

Making an Impact

Agriculture is a dynamic industry that is constantly advancing with technologies and methods. Not too long ago, everyone had a few cows, hogs, chickens and a garden; living on what they grew themselves. Now the agriculture industry is made up of complex, large-scale operations that limit their commodity flow, allowing for approximately two percent of the population to produce the world's food and fiber.

These great strides would not be possible without extensive research, education and technology implementation. To continue down the golden path of progress, a group of researchers from Texas Tech University are combining their knowledge and efforts to investigate and shed light on a possible solution to a very serious issue in West Texas agriculture: the lack of water resources.

"The face of West Texas agriculture is evolving," said Sara Trojan, Ph.D., an assistant professor at Texas Tech University who specializes in beef cattle management systems. "As agriculturalists, we have to evolve with it, in order to feed the world, while still being good stewards of our resources."

For several decades, corn production and cattle feeding have gone hand-in-hand, and worked together in a harmonious relationship. The cattle feeding industry was a large consumer of corn, production, since cattle finishing ration's can contain between 60 to 70 percent corn.

"There is a bigger story to tell with the water use for producing a bushel of sorghum versus a bushel of corn."

Fast-forward to the present, and this once easy relationship is now experiencing some very serious obstacles. Ethanol production in the US continues due to legislative mandates. Ethanol is an alternative form of energy, generated by the fermentation of ethanol fermentation from cereal grains like corn and grain sorghum, and has created a competing market for these cereal grains, requiring large quantities of this commodity.

Another strain that is taking its toll on corn production in West Texas is our water supply, or lack thereof. Farmers and ranchers who call the Texas High Plains home have realized, if future generations wish to farm in this region, drastic actions have to be taken now in order to conserve our water resources.

Trojan is serving as the principle investigator for several sorghum-related research projects. Along with her colleagues and leaders from Texas Cattle Feeders, Sorghum Checkoff

Program and Conestoga Energy Partners, Trojan has conducted research to evaluate how cattle performance with a moderately high inclusion of ethanol coproducts, distillers grains with solubles, produced from corn or grain sorghum. Due to dynamic, innate characteristics of

grains sorghum, the energy value can be reduced compared with corn. Trojan's work has demonstrated that blending dry sorghum distillers grains with solubles and dry corn distiller's grains with solubles resulted in similar performance to cattle consuming diets with corn ethanol coproducts.

Trojan has also been working with sorghum seed companies to evaluate new forage sorghum varieties that are higher in digestibility.

"This project is good for us because, like much of West Texas, the Texas Tech farm in New Deal, Texas is in a water limited area, so this model fits well with other farmers in this region and where the future is going," said Trojan.

Sorghum requires roughly two-thirds the water of corn, but is not the number one crop of choice for the majority of West Texas farmers.

"The issue with sorghum in this region is that it has historically been used as a secondary crop," said Trojan. "A kind of sacrifice crop that farmers would only plant when their cotton had been hailed out or damaged in some sort of capacity."

Trojan and her group of scientists are evaluating nutritive and agronomic properties of an improved variety of forage sorghum silage compared with corn silage.



Sorghum field and silos

Photo courtesy of National Sorghum Producers