

# Wheeler County Ag Producers

## Extension Connection

May 2020

Wheeler County producers as we continue through this difficult time we at Texas A&M AgriLife extension want you to know that we are still doing our best to serve you as needed. I hope that our new facebook group and these news letters are helping you find the information you need. This news letter contains information on some upcoming programs and AgriLife news. Please feel free to contact me with any questions you might have.

Thomas Meek  
Wheeler County Extension Agent



### Auxin Training's

Until June 1<sup>st</sup> you may complete your Auxin training requirements online through Agrilife learn the price is \$25 per person and you can go through the self-enroll route and do it all on your own.

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Office Hours:  
Mon-Thurs  
8:00 AM-5:00 PM

Friday  
8:00 AM- Noon

Due to the covid-19 we will be working from home till future notice.

# How Soil Microbes help Plants

## Resist Disease

Plants can't self-isolate during a disease outbreak, but they can get help from a friend — beneficial soil microbes help plants ward off a wide range of diseases. Now, Texas A&M AgriLife scientists have uncovered a major part of the process in which beneficial fungi help corn plants defend against pathogens.

The results appeared in *The Plant Cell* in January. Leading the study was Michael Kolomiets, Ph.D., professor of plant pathology and microbiology at Texas A&M University's College of Agriculture and Life Sciences. Funding was provided by the USDA National Institute for Food and Agriculture. Overall, the results shed light on a mysterious aspect of plant immunity and enable future research toward more productive cereal crops.

Careful plant selection and breeding have vastly improved crops all over the world, leading to higher yields, hardiness and disease resistance. But these days, the productivity of crops can't be improved as much by genetic selection alone, Kolomiets said.

"What currently is believed to be the very important next strategy — we call it the 'brown revolution,'" he said. "We can get help from beneficial microorganisms residing in the soil."

Here is the link to the full article- <https://agrifetoday.tamu.edu/2020/04/06/how-soil-microbes-help-plants-resist-disease/>

## Livestock Guarding Dog Field Day online May 1st

The Texas A&M AgriLife Extension Service will host a free online Livestock Guardian Dog, or LGD, Field Day on May 1 from 3-4 p.m. The event will be held on the Zoom meeting platform. Participants will need to download Zoom to their computer, tablet or smart phone and preregister to obtain the meeting link. "We are disappointed to not be able to host a spring LGD field day similar to what we have done the past three years," said Reid Redden, Ph.D., AgriLife Extension sheep and goat specialist and interim center director, San Angelo. "However, we are looking forward to hosting an online meeting to update LGD breeders and ranchers on the recent efforts and accomplishments of the Texas A&M AgriLife LGD Program." The event was originally slated to be in Fredericksburg, but was moved online due to COVID-19. There will now be a fall LGD field day in Fredericksburg on Sept. 25. "We still want to bring people the newest information about livestock guardian dogs and the latest from our LGD research here at the center," said John Walker, Ph.D., Texas A&M AgriLife Research rangeland specialist, San Angelo. "So, we developed the online event." Speakers will include Walker, Redden and Bill Costanzo, AgriLife Research LGD specialist, San Angelo. "This is an opportunity for current or prospective owners of livestock guardian dogs to ask any questions they may have about caring for, owning and working with these dogs until we can all meet in person again," Costanzo said.

For additional information, contact Costanzo at 325-653-4576.

# Trostle named Statewide AgriLife Extension Hemp Specialist

Calvin Trostle, Ph.D., Texas A&M AgriLife Extension Service agronomist, Lubbock, has recently been named the statewide hemp specialist for the agency. Trostle Calvin Trostle, Ph.D., on a hemp tour in Colorado. (AgriLife Extension photo by Kay Ledbetter) “We’ve had a lot of excellent work being done by our AgriLife Extension Industrial Hemp Initiative team to prepare Texas for the production of industrial hemp,” said Dan Hale, Ph.D., AgriLife Extension associate director — agriculture and natural resources, College Station, in announcing the new position. “Dr. Trostle has worked tirelessly in this area and has already been serving in a lead specialist capacity. He will do an excellent job in helping lead our Initiative team’s and agency-wide Extension and research activities.”

