Comments from our Department Head

Dr. David Baltensperger
Department Head
Texas A&M University
Department of Soil and Crop Sciences
dbaltensperger@tamu.edu

A little rain over much of the state (notably still lacking in the High Plains) and a few warm days and spring is on its way. Planting is moving forward in South Texas, spring break is approaching for our students and late winter meetings are in full swing.

This winter has been very busy for the department, with interviews for turf specialists and research leadership in soil carbon. We are now actively negotiating to fill these positions. We have also had the opportunity to welcome many visitors to campus. A special highlight in this regard were the visitors brought in for our annual plant breeding symposium, but also included colleagues from Cornell, Azerbaijan, China, Brazil, Australia, and Poland. Several companies have had the opportunity to visit showcasing their new technology. Our TWIG (Texas Weed Information Group) and Cotton Physiology and Soil Survey and Land Conservation groups have had the opportunity to meet exchange information and vision for the coming year.

This season we are investing heavily in helping producers through current issues, including enhancing our stewardship education regarding pesticides, working to better understand fumonis in our corn production system and ongoing recovery from hurricane Harvey.

Thanks to Kent Potts and the entire family for their efforts to remember Dean Potts through a lasting contribution to the Texas turf program. Donations may be made to the R.C. Potts Endowed Assistantship and the R.C. Potts’45 Endowment through the A&M Foundation giving portal. We are also working with groups to provide an endowed fund for our judging teams and enhanced programs in crops and soils.

I had the opportunity to participate in the American Association for the Advancement of Science (AAAS) annual meeting in Austin, where one of our collaborators (Bynak Mohanty) was inducted as a fellow. I have also had the opportunity to visit Lubbock and have trips planned to Vernon and Dallas. Annual reviews are rapidly being scheduled. Please get your paperwork completed and if you have not scheduled a time, do so ASAP. A special thanks to Ed Runge and Travis Miller for picking up awards leadership for the spring.

The FAC under the leadership of Steve Hague is moving forward rapidly with development of departmental summary document for our strategic planning, as well as reviewing departmental operating procedures.

We welcome Dr. Mark Hussey back to the department (HEEP 233C). Join me in thanking him for his leadership of AgriLife and engaging him in exciting opportunities for faculty collaboration. Dr. Patrick Stover assumed AgriLife leadership March 1. We look forward to his leadership in carrying the legacy of AgriLife forward.

We congratulate to Dr. Susan Ballabina on her appointment as Deputy Vice Chancellor for Agriculture and Life Sciences.

You can support Soil and Crop Sciences research, teaching and extension outreach with your tax-deductible donations.

More Information can be found at: http://soilcrop.tamu.edu/giving/
Dr. Wayne Smith, Texas A&M University department of soil and crop sciences graduate coordinator, associate department head and cotton breeder, was honored with the Texas A&M AgriLife Vice Chancellor’s Award of Excellence in the Administration category.

The Vice Chancellor awards program was established in 1980 to recognize the commitment and outstanding contributions of faculty and staff across Texas A&M AgriLife. The awards were presented Jan. 9 in College Station.

Smith has contributed to the administrative leadership of the soil and crops department since 2000, his nomination stated. He conducted cotton breeding research at the University of Arkansas from 1974 to 1986, when he joined the faculty at Texas A&M.

He served as interim department head in 2005 and 2006. As associate department head, he oversees the academic activities of 146 undergraduate students and 140 graduate students with majors in agronomy, soil science and plant breeding.

Additionally, Smith works closely with the department head in managing over $4 million of assets associated with the academic programs, the nomination stated.

“What sets Wayne Smith apart as an academic innovator in our department are his efforts in developing professional agronomists, soil scientists and plant breeders,” said Dr. David Baltensperger, head of the Texas A&M soil and crop sciences department in College Station. “He developed and directs our Distance Plant Breeding Program that currently has 22 graduate students pursuing either master’s or doctoral degrees in plant breeding across the soil and crop sciences and horticultural sciences departments.”

This distance plant breeding program is the first and only Texas A&M distance research graduate degree and the only distance research plant breeding graduate degree offered by a land-grant university, Baltensperger said.

Additionally, he said, Smith solicited and received permission from Texas A&M’s College of Agriculture and Life Sciences to offer continuing education courses for individuals who want and need information about plant breeding but are not interested in another degree. This program has over 70 individuals participating in 165 module units.

He also teaches the undergraduate course Crop Production and graduate course Plant Breeding I, plus team-teaches Host Plant Resistance.

Smith initiated a Plant Breeding Bulletin in 2006 that today is distributed monthly to over 1,000 recipients worldwide. This bulletin recognizes the accomplishments of plant breeding graduate students and faculty at Texas A&M and Texas A&M AgriLife.

