



# TAWC

TEXAS ALLIANCE FOR WATER CONSERVATION



TEXAS TECH UNIVERSITY  
Agricultural Sciences & Natural Resources  
Davis College™

**Texas Water**   
Development Board



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The Texas Alliance for Water Conservation strives to conserve water and soil for future generations in collaboration with producers to identify agricultural production practices and technologies that, when integrated across farms and landscapes, will reduce the depletion of ground water while maintaining or improving agricultural production and economic opportunities.

### Contact Information:

Communications & Outreach Director  
Samantha Borgstedt  
Texas Tech University  
806-789-4177 (cell)  
[samantha.borgstedt@ttu.edu](mailto:samantha.borgstedt@ttu.edu)

Project Director  
Rick Kellison  
Texas Tech University  
806-292-5982 (cell)  
[rick.kellison@ttu.edu](mailto:rick.kellison@ttu.edu)

Program Director  
Dr. Krishna Jagadish  
Texas Tech University  
[kjagadish.sv@ttu.edu](mailto:kjagadish.sv@ttu.edu)

# Water Highlighted in TTU's Foundation Series

by Norman Martin



Texas Tech University's Office of Communications & Marketing recently launched a new YouTube-based communications series known as Foundations. The program centers on challenging topics about the world and community, hosting conversations that inspire by curating a group of people with passion and poise, said university officials.

The first 47-minute episode, which premiered in mid-July, highlights five experts from across campus to talk about one of the most important resources on the planet - water. These researchers come from different backgrounds. What they all have in common is a genuine interest in water, the potential issues this region will face in the future and how those issues can be mitigated.

Among those featured from the Davis College of Agricultural Sciences & Natural Resources are:

Blake Grisham, an associate professor within Tech's Department of Natural

Resources Management. His research centers on incorporating weather and climate data into ecological field studies with an emphasis on ground-nesting birds, and more recently disease ecology of upland game birds and ungulates. He has secured funding to study multiple species, including Sandhill Cranes, Lesser Prairie-Chickens, Northern Bobwhite, Scaled Quail, Axis Deer, and waterfowl. Recent honors for Grisham include the Texas Tech Alumni Association New Faculty Award (2017). His doctorate is from Texas Tech. He joined the Texas Tech faculty in 2014.

Krishna Jagadish, Thornton Distinguished Chair and Professor of Forage Science in Texas Tech University's Department of Plant & Soil Science. He also serves as Director of the Texas Coalition for Sustainable Integrated Systems Research Program and Coordinator of the Texas Alliance for Water Conservation. His research program broadly focuses on optimizing

the crop-forage-livestock systems for Southern High Plains, to sustain economic benefits and enhance environmental sustainability. His goal is to develop a dynamic research and training program on forage-based cropping systems that will be highly recognized both nationally and internationally. His doctorate is from the University of Reading (United Kingdom).

Rick Kellison, Texas Alliance for Water Conservation Project Director. Based at Texas Tech and funded by a grant from the Texas Water Development Board, TAWC is a partnership of producers, technology firms, universities and government agencies working to extend the life of the largest subterranean aquifer in the United States. The project uses on-farm demonstrations of cropping and livestock systems to compare the production practices, technologies, and systems that can maintain individual farm profitability while improving water use efficiency with a goal of extending

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the life of the Ogallala Aquifer while maintaining the viability of local farms and communities.

Other individuals on the program include Amy Hardberger, Texas Tech George W. McCleskey Professor of Water Law, and Director of the Center for Water Law & Policy, along with Karin Ardon-Dryer, an assistant professor of atmospheric science within Texas Tech's Department of Geosciences.

Looking ahead, communications & marketing leaders said they will continue to have these conversations across a number of topics, using the university's reach to bring together people from different fields and paint the broadest picture imaginable on the subject matter.



## 18th Annual Field Day Set For August 2023



A detailed look at drip and pivot irrigated cotton and sorghum using Goanna, Autonomous Pivot, and Arable technologies will be highlighted as part of the Texas Alliance for Water Conservation's 18th Annual Field Day. This year's event will be held from 8:30 a.m. to 11:45 a.m. on Thursday (Aug. 31) at the farm of Lloyd Arthur in Ralls, Texas. (1102 County Road 135 - Ralls, TX 79357)

"This field day is a great opportunity for producers to see new irrigation technologies and discuss with fellow producers management strategies proven to be economically and conservatively advantageous," said TAWC Project Director Rick Kellison. "It is the TAWC's goal to bring producers this timely information."

As part of the farm tour program, Arthur will discuss his management practices and technologies. He has been a cooperating producer with TAWC since 2012. Today, he operates a mix of irrigated and dryland cotton and grain sorghum. Arthur is heavily involved in his community and the cotton industry, serving on numerous committees and boards, including Texas Farm Bureau, Cotton Incorporated, FiberMax Center for Discovery, and his local soil and water conservation district.



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## 18TH ANNUAL FIELD DAY

AUGUST 31, 2023  
FARM OF LLOYD ARTHUR  
RALLS, TX



# New Technologies

by Samantha Borgstedt

This season, the Texas Alliance for Water Conservation is using several new technologies never before installed on our center pivot and drip irrigation field sites. One of these technologies is Arable's Mark 3.

Mark 3 is an in-field sensing and communication device that measures the weather, plant, soil and irrigation flow all in one crop intelligence system. The Mark 3 sensor technology delivers real-time insights into how a crop is responding to its environment and identify plant stress before it becomes visible to the human eye.

Its 22 narrow-band spectrometer enables users to diagnose plant stress from causes such as nutrient deficiencies, water stress and disease. Also, the new thermal sensor reads canopy temperature to within one degree Celsius, which, when combined with other crop and weather data provided

by the Mark 3, makes it possible to know when the crop is stressed due to a lack of water.

Features include a built-in 5MP camera, an integrated solar array and an optional ultrasonic wind anemometer. The in-field sensing system is combined with a user-friendly software suite and an easy-to-integrate API. Arable says the device has no moving parts, no openings to clean and fewer parts to break down, ensuring reliable, consistent and maintenance-free operation.

The Mark 3 comes equipped with a high-powered antenna that connects at a range 7 times greater than that of a typical cell phone. Additionally, with 5 times the battery capacity and 2 times the charging power of the Mark 2, the Mark 3 can operate for up to two months without sunlight, making it optimal for regions that experience long periods of low solar activity.

Using the Mark 3's new integrated 5MP camera, Arable Vision provides a daily high-resolution image of the crop and puts that image in context of what was happening in the field environment before, during and after the image was taken. Users can tag, share and add notes to the images.

According to Arable, a real-time view of the crop allows for fewer trips to the field, rapid identification of issues that compromise yield and quality, optimized timing of field work, as well as continuous phenotyping.

Data coming in from Arable is being closely monitored by our TAWC team. We look forward to seeing if the technology brings real benefit to our Southern High Plains of Texas producers. We hope to share results at our January Water College meeting.





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