AgriLife Extension formed an Industrial Hemp Education Initiative Team to provide information concerning industrial hemp production in Texas after House Bill 1325 was signed into law by the Governor last June. While the U.S. Department of Agriculture was finalizing federal regulations and guidelines, along with the Texas Department of Agriculture writing of state regulations and guidelines and getting them approved by the USDA, Trostle was already at work. The industrial hemp education team helped develop resources for agents and specialists to utilize across the state in producer and public education programs. Trostle led or participated in about 20 educational hemp seminars from Dumas to the Lower Rio Grande Valley. He also made trips to New Mexico, Oklahoma and Colorado, where hemp is already legal to grow, in order to learn more about the crop. Industrial hemp hasn’t been grown in Texas since the 1930s, when there was some hemp production in South Texas. So, there’s no track record of what varieties might work in Texas, and only this year will there be any research on industrial hemp, Trostle said. Trostle said initial hemp field efforts will begin with implementing the Texas A&M AgriLife variety testing program for hemp. These hemp cannabinoid, fiber and grain trials are planned for Plainview, Commerce, San Angelo and College Station. “We won’t be able to implement meaningful planting date studies until 2021,” he said. “Procuring funding for any field work will be key in how quickly we can address research questions.” Another of Trostle’s initial objectives for Texas hemp is investigating and encouraging improved hemp seed quality. “Apart from business issues, poor seed has been the No. 1 production issue in most states already growing hemp,” he said. Trostle grew up on a farm and ranch in eastern Kansas. He earned his bachelor’s degree in agronomy from Kansas State University, his master’s in soil chemistry from Texas A&M University and his doctorate in soil science from the University of Minnesota. He joined AgriLife Extension at Lubbock in 1999 after three summers in rice research at the Texas A&M AgriLife center in Beaumont. The new title of statewide hemp specialist fits in with how he has been known in West Texas – as the “alternative crops guy.” After serving in Lubbock for two years and learning more about the region’s farming, Trostle said he chose to pursue a broad working knowledge on many different crops rather than focus heavily on just one or two. “I believe I made the right decision,” he said. “That approach has positioned me better to start from scratch with learning about hemp.”

He also is currently the state specialist for sunflowers, as well as provides education and applied research support in the South Plains region and across Texas for grain sorghum, sunflowers, peanuts, wheat/small grains, guar, alfalfa, winter canola, summer annual forages and sesame. Trostle said while he knows this first year or two of hemp work will keep him busy, he will maintain his educational programs on all the crops he’s working with.

“I want farmers of grain sorghum, wheat, alfalfa, peanuts, guar and other crops to know that I remain fully committed to maintaining my Extension support to their cropping needs. I will have to reduce my field work in these crops, but the 21+ years of experience I have gained isn’t going anywhere.”

Trostle can be reached at 806-746-6101 or [ctrostle@ag.tamu.edu](mailto:ctrostle@ag.tamu.edu). He has written a monthly hemp newsletter since November and has initiated an AgriLife Twitter account @TXAgriLifeHemp. Trostle also contributed to the AgriLife Extension hemp resources page, along with members of the hemp team.

# Genomes of Five Cotton Species Unveiled by Texas-Rich Research Team

Cotton – we touch it every day. From clothes to medical supplies to animal feed, cotton continues to increase in quality. A recent collaborative, including Texas A&M researchers, is making sure this amazing crop, and thus the products made from it, will continue to be efficiently bred, grown and produced. Cotton New cotton gene sequencing will help researchers improve the valuable staple in our lives. (Texas A&M AgriLife photo by Kay Ledbetter)

The multi-institutional research team sequenced five cotton species, including Upland and Pima cotton grown here in Texas, as well as globally. Contributions to the effort from Texas involved Texas A&M University, Texas A&M AgriLife Research and the University of Texas – Austin. The most recent issue of Nature Genetics reports on the results of this collaboration — high-quality genome-wide sequence assemblies for each of five 52-chromosome species of the cotton genus *Gossypium*, a member of the Malvaceae family, which also includes okra, kenaf, hibiscus, durian and cacao.