In addition to his faculty and administrative duties, Smith has served as a cotton breeder for over 40 years, including 30 years with Texas A&M AgriLife Research. He has developed or co-developed and released 128 upland cotton germplasm lines and four cultivars.

His latest research accomplishments involve the development and release of upland cotton with fiber quality characteristics that exceed those found in any commercial cultivars. Collaboratively with other faculty, Smith identified over 400 genes involved in fiber length and over 1,000 genes involved in the development of fiber strength.

He has 123 peer reviewed publications, one textbook, is lead/co-editor on four crop monographs. He has also written or co-written 11 book chapters, and has 192 professional presentations, either personally or as a co-author.

Smith is the editor-in-chief of the Crop Science Society of America, where he leads editors for four journals and the Book and Special Publications committee. He also serves as president of the National Association of Plant Breeders.

Smith has been honored as a Crop Science Society of America Fellow, American Society of Agronomy Fellow and Texas A&M AgriLife Research Faculty Fellow. He also has been recognized by the National Cotton Council for Genetics Research and the National Council of Commercial Plant Breeders as recipient of their Genetics and Plant Breeding Award.
Kirk Jessup, Texas A&M AgriLife Research senior research associate in Amarillo, has been awarded the Vice Chancellor’s Award of Excellence for technical and programmatic staff.

Since 2010, Jessup has provided technical support and leadership to the crop stress physiology research program, said his supervisor Dr. Qingwu Xue, AgriLife Research crop stress physiologist in Amarillo.

The program focuses on understanding the physiological mechanisms of crop performance under stress conditions, particularly under drought stress and typically involves 15-20 field and greenhouse studies each year. Jessup supervises other staff, graduate students and student workers to ensure all project objectives are completed in an accurate and timely manner.

“Kirk was hired as a technician and promoted to research assistant in 2011, research associate in 2012 and senior research associate in 2014 due to his exceptional job performance,” Xue said. “He has played a critical role in many research projects in our program. “With his participation and leadership, we are able to complete our field activities promptly and thoroughly each year. He not only understands the overall research goals and objectives in each project but also is very creative in developing protocols for data collections.”

Also, because projects in crop physiology are cross-cutting issues among all crop-focused projects in Amarillo, Jessup has had to extend his knowledge and expertise to disciplines other than plant physiology, Xue said.

“Kirk routinely assumes the responsibility of liaison between cooperating programs and is responsible for data collections that range from soil sampling to plant biomass sampling to taking physiological measurements with delicate instrumentation,” Xue said. “His dedication, technical skills, expertise and overall leadership attributes have been particularly noteworthy in collaborations with the agronomy, wheat breeding and irrigation management programs.”

Each year, the program collects over 10,000 points of data physically, ranging from plants to soils, and from corn to wheat to sorghum and cotton, Xue said. Jessup has meticulously maintained high data quality, and not only ensures the completion of the data collections but also summarizes and analyzes them well.

“He holds the highest standards for managing our field and greenhouse trials,” Xue said. “In particular, field research plots require extremely high maintenance from planting to irrigation to pest control to harvesting. Kirk has been working diligently to assure our research plots have healthy plants and are free of weeds and other pests, which ensures high quality field data.”

Academically, Jessup has co-authored 13 journal articles since 2013 and numerous abstracts and presentations related to the crop stress physiology research program. Most recently, he submitted a disclosure of invention on an improved chemical-protective apron for pesticide handlers.

The Texas A&M University department of soil and crop sciences presented him with the 2015 Field Technical Staff Award, saying he is an excellent example of the quality of personnel who would be an asset to any organization. He was also honored as 2016 Team Builder of the Year in the Amarillo Center and a recipient of Texan Caring for Texans Award in 2017.
By: Kay Ledbetter

Dr. Bill Rooney, a Texas A&M AgriLife Research sorghum breeder in the Texas A&M department of soil and crop sciences in College Station, has been appointed as the first holder of the Borlaug-Monsanto Chair for Plant Breeding and International Crop Improvement.

Texas A&M and Monsanto created the chair in honor of Dr. Norman Borlaug, who won the 1970 Nobel Peace Prize for his work in plant breeding. Funding for the chair comes from a generous endowment gift from Monsanto.

Dr. Alan Sams, executive associate dean of the Texas A&M University College of Agriculture and Life Sciences in College Station, said the chair was established by Monsanto to create a legacy of Dr. Norman Borlaug’s lifetime work to eliminate hunger throughout the world. The endowed chair is to recognize a global leader in crop improvement and through that, to elevate Texas A&M’s role in leading the world, Sams said.

