efficiently.

DeJonge is collaborating with Dr. Saleh Taghvaeian, the irrigation extension specialist in Biosystems and Agricultural Engineering at Oklahoma State University, to promote limited or deficit irrigation. Taghvaeian commented, “the main project is being conducted at our research station at Goodwell with corn and sorghum plots under three levels of irrigation application: 100%, 75%, and 50%.”

Taghvaeian describes deficit irrigation as “a practice that can be implemented effectively under drought conditions.” With their research “producers can apply less water during less sensitive growth stages, saving it for the stages that are more sensitive to water stress using a higher level of management and a close monitoring of crop conditions.”

For more information about limited or deficit irrigation, visit the Oklahoma Water Resources Center web site at http://water.okstate.edu/projects/water-conservation/efficient-irrigation-methods.