The overall project was funded primarily by the National Science Foundation, and led by Z. Jeffrey Chen, Ph.D., a former student and former faculty member of Texas A&M who now holds the D. J. Sibley Centennial Professorship in Plant Molecular Genetics at the University of Texas at Austin.

Breeding cotton typically increases economic yield through better productivity, better quality of products and improved sustainability by providing better pest resistance and drought resilience, David Stelly, Ph.D., a co-principal investigator in the National Science Foundation project and AgriLife Research cotton breeder in the Texas A&M Department of Soil and Crop Sciences, College Station.

“Globally, cotton is the premier natural fiber crop of the world, a major oilseed crop and an important feed crop,” Stelly said. “This report establishes new opportunities in multiple basic and applied scientific disciplines that relate directly and indirectly to genetic diversity, evolution, wild germplasm utilization and increasing the efficacy with which we use natural resources for provisioning society.”

“This kind of mega-project takes a lot of time and effort, but can yield game-changing results, and this one certainly has done that, Already, we are seeing paradigm shifts in what we and others are doing and thinking about doing. These kinds of data are vital to our research and breeding efforts and open many doors for exploration.”

David Stelly, Ph.D., Texas A&M AgriLife Research cotton breeder

The cotton genome research project

While fiber removed from the cotton seed is of greatest value, ginned seed also provides significant additional value as a source of vegetable oil and/or dairy cattle feed. The recent data and findings provide immediately accessible resources for basic and applied research, including breeding and gene editing.

The five cotton species. (Graphic provided by David Stelly)

The other three species sequenced originate from Hawaii, the Galapagos Islands or Ecuador and Brazil. They remain undomesticated but are sources of prospectively useful genetic differences. The Nature Genetics report should facilitate use of all five species in genomics-aided cotton breeding programs. Stelly said the importance of the assemblies may be accentuated by the extreme complexity of cotton’s genome. It contains a relatively large number of genes, about twice as many as occur in most flowering plants with simple genomes.

The researchers report that sequences of these five species’ genomes will provide long-needed genomics resources and insights that will facilitate genetic improvements needed to maintain economic yield from production, enhance quality and value of the fiber and seed products, and further improve sustainability-enhancing features, such as resistance to pests, pathogens, drought and heat-resilience. Contributions from Stelly’s laboratory Contributions from Texas A&M came through Stelly’s laboratory. A key finding by graduate student Luis De Santiago was the detection and mapping of numerous “haplotypic blocks” throughout the genome of Upland cottons.

**Continues on Next Page**

# Genomes of Five Cotton Species Unveiled by Texas-Rich Research Team

Stelly explained these present a major challenge for breeding, because they are both non-recombinant and virtually uniform among cultivars. Evidence corroborating the haplotypic blocks was obtained from analyses of genetic recombination, also involving Yu-Ming Li and former student Amanda Hulse-Kemp, Ph.D.

Also, from Stelly's laboratory, researchers Robert Vaughn, Ph.D., provided plant, seed and nuclei acid samples to the team, and Bo Liu, Ph.D., provided integrative molecular cytogenetic mapping data. "This kind of mega-project takes a lot of time and effort, but can yield game-changing results, and this one certainly has done that," Stelly said. "Already, we are seeing paradigm shifts in what we and others are doing and thinking about doing. These kinds of data are vital to our research and breeding efforts and open many doors for exploration." He also emphasized collaborations and individual contributions are instrumental to success.

"Research projects like this unlock agriculture's potential," said Patrick J. Stover, vice chancellor of Texas A&M AgriLife, dean of the College of Agriculture and Life Sciences and director of Texas A&M AgriLife Research. "By developing crops that enhance health and increase profitability, we not only improve cotton immediately, but the way we approach this data and findings provide direction for basic and applied research far into the future."