“Dr. Rooney has long been such a preeminent scientist, being recognized around the world for his pioneering work in plant breeding and genetics,” Sams said. “We are extremely proud of the contributions he has made and how this chair will increase his global visibility and impact, as well as that of all the Texas A&M crop improvement faculty.”

“I want to make sure Texas A&M is represented at events and opportunities that can extend our plant improvement programs and bring internationally known plant improvement experts to Texas to see A&M’s programs,” Rooney said. “I also want to make sure we are integrating phenomic and genomic technologies into our applied crop improvement programs using sorghum and other crops as examples.”

Rooney said there are other universities with strong international reputations for plant improvement; and Texas A&M should be among them.

“We have as good if not better programs, and this endowed chair allows us to make a better case when opportunities are presented,” he said.

“For instance, if you think about an applied wheat breeding program, Texas A&M is as good as anyone in the world,” Rooney said. “We have excelled in working for the producers at home; we have the people and expertise to extend this program internationally as well.”

Rooney himself has presented more than 30 times both nationally and in China, Australia, South Korea, Greece, India, Brazil, Mexico, South Africa, Ethiopia, Zambia and El Salvador.

Rooney manages an active breeding program with locations throughout Texas, Puerto Rico, Brazil and Central America with research activities in grain, forage and bioenergy sorghum.

He interacts with other Texas A&M scientists in many affiliated disciplines such as molecular genetics, plant pathology, entomology and agronomy, as well as sorghum researchers nationally and internationally.

Leading the highlights of his program are the graduate students he trained who have gone on to productive careers in private industry and academia both nationally and internationally, Rooney said. The breeding program provides the basis for both genetic research and graduate student training.

As a professor, Rooney has focused on advising graduate students with an emphasis on plant breeding. Over his career, he has served as chair for 25 master’s degree students and as a committee member for an additional 13 master’s students. He has been the major adviser for 27 doctoral students and served on the committee of an additional 29 doctorate students.

Another career highlight, he said, is the development of specialty grain sorghums for the food market.

In addition to his crop improvement work for foods, Rooney also worked with Texas A&M geneticists to elucidate the genes underlying photosensitivity in sorghum to develop energy sorghum hybrids for the future bioenergy economy.

In the past, Rooney has been honored with the Texas A&M University Office of Technology Commercialization Innovation Award, as a Texas A&M AgriLife Research Faculty Fellow and was a Research Team Award recipient from the College of Agriculture and Life Sciences.
Several members of the Soil and Crop Sciences faculty have recently been recognized by TAMU and by outside organizations. Dr. Frank Hons, retired lead scientist in soil science, has been named as a Texas A&M University Soil and Crop Sciences Faculty Emeritus. He also officially reached 5,000 citations on February 26.

Dr. Monte Rouquette received the American Forage and Grassland Council Medallion Award during the group’s annual meeting in Louisville, KY. The Medallion award is the highest recognition given by the AFGC, given to individuals who have earned national recognition for their contributions to forages and grasslands.

Dr. Donald McGahan was the 2018 recipient of the Tarleton State University College of Agriculture and Environmental Sciences Barry B. Thompson Service Award. This award is given annually to a faculty member for outstanding contributions to student-faculty relations outside the classroom. It will be presented at the Tarleton State COAES awards banquet in April.

Dr. Seth Murray, Associate Professor in corn breeding and genetics, has been elected to the inaugural Executive Board of the North American Plant Phenotyping Network. Drs. Clark Neely and Josh McGinty have been elected to the Texas Plant Protection Association Board of Directors. Neely, Assistant Professor and AgriLife Extension Small Grains/Oilseed Specialist, will serve as Vice President and Program Chairman. McGinty, Assistant Professor and Extension Specialist in field crops and forages, is Incoming VP-Elect.

Dr. Steve Hague was awarded the 2018 Career Award in Education by the Southern Branch of the American Society of Agronomy, which was presented at the group’s annual meeting in Jacksonville, FL.

The Texas Department of Agriculture-approved auxin-specific herbicide training, developed by Texas A&M AgriLife Extension Service and allied industries, has been reciprocally approved by the Oklahoma Department of Agriculture, Food and Forestry and the New Mexico Department of Agriculture. “These approvals will allow producers who operate in multiple states to attend one training to satisfy the regulatory requirements of the new technologies,” said Dr. Scott Nolte, AgriLife Extension state weed specialist in College Station.

After the program was developed and approved for Texas, AgriLife Extension began conducting auxin trainings in December, Nolte said, adding there are many still scheduled in the coming months. Applicators in need of training can visit https://agrilife.org/aes/ for a list of upcoming training opportunities. Each program will be one hour and provide one TDA laws and regulations continuing education unit.

