Researchers and Extension specialists at Oklahoma State University constantly strive to discover, develop, and distribute research that can help Oklahomans conserve valuable water resources. One of the largest uses of water in the state of Oklahoma is agricultural irrigation, which supports a strong and vibrant agricultural economy. Research often carries significant costs, so researchers rely on grants to keep their influential work moving forward.

Recently, Dr. Saleh Taghvaeian, Assistant Professor of Biosystems and Agricultural Engineering at Oklahoma State University and State Extension Specialist in Water Resources, received one such grant that will improve conservation of land and water resources across Oklahoma and neighboring states. The US Department of Agriculture awarded Taghvaeian and his colleagues a Conservation Innovation Grant (CIG) totaling $772,029.

Taghvaeian’s project, titled “Promoting Sensor-Based Technology to Improve Land and Water Resources Conservation,” aims to improve irrigation scheduling and agricultural water management, especially in regards to sensor-based technologies for water conservation. Dr. Taghvaeian is working with collaborators from Texas and Kansas on the project, and their work will benefit agriculture in those states as well.

The CIG funding will help “create and disseminate educational material on different types of sensors for agricultural irrigation management through the network of county extension educators, conservation district personnel, NRCS personnel, crop consultants and producers,” Taghvaeian said. These education materials will include fact sheets, video clips, radio podcasts, and other media.

The project also aims “to establish demonstration sites at several eligible producers’ farms and hold field days to provide hands-on training for different aspects of sensor-based technologies – from site selection to proper installation and data interpretation.”

This year, the USDA awarded $20.5 million in CIG grants to 45 projects aimed at advancing and developing natural resource conservation. “Forty-five projects were chosen out of about 400 submitted proposals,” Taghvaeian said. “Our project was the only one funded under the Water Quantity category.”

In addition to the CIG funds from the USDA’s Natural Resources Conservation Service, Taghvaeian has also received a $104,000 grant from USDA Agricultural Research Service to conduct research in a similar
These two external grants carry immense value for conducting research and extension activities, especially at a time when the state budget is declining.

A key factor in receiving the awards has been the seed grants from Cotton Inc. and the Oklahoma Water Resources Center (funding from OSU’s Division of Agricultural Sciences and Natural Resources). “Smaller grants helped build the foundation to get these USDA grants,” Taghvaeian said. The grant from the Water Resources Center provided the opportunity to hire a graduate research assistant and purchase sensors to study the effectiveness of sensor-based technologies for improving irrigation management in southwest Oklahoma. This was of great importance because some growers in that region only have access to low-quality (saline) water. Thus, improving irrigation has a direct positive impact on both water conservation and soil health and quality. “The Water Resources Center and DASNR administration recognize the increasing pressure on our fresh water resources and strongly support efforts towards adopting advanced technologies” Taghvaeian said.

The grant from Cotton Inc. (CI) State Support Program was also instrumental in providing funds to purchase additional sensors and for frequent travel to demonstration sites, developed in collaboration with cotton growers from Hydro, Martha, and Altus. “This funding was given to us at a time when financial resources of CI State Support Program have declined significantly due to severe drought in western Oklahoma over the last few years,” Taghvaeian said. “Yet, CI board members valued the importance of conducting these projects and generously provided us with requested funding.”

The research conducted with this initial funding led to the USDA grants that will help Taghvaeian and colleagues to improve Oklahoma’s land and water resource conservation. “The CIG grants are very competitive,” Taghvaeian said. “The funding we received from these initial seed grants helped to strengthen our proposal.”

For more information on this project and additional funding opportunities, please see our website, http://water.okstate.edu.