"The Soil and Crop Sciences Department appreciates the leadership of Dr. Stelly in guiding this project to completion and providing the vision for implementing the results to benefit our cotton producers," said David Baltensperger, Ph.D., department head, College Station.

Other members of the team

Other project members include:

- Chen's functional genomics / epigenetics team at UT-Austin.
- Jane Grimwood, Ph.D., and Jeremy Schmutz, along with their HudsonAlpha/JGI structural genomics and bioinformatics teams, including Jerry Jenkins, Ph.D., and key bioinformatics contributor Avinash Sreedasyam, Ph.D.
- The U.S. Department of Agriculture genomics and bioinformatics teams of Brian Scheffler, Ph.D., Mississippi, and Hulse-Kemp, North Carolina.
- The Clemson genomics team of Chris Saski, Ph.D.
- Keith McGee, Ph.D., and his educational team at Alcorn State.
- Mississippi State genomics group of Dan Peterson, Ph.D.
- The Iowa State taxonomic genomics group involving Jonathan Wendel and Corrinne Grover, both Ph.Ds.
- Industry involvement through Don Jones, Ph.D., with Cotton Incorporated, a not-for-profit company that works with cotton scientists, the textile industry and consumers.

Other institutions involved in the research were Nanjing Agricultural University in China, and the U.S. Department of Energy Joint Genome Institute. The work was supported by grants from the U.S. National Science Foundation, U.S. Department of Agriculture and Cotton Incorporated. The work conducted by the U.S. Department of Energy Joint Genome Institute is supported by the Office of Science of the U.S. Department of Energy. The work was also supported by grants from National Natural Science Foundation of China, Jiangsu Collaborative Innovation Center for Modern Crop Production, and Natural Science Foundation of Zhejiang Province, China.

# 2020 Beef Management & Economics Series

presented online via Zoom

All Programs 6 p.m. to 9 p.m. (central time)

One time \$10.00 pre-registration fee (attend one or all sessions)

CC/Debit/PayPal ONLY (\$10 + \$2.24 one-time payment fee per participant)

**Register Here: <https://www.eventbrite.com/e/102698491954>**

Upon registration, participants will receive email confirmation with additional instructions

## HEALTH & REPRODUCTION

**Tuesday, May 5<sup>th</sup>**

Reproductive development & herd health  
Breeding Soundness Exams and Bull Fertility  
Preventative Herd Health Management for  
Reproduction

Economics of reproduction decisions

**Thursday, May 7<sup>th</sup>**

Keep / Cull Decisions / Body  
Condition Scores

Potential Predator Issues  
and Control Options

Economics of management  
decisions

## FORAGE HEALTH & GRAZING CONSIDERATIONS

**Tuesday, May 19<sup>th</sup>**

Integration of livestock into farming practices  
cover crops / water conservation / water management  
soil health / weed management  
opportunities and challenges

crops, and livestock diversification

**Thursday, May 21<sup>st</sup>**

Creating a Better Grazing Management Plan  
Using supplementation to strategically  
influence grazing distribution

Risks associated with prussic acid in forages

Economic decisions impacting forage  
availability

## NUTRITION & SUPPLEMENTATION

**Tuesday, May 12<sup>th</sup>**

Meeting the nutrient requirements of  
beef cattle in a forage-based setting

Making economical supplementation  
decisions

Economics and risk involved with  
nutrition decisions and  
supplementation decisions

## BEEF QUALITY & EFFICIENCIES

**Tuesday, May 26<sup>th</sup>**

A look at the efficiencies of a  
dairy farm

Research and Carcass Data  
Dairy/Beef Cross Calves

Update on quality and management to improve  
carcass quality

Beef/ Industry Panel – Opportunities  
and Challenges

Market outlooks for 2020 and  
economics of quality beef  
improvement through genetics

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