Nolte said Arkansas and Louisiana do not reciprocate with Texas and require additional training and/or certifications for applicators. Those needing training or help with additional questions about the new requirements should contact an AgriLife Extension office in Texas.
While cotton and soybean producers across Texas are getting the do’s and don’ts for applying new chemical formulations to their crop, the education is being extended to producers with sensitive or susceptible crops to protect their investments.

Texas A&M AgriLife Extension Service personnel have more than 70 meetings planned to train producers on working with the new auxin herbicide technology in cotton and soybeans as a part of label requirements, said Dr. Scott Nolte, AgriLife Extension state weed specialist in College Station.

The training is being conducted in accordance with new U.S. Environmental Protection Agency mandated application requirements for those using the new formulations of dicamba – Xtendimax, FeXapan and Engenia.

“This technology is being used and it is valuable to these industries,” Nolte said. “There are tools to raise awareness and reduce crop injury issues that everyone needs to take advantage of. When you have a mixture of valuable crops growing in the same region, we need to work together. We want to provide everyone the tools to work with their neighbors and help prevent injury.”

Nolte said the training and success of using this new technology can be enhanced if producers raising crops with a sensitivity to the dicamba formulations mark the location of their crops by using a combination of a mobile app and website to delineate their field boundaries.


Hit the Target, which began in 2017 and is offered by Texas A&M AgriLife Research, is a website where crop locations can be marked for others to see, said Dr. Bob Coulson, AgriLife Research entomologist, College Station.

Hit the Target is currently implemented in Texas. This site features all crops – specialty, organic, conventional with no herbicide technology traits and herbicide-tolerant – using the color-coded Flag the Technology.

All users must register with Hit the Target for access to view crop sites and associated information, add crop sites, and record future and completed pesticide applications for a site, Coulson said.

Growers can share site-specific information with crop consultants and applicators, and grant access to applicators for adding pesticide application information, he said. For convenience to users, Hit the Target can be accessed directly from [https://hitthetarget.tamu.edu](https://hitthetarget.tamu.edu) or through the Flag the Technology mobile app available in iTunes and Google Play stores.

“The new label says the producer who is planning to apply one of these new dicamba formulations must survey their surrounding area to see if there are sensitive crops nearby,” Nolte said. “Each producer must document they have done that or document they have gone to a ‘sensitive crop’ registry for their state before application of these herbicides.”

Producers with sensitive crops such as grapes, vegetables, watermelons and traditional cotton can make the system more effective by using the application or similar sites, Nolte said.

“There’s a need for those with conventional cotton, row crops sensitive to dicamba and especially vineyards and high value vegetable crops to utilize this technology to help ensure they don’t receive any damages,” he said. “If they understand it’s a tool to keep someone from spraying nearby, they should get value from marking their field.”

Nolte said crops such as pecans and peanuts might only have visible detection of damage like crinkled leaves. However, more sensitive crops could see yield reductions if they are subjected to higher rates of drift of auxin herbicides. Sometimes, a buyer may even reject an entire field if the outer edges are injured.

The label clearly outlines wind speeds and directions for spraying from the sensitive crops, as well as providing guidelines for using buffers, he said.

The Flag the Technology mobile app directs users to the Texas sensitive crops technology and is another tool to help producers be good neighbors and work together, Nolte said.
Johnsongrass and sorghum might be considered “kissing kin,” but a Texas A&M AgriLife Research team wants to know if there is more going on in the grain sorghum production fields and bar ditches of South and Central Texas than meets the eye.

Dr. Muthu Bagavathiannan, weed scientist; Dr. Bill Rooney, sorghum breeder; and Dr. Patricia Klein, sorghum geneticist and molecular biologist, all with AgriLife Research in College Station, have teamed up to study gene flow between sorghum and johnsongrass.

“The two plants are genetically related and the fear is that through gene flow, johnsongrass can pick up traits from sorghum,” Bagavathiannan said. “What we don’t know is the frequency at which this happens, the genetic determinants of outcrossing and what the hybrid progeny look like in terms of fitness and invasiveness.”

Rooney and his associate scientist Dr. George Hodnett will look at the cytogenetics – how chromosomes relate to cell behavior – of outcrossing between these two species and how they are influenced by sorghum genotype.

Klein will investigate, using the genotyping by sequencing approach, the chromosomal location of potential genetic barriers affecting successful hybridization between the two.

This four-year project – 2017-2021 – also includes work by postdoctoral research assistant Dr. Sara Ohadi and master’s student Cynthia Sias, both working with Bagavathiannan.

“Earlier studies have looked at the gene flow from sorghum to johnsongrass, but what also is important is to see gene flow in the opposite direction,” Rooney said.

