

Planting the Seed of Knowledge



Food. Feed. Biofuel. Like many grains, sorghum can be used effectively and efficiently in multiple applications. As the global population grows, the importance of sorghum will grow, especially in regions where water can be a scarce resource.

Mark Stelter is a research associate in the sorghum breeding department at the Texas A&M AgriLife Research Center just north of Lubbock. With more than ten years of experience in crop research, Stelter is fully aware of how resilient sorghum can prove to be in arid environments.

Making every drop of water count during times of extreme drought is crucial to agricultural success. He believes involving college students in the research he conducts on drought tolerance is the key to ensuring a bright future for agriculture and for the individuals involved within it.

Through working at Texas AgriLife and implementing a summer internship program, Stelter is able to both research and share his knowledge of the crop that is his passion.

“The summer internship program is a great way for college students who are studying in various agricultural programs to get some real hands-on experience within the industry,” Stelter said. “The interns are really able to appreciate the importance of

developing drought tolerant strains of sorghum while they are assisting in watering the fields.”

Rainfall is one of the most important factors that Stelter must take into account while researching the drought tolerance of sorghum plants.

“In 2011, the Texas High Plains had one of its driest and hottest summers on record,” Stelter said. “This devastated yields on crops across the board.”

Like other Lubbock farmers, Stelter does not have as much accessible water as he did in previous years.

“The AgriLife farm is located on the most southern

part of the Ogallala Aquifer,” Stelter said. “When the High Plains has dry years, the aquifer is forced to pump water at a more rapid pace than usual. The underground

aquifer cannot recharge quickly enough to keep up with farmer’s demands.”

This negatively impacts all of the local farmers. Not having enough water to go around does not just hit the farmer’s pocket books; it also affects the local economy, and the national supply of sorghum.

“If this drought continues into the next few years, producers will plant only what they know they will have enough water for,” Stelter said.

This water shortage is what makes the Texas AgriLife sorghum breeding program’s research so important. Researchers take a range of data in order

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to determine the plants overall success within the High Plain's arid environment.

The information collected assists the researchers in one common goal.

"This type of research is done to determine what types of lines might make for a better cultivator for the following breeding season," Stelter said. "All of this information being made available to producers is valuable because it allows the farmers to plant with confidence."

Making the research data accessible to farmers on the Texas AgriLife website allows them to be more aware of the likely success of the following year's crop. This information tells them how many pounds of grain will be produced per acre. The website also informs them on how various hybrid tests performed under the conditions within its environment.

"Being able to determine these factors early on allows the farmer to better budget for the year," Stelter said. "The farmer will have a better idea of the funds he or she will have available for equipment maintenance, along with all the other expenses that go along with running a farming operation. That puts a lot of people at ease."

Many of the tools Stelter uses on a day-to-day basis are much like those that a typical sorghum farmer would use. However, dealing with research requires using a lot of equipment that is specifically designed for collecting sorghum research data.

"Measuring devices, cutting tools, and even the planter are custom made and look very unique in comparison to what a typical sorghum farmer would have," Stelter said.

Stelter has an entire seed layout room filled with scientific instruments that allow him to collect necessary data.

"One important tool I use is a machine that determines the amount of moisture found within the seed itself," Stelter said. "This allows me to know if the plants are dry enough to harvest, and to determine what the bushel weight is."

All of these scientific tools allow Stelter and his interns to efficiently conduct their research.

"The interns in my program learn to use these research tools," Stelter said. "These devices supply the interns with the information necessary to determine which traits make the plant more drought tolerant."

Stelter has been researching and educating others while at Texas AgriLife for almost twelve years, and has enjoyed every minute of it.

"Providing farmers with crop research is a privilege," Stelter said. "I love being able to involve college students in my work. I couldn't imagine doing anything else." 

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