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The summer heat has been turned on as we approach the longest day of the year, both with temperature and activity. Researchers and Extension personnel are busy tending to crops, harvesting, and irrigating and as samples come in our crop-quality labs ramp up. Year-end financial transactions, new budgets, and planning for the upcoming year turn up the heat for all the faculty, extension personnel and business office employees.

Summer is the time for field days and we have several coming up later this month. In this newsletter you will find a story and photos from the O.D. Butler Forage Field Day, as well as stories about a new series of cotton videos, research with wild wheat, re-plant alternatives for those whose cotton was destroyed/delayed by the weather, and more. We will hear about the Stiles Farm field day and Lone Star Healthy Streams program in the next issue.

This month we also celebrated the anniversary of opening The Gardens.

We have been hit with some major changes, with two couples in the process of transitioning to new career opportunities. We will greatly miss Drs. Clark and Haly Neely and Drs. Gaylon and Cristine Morgan. We look forward to refilling these positions as soon as possible as well as completing the refill of Dr. Richard White’s position in turf management (currently advertised).

We have had preliminary discussions on the Extension positions and it sounds like we will be able to act quickly. Dr. Aart Verhoeof and his wife, Alma Fernandez Gonzalez, will be joining us in August. They are exceptional scientists with strong backgrounds in the use of laser technology and will be applying this expertise to agricultural problems as part of a Governor’s Initiative in this area.

We continue to explore collaboration on unique qualities in our wheat breeding program with Ardent Mills. I continue to chair the State Seed and Plant Board meeting and participated in several field days, where I had the opportunity to see how our faculty impact Texas producers.

Congratulations to faculty members on a very large number of federal submissions. Best wishes on success. We have heard positive preliminary indications on a few and have many more submissions in preparation currently.

Kudos also to Seth Murray, Muthu Bagavathiannan, Keerti Rathore, Shuyu Liu and their teams for making headlines in major media outlets with their research. It is necessary that the general public, especially those removed from agriculture, hear our story.

As the summer continues there will be more opportunities for engaging the public. Our faculty and staff have rice field days, the Stiles Farm field day, the BASF field tour, summer Texas Turfgrass Association, well water screenings and trainings through the Texas Well Owners Network; rainwater harvesting workshops and watershed stewardship programs; summer youth programs, the cotton breeders tour and more.

I will be representing at the NAREEE meetings in D.C. and National Plant Germplasm Committee. I continue to serve as chair for the Council of Scientific Society Presidents (CSSP) through this fall at which time I will begin a term as chair elect of CAST and rotate to chair the following year. CSSP is active in developing leadership for all scientific societies as we transition to the next generation of scientists.

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. Seth Murray, Eugene Butler Endowed Chair and Texas A&M AgriLife Research corn breeder at Texas A&M University in College Station, is a finalist for the prestigious Blavatnik National Award for Young Scientists.

The honor is presented by the New York Academy of Sciences and recognizes America’s most innovative young scientists and engineers. The Blavatnik Laureate will be announced in late June.

“Dr. Seth Murray is following in the steps of Nobel Laureate and agronomist Dr. Norman Borlaug, and has the potential to begin the next Green Revolution,” said Dr. Brooke Grindlinger, chief scientific officer, scientific programs and awards, New York Academy of Sciences.

“Dr. Murray’s innovative techniques for breeding new strains of corn, creating mathematical models of plant traits and using drones to survey crops over time has resulted in his ability to identify the highest-yielding corn plants. Such breakthrough research holds the potential to help feed the world in the face of dramatic climate change and rapid population growth.”

Launched in 2007 by the Blavatnik Family Foundation, the awards were created with the New York Academy of Sciences to enhance research funding opportunities and emphasize the work of promising scientists under the age of 42 in three disciplinary categories of science and engineering.

Nominations are accepted from select research universities, independent research institutions, academic medical centers and government laboratories from around the U.S., as well as from the Blavatnik Awards’ Scientific Advisory Council. Each institution submits one individual per category. Murray is one of only 11 named nationally in the life sciences category.

“As one of a small handful of scholars in the nation to be named a Blavatnik Award finalist, Dr. Murray’s research was recognized for its quality, impact and innovation,” said Texas A&M Provost Dr. Carol Fierke, College Station. “We congratulate him for this recognition and celebrate the scientific contributions he is making to enhance the productivity, sustainability and quality of agricultural production.”

Murray focuses his research on solving large-scale problems in crop production through plant breeding and technology, including the use of unmanned aerial vehicles, UAVs or drones, in agricultural decision making. He specializes in corn, or maize as it is known worldwide.

“Dr. Murray is leading the way in crop breeding and the use of advanced technologies that will allow growers to benefit from higher yields and increased stress resistance in corn,” said Dr. Patrick Stover, vice chancellor and dean of agriculture and life sciences at Texas A&M AgriLife and director of AgriLife Research. “His pursuit to contribute to a safer and more secure food supply for our nation epitomizes the spirit of a land-grant university.”

Murray, a world-renowned expert on crop field phenotyping, co-led a project of 40-plus faculty across disciplines in developing procedures for scaling UAV technology for breeding and precision agriculture. This project led to his program’s focus on crop characteristics and use of high-throughput measurements to select the most promising varieties in a breeding program.

“I was especially surprised to be selected since my research is fairly applied,” he said. “Plant breeders developing improved varieties for farmers are rarely recognized at this level of science. It is even more meaningful given the historical importance that public discoveries in agriculture have made to foundational sciences, such as genetics and statistics.