The F₂ progeny – the offspring of a cross between any two unrelated seed lines – of sorghum hybrids segregate for male sterility and when present near johnsongrass, there is a high likelihood the male sterile sorghum will receive pollen from johnsongrass, he said.

“We conducted a detailed survey to document the presence of feral sorghum and johnsongrass on South Texas roadides, and we will determine if there are hybrids occurring in nature, what they look like and if they are more aggressive than others,” Bagavathiannan said.

He said they also are conducting field-level gene flow studies involving different genetic backgrounds and will grow harvested hybrid seed to observe growth characteristics and fitness.

Historically, controlling grass weeds in grain sorghum has been difficult because sorghum is also a grass; there have been very limited over-the-top herbicide options available for grass control in sorghum.

However, acetolactate synthase or ALS-inhibitor herbicide tolerance has been developed in sorghum over the past few years under the name Inzen sorghum that will allow for effective post-emergence grass control.

“This is a trait that has already been approved for commercial cultivation and growers are currently waiting on hybrid seed availability,” Bagavathiannan said. “But the longevity of this technology depends on how well we confine, mitigate and/or manage gene flow between the two species.”

“Because johnsongrass is a problematic weed in sorghum fields, transfer of the herbicide resistance trait into johnsongrass will make the technology ineffective,” he said. “This presents a serious agronomic problem. It doesn’t matter whether the resistance was introduced through classical breeding or through transgenic means.”

Gene flow between the two species can also cause ecological and environmental problems, especially if the introduced trait provides an adaptive advantage to the progeny such as disease or insect resistance, Bagavathiannan said. In such a scenario, gene flow can be a boost for the weed. However, gene flow is not usually a concern with non-adaptive traits such as grain biochemical quality.

“Findings of this study will guide the development of suitable strategies to address this problem and help the sorghum industry in sustaining the utility of upcoming technologies,” he said.

For more information on this project, contact Bagavathiannan at muthu@tamu.edu, Rooney at wlr@tamu.edu or Klein at pklein@tamu.edu.
Suchismita Mondal, a plant breeder for CIMMYT, began working on high throughput phenotyping about four years ago. She is currently working with drones, in collaboration with Kansas State University scientists, to create a better solution for prediction modeling. An article about her research was recently highlighted on the BGRI-Borlaug Global Rust Initiative website. The full article can be read online at: https://www.globalrust.org/blog/why-we-fly-revolutionizing-wheat-phenotyping-drones.

Mondal studied plant breeding under Dr. Dirk Hays, receiving her Master of Science in ’06 and PhD in ’11. While at TAMU, she helped to start leaf wax research, and research into wheat genetics for tortillas.
Texas A&M AgriLife scientists are conducting several research projects to improve producers’ understanding of guar and the legume’s value to their operations in the Rolling Plains and South Plains.

Guar has been grown in Texas for more than a century, but acreage of the crop in the state is relatively low, said Dr. Curtis Adams, Texas A&M AgriLife Research crop physiologist in Vernon.

Lack of nodulation on guar roots is one of the producer concerns addressed in a recent AgriLife Research study by Adams and Dr. Calvin Trostle, Texas A&M AgriLife Extension Service agronomist in Lubbock, along with Dr. Santanu Thapa, AgriLife Research postdoctoral research associate in Vernon.

Nodulation is the process of forming nodules on the roots of legume plants. Nodules are root structures that legumes make to house bacteria capable of using nitrogen gas from the air to form fertilizer that the plant can use to grow.

“As a legume, Rhizobium bacteria in the soil will associate with guar roots and potentially develop nodules where the bacteria converts atmospheric nitrogen into fertilizer for the plant and soil,” Adams said, adding that “the plant is also drought tolerant and uses relatively little water.”

Thapa said guar is unfamiliar to most people, but it is a part of their lives nonetheless.

“Guar gum is a common ingredient in the food we eat every day,” he said. “It is used extensively in oil and gas exploration, and in so many other ways.”

The majority of the world’s guar is grown in India and Pakistan, and the U.S. has had variable and relatively low acreage over time, Trostle said. In the U.S., guar is mostly grown across the Southern Great Plains region where the climate is suitable.

“Guar being a legume and adapted to a semi-arid region’s dryland agriculture is important,” Trostle said. “There are few legumes that would be adapted in this type of environment. That is why this work is especially important, to get potential nitrogen fixation in a legume rotational crop where it doesn’t rain a lot.”

“We tested the effects of contrasting soils, a sandy loam and a clay loam, and Rhizobium inoculants on nodulation and plant growth in two guar varieties,” he said.

Although Rhizobia bacteria often occur naturally in soils, Rhizobium inoculants are crop-specific bacterial cultures prepared in the lab and applied to the seed or in-furrow at planting to increase the likelihood of root nodulation, Adams said.

“In our study, we tested one commercially available inoculant and a custom inoculant prepared by a microbiologist colleague, both containing bacterial strains thought to create nodules on guar roots that fix nitrogen,” he said.

Thapa said two iterations of the 50-day study were run in 2017. Plant growth, plant nitrogen concentration, measures of yield potential, root nodule number, nodule weight and other parameters were determined.

“The results of this study clearly showed in different soils that guar is capable of producing plenty of nodules,” Adams said. “The soils we tested are representative of the semi-arid soils on which guar is produced around the world.

“We saw very different nodule characteristics in each soil, with a high number of nodules of low weight in the clay loam soil and low number of nodules with high weight in sandy loam. In the end, the amount of nitrogen supplied to the plants was similar between soils.”

The study showed no effect of the inoculants on the number or size of nodules or plant nitrogen uptake, Thapa said.

“Based on the results of this study, we expect guar will nodulate and supply nitrogen in the field, as long as the conditions are right,” Adams said. “Factors like drought or low soil levels of Rhizobia bacteria could prevent nodulation.”

Trostle said recent discussion with an inoculant manufacturer may provide AgriLife the opportunity to work with experimental products to expand biological nitrogen fixation in semi-arid dryland agriculture.

Trostle said four additional federally funded projects, three led by AgriLife Research, are aimed at providing more information for producers on guar in relation to guar agronomics, wheat rotation, plant breeding/adaptation and bioenergy.

And, he said, if the production builds up, Texas growers of guar seed have a market in Brownfield.
The Texas A&M AgriLife Wheat Improvement Program was the only university-led wheat program at Wheat 102, a National Wheat Foundation educational event held Feb. 8 in Washington, D.C.

Wheat 102 was designed to educate members of Congress and their staff on just how expansive and important the entire wheat value chain is to the economy and U.S. food supply.

Participants included multiple companies, organizations and third parties across the wheat value chain, according to the news release. Texas A&M was the only university invited to participate. The wheat program was represented by Texas A&M AgriLife Research wheat breeders Dr. Amir Ibrahim, College Station, and Dr. Jackie Rudd, Amarillo.

Ibrahim and Rudd said the wheat improvement program consists of many more team members, from wheat geneticists, crop physiologists, plant pathologists and cereal chemists to Texas A&M AgriLife Extension Service specialists and county agents. The two breeders shared the message to legislative members and staff how the land-grant university system provides the Texas A&M AgriLife program the unique ability to:

– Provide an integrated approach to developing broadly adapted/adopted hard red winter wheat varieties.
– Utilize classrooms, laboratories and field plots to educate the next generation of wheat scientists.
– Share knowledge with the producer and, as a result, benefit the consumer.

The Texas A&M AgriLife Wheat Improvement Program is organized into two Centers of Excellence, each conducting variety development, basic genetic studies and development of best management practices for wheat, the breeders said.

The Amarillo center targets rainfed and irrigated production in the drier areas of the state, and the College Station center targets the more humid regions of the state.

The two centers work together to develop some of the most widely grown wheat varieties in Texas and across the Great Plains, Rudd said.

In 2012, TAM wheat varieties were planted on 41 percent of Texas wheat acres, 20 percent in Kansas, 14 percent in Nebraska, and 11 percent in Colorado, he said.

The soil and crop sciences department in Texas A&M University’s College of Agriculture and Life Sciences is one of the largest such departments in the nation, Ibrahim said. Students are trained by world-class faculty in the classroom and the field.

In partnership with AgriLife Research and AgriLife Extension, these students gain research experience and are able to help transfer that new knowledge to the public, he said.

Rudd said the transfer of research knowledge is primarily done at field days and AgriLife Extension educational programs across the state, which act as “classrooms” for producers.

“Helping producers manage yield and quality of wheat forage and grain are priorities of the wheat improvement team,” Rudd said.

Ibrahim said the educational event in Washington is extremely important because wheat is the most popular human food crop in the world.

The Texas A&M wheat program includes the Texas A&M Cereal Quality Laboratory, which ensures TAM wheat varieties have the milling and baking qualities the food industry needs and the health benefits consumers demand, he said.

“This is an ideal resource to improve the nutritional quality of bread and tortillas, the primary products made from hard winter wheat,” Ibrahim said.

Another key component of the wheat program, especially moving into the future, is the collaboration of AgriLife wheat genetic scientists with the AgriLife Genomics and Bioinformatics Service to reduce the time to develop improved wheat varieties, he said.

“This work utilizes marker-assisted selection, doubled-haploids, gene editing and genomic selection.

“Our research has led to varieties with greater insect and disease resistance, excellence in milling and baking qualities, and improved adaptability and forage performance,” Rudd said.

“We have made great progress, but we will need to adapt our program to a changing environment if we are to continue feeding a growing world population. This is an invaluable opportunity for our program, as it is important to carry forward the message that meeting this challenge will require ongoing funding at the national level.”
Weeds in warm-season pastures can be an annual battle, and producers should prepare their spray equipment to win the war, said a Texas A&M AgriLife Extension Service expert.

Now is a good time to calibrate equipment and reflect on the previous year’s weed and pest insect issues to apply successful treatments to warm-season pastures, said Dr. Vanessa Corriher-Olson, AgriLife Extension forage specialist, Overton.

“Take the time to calibrate sprayer equipment to make sure it is working properly,” she said. “As it sits over winter the rig may be displaced or dirt dobbers or other bugs might have gummed the nozzles up. The main thing to make sure it’s putting out the correct amount of herbicide or insecticide intended.”

Too much or too little product application on a hayfield can cost producers, Corriher-Olson said. Spraying too much increases the cost of an application and could be against the label recommendation, which is the law. Too little application could be ineffective and require additional treatments.

“Proper calibration could mean huge savings because those applications represent money,” she said. “It’s worth the time to check.”

When calibrating, Corriher-Olson said equipment should be run as if spraying a field under normal conditions.

“Don’t go faster or slower than you would go in the field,” she said. “Fields may have hog damage or ant mounds or other terrain features that can affect speed and changes of speed will affect the volumes being applied to the field.”

Corriher-Olson said how many gallons of water the sprayer puts out per acre and following individual products’ mixing rates are a big part of ensuring fields receive the right amount of product. She also suggests producers who use multiple products to test mix them in mason jars to check for coagulation and avoid damage to equipment.

“Follow the directions,” she said. “There is a lot of information on the product label because most have different instructions based on chemistry.”

Corriher-Olson said her site https://foragefax.tamu.edu/ has several publications that focus on weed control and management of pastures and forages, including links to assist with weed identification.

Weeds will begin to emerge as temperatures begin to rise, she said. Producers should be scouting improved pastures and be prepared to spray at the appropriate time to deal with common weeds.

Identifying weeds correctly and understanding when and what to apply is paramount when treating pastures meant for hay production or grazing, she said.

“ID weeds as soon as possible to make the best herbicide selection and time to spray,” she said.

For instance, annual weeds such as goatweed, or wooly croton, should be sprayed when they are small and growing, she said. Perennial weeds such as wild blackberries should be sprayed at bloom or after seed drop.

Corriher-Olson said landowners with questions or concerns should contact their county’s AgriLife Extension office for application recommendations based on local conditions.

“There are a lot of good general-use, broadleaf products available,” she said. “The most important thing is to use products labeled for pastures and forages and to apply them effectively.”
More than fifty soil scientists, students and faculty members gathered on the Texas A&M University campus recently for the 55th annual Soil Survey and Land Resource Management Workshop.

Presentation winners were (l - r):
1st - Anditi Pandey, TAMU MS student under the supervision of Dr. Fugen Dou; 2nd - Dianna Bagnall, TAMU PhD student under the supervision of Dr. Cristine Morgan; 3rd - Candice Medina, TAMU MS student under the supervision of Dr. Haly Neely; 4th - Lauren Selph, Tarleton State University student under the supervision of Dr. Donald McGahan.

More than fifty soil scientists, students and faculty members gathered on the Texas A&M University campus recently for the 55th annual Soil Survey and Land Resource Management Workshop.

Master’s student Lauren Tomlin presented on the impacts of double cropping and reduced tillage on soil health.

Senior Plant and Environmental Soil Science major Jennifer Dudak presented her research on new products to improve cotton stand establishment.

Twelve graduate and undergraduate students, including nine from the Department of Soil and Crop Sciences, presented their research during the student competition.

Photos by Beth Ann Luedeker

Master’s student Brady Arthur presented his research on nitrogen fertilizer evaluation in spatially derived soil EC management zones.

Sarah Vaughn, MS student, discussed the development of in situ quantification of soil structure methodology and analysis.

Master’s student Catherine Kobylinski presented her research into root phenotyping using ground penetrating radar.

Dr. Eugene Brams, retired professor of soil science, spoke about “Scientists as Agents of Peace in a Conflicted World”
The 2018 Texas A&M Plant Breeding Symposium was held February 22 in College Station. This event, which is part of the DuPont Symposia Series, is conducted entirely by graduate students.

Plant breeders, students and scientists from across the country attended this year’s symposium.