“I believe research in crop phenotyping will likely lead to a new wave of scientific contributions arising from agriculture, not to mention the success in helping farmers create a plentiful, safe and secure food supply.”

Murray’s research program focuses on both quantitative genetic discovery and applied corn breeding for Texas and the southern U.S. This year he released five new corn hybrids bred for the southern U.S.’s longer growing season and multiple stresses, characterizing them as “foundational to our future inbred and hybrid production and breeding efforts.”

Breeding trait research in his program includes improved aflatoxin resistance, drought tolerance and nutrient-use efficiency. It also addresses incorporation of novel genetic diversity for perennial, blue and quality protein corn.

“Corn is a tremendously productive crop, and through scientific discoveries farmers have increased yields eight-fold over the last 100 years,” he said. “That means one-eighth of the land is needed to get the same production, freeing up land for recreation, urbanization, wildlife or simply producing additional crops needed to feed a growing population.”
Dr. David Baltensperger, head of the soil and crop sciences department at Texas A&M University, was recently elected as the Council for Agricultural Science and Technology, or CAST, president-elect for 2019-2020.

CAST is composed of scientific societies and many individual, student, company, nonprofit and associate society members. The organization’s board of directors is comprised of representatives of scientific societies, commercial companies and nonprofit or trade organizations.

“Dr. Baltensperger is an outstanding ambassador for agricultural science, Texas A&M AgriLife and the state of Texas,” said Dr. Patrick Stover, vice chancellor and dean of agriculture and life sciences at Texas A&M and director of Texas A&M AgriLife Research. “Our scientific experts and their efforts will be well-served by his passionate leadership.”

Baltensperger became department head in 2006 and served as interim head of the ecosystem science and management department for a period, during which he had administrative responsibilities over about 100 faculty on campus and statewide within AgriLife Research and the Texas A&M AgriLife Extension Service.

Baltensperger said he has been a member of CAST for most of his career, believing strongly in their mission to build a network of experts that can assemble, interpret and communicate credible, balanced, science-based information to policymakers and the public.

As a past president of the Crops Science Society of America, Baltensperger said he wanted to work with CAST to bring science-based information to legislators in Washington, D.C. and other decision makers.

“It’s about getting agricultural science and technology utilized and to discuss the hindrances to that implementation that arise at the bureaucratic level, whether that is on a federal or state level,” he said.

“I’m an active believer in good science being the backbone of decision-making, and that is the goal of CAST. I hope to provide the leadership to meet that goal.”

Baltensperger said some of the big issues being dealt with in agriculture now surround the rapid increase in new technology.

“Agriculture is big, and sometimes being able to rapidly deploy the new science and technology is difficult. My goal is to change that for the betterment of society.”

At the conclusion of CAST’s fall board meeting in October, Baltensperger will officially assume his responsibilities as president-elect. In 2020-2021, he will become the 48th president of CAST, a singular honor and responsibility dating back to 1972, when Dr. Charles Black, Dr. Norman Borlaug and other committed scientists spearheaded a movement to “bring science-based information to policy making and the public.”

“Building on the Borlaug legacy continues to be a driver for our department and me personally,” Baltensperger said.

His significant background in CAST activities helps guide his vision of the future for the organization.

“I am committed to a strong focus on the science behind our work and want to continue the active engagement of our work groups. We need to continue to focus on the opportunity to leverage our activities with funding through multiple partnerships to continue the mission of CAST.”

In 2018, Baltensperger was named by Agriculture Secretary Sonny Perdue to serve on the National Agricultural Research, Extension, Education and Economics Advisory Board, where he is tasked with contributing to effective federal agricultural research, education and economic programs through broad stakeholder feedback and sound science.

He has also been active in several other scientific societies and agricultural advisory boards including the American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, Council of Scientific Society Presidents, American Association for the Advancement of Science, the Texas State Seed and Plant Board, and the National Agricultural Research, Extension, Education and Economics.

Baltensperger earned a bachelor’s degree from Nebraska Wesleyan University, a master’s degree from the University of Nebraska, and his doctorate at New Mexico State University. He worked for the University of Florida and the University of Nebraska as a plant breeder until assuming his current role with Texas A&M.
Dudley Templeton Smith, age 79, died June 8, 2019 from Lewy Body Dementia. He was raised on a tobacco and beef cattle farm in Southern Maryland, where he was active in 4-H and FFA crop and livestock projects and received the FFA State Farmer degree.

Dr. Dudley Smith served Texas A&M University for 38 years, including 20 years in the Department of Soil and Crop Sciences.

His parents were his first teachers. They instilled in him a love for learning and self-discovery. From his father, Dudley Smith from Kentucky, a world sugar agronomist and economist, he gained a practical ability to work, launch projects, and think in terms of global perspectives and agricultural systems. From his mother, Verta Templeton Smith from Washington State, he gained a compassion for helping people, ability to focus on tasks and to strive for excellence.

Dr. Smith earned a B.S. Degree in Agricultural Economics and an M.S. in Agronomy at the University of Maryland, a Ph.D. in Weed Science/Crop Science at Michigan State University in 1968, and an Executive MBA from the University of Houston in 1982.

In 1965 he married Angela Remsberg, formerly from Middletown, MD, who was the love of his life and steadfast partner in graduate school, travel and business partner.

Dr. Smith had three careers spanning 38 years with the Texas A&M