A highlight of the symposium is the Graduate Research Poster competition, which drew more than twenty-five entries. Winners of that contest were: 1st place - Julien Besnard, PhD student in Molecular and Environmental Plant Science under Dr. Sakiko Okumoto; 2nd place - Fabian Echeverria, PhD student in Plant Breeding under the supervision of Dr. Seth Murray; and 3rd place - Kaisa Werner, Master’s student in Agronomy under the supervision of Dr. Muthu Bagavathiannan.

Texas A&M University graduate students Mahendra Bhandari, Nicholas Ace Pugh and Anna Casto were selected to present their research during the symposium. Bhandari is working on his PhD in Agronomy under the supervision of Dr. Qinwu Xue and Dr. Amir Ibrahim. Pugh is working on his Master’s in Plant Breeding under the supervision of Dr. Bill Rooney. Casto is working on her PhD in Molecular and Environmental Plant Sciences under the supervision of Dr. John Mullett.

Aggie weed science students travelled to Atlanta, Georgia, in January for the annual meeting of the Southern Weed Science Society, where they presented their research.

Kaisa Werner won 1st place in the Master’s student poster contest.

Seth Abhugo placed 2nd in the Ph.D. student poster contest.

Both are studying under the supervision of Dr. Muthu Bagavathiannan.
Recent rainfall has set up much of the state for spring crop planting, but other areas continue to experience drought, said a Texas A&M AgriLife Extension Service expert.

Cotton planting in irrigated fields began more than a week ago in the Rio Grande Valley, said Dr. Gaylon Morgan, AgriLife Extension cotton specialist, College Station, but has been slow due to intermittent cool temperatures this year. Dryland fields will need rain before growers commit to planting their cotton crop.

“Planting in 2018 seems later, but that’s just because growers started planting earlier than usual last year due to the warm temperatures,” he said. “Some cotton is up already, but growers without irrigation are waiting for rain.”

Drought conditions continue for other areas of the state, especially West Texas and the upper High Plains and Panhandle, Morgan said.

“Most of the West Texas region didn’t receive any substantial rain and continues to endure extreme drought conditions according to the U.S. drought monitor,” he said. “Luckily, we have until June for rain in those areas to accumulate precipitation, but the lack of moisture is worrying many growers.”

Morgan said rainfall and some snow fell in a majority of the Southern and Central Rolling Plains and these rainfall events provided some reprieve from a very dry fall and winter for the Blacklands of Texas. Unfortunately, much of the Northern Rolling Plains missed this rainfall.

The moisture should help planting conditions as producers statewide prepare to plant more cotton acres than the previous year, he said. Cotton acres were expected to increase almost 4 percent statewide to 7.15 million acres in 2018, according to a National Cotton Council survey.

Some areas are expected to see big jumps in cotton acres, including the Northern Blacklands where a 40 percent increase from 93,000 acres to over 140,000 acres was expected. Other regions will increase acres 8-15 percent, including the Southern Blacklands, Coastal regions, and the Rio Grande Valley, according to survey data.

“Increased interest in cotton among producers reflects the market prices of both cotton and grain prices that are not so good,” he said. “When producers are choosing between making money and losing the least amount possible, they’re going with the best option with current market prices.”

Rains stopped field preparations in some areas of the state, while other areas continue to experience drought conditions. (Texas A&M AgriLife Extension Service photo by Dr. Ronnie Schnell)

By: Adam Russell

Aggie Turfgrass Club

Aggie Turfgrass Science Students recently attended the Golf Industry Show in San Antonio, TX. This event is hosted by the Golf Course Superintendents Association of America, and offers students an opportunity to network with peers and future employers, learn about new technologies, and attend educational sessions. Students shown below right include (L to R): Davis Wagner, Charles Crandal, Ryan Earp, John Jordan, Shelby Ferguson, Chandler Simental, Calvin Wilson, and Scott Gee.

Above right, John Daniels, USGA Green Section Agronomist, educates Aggie Turf Students about the role of and services provided by USGA Agronomists.

Students were given a VIP tour of the Toro booth and were updated on the latest mowing and spraying equipment as well as irrigation technology.
Congratulations to David and Lexie Rooney on the birth of their son, William “Liam” Atlas Rooney, who was born February 10. He was 19.5 inches and weighing 6 lbs 15 oz.

Liam’s ties to TAMU Soil and Crop Sciences run deep. His daddy, David, is a Research Assistant for corn breeding; his grandpa, William, is a Professor in sorghum breeding and genetics; and great-grandpa, Lloyd, is an SCSC Emeritus Regents Professor and Faculty Fellow. Grandma Megan is the Senior Quality Assurance Manager for the Texas A&M AgriLife Research Feed & Fertilizer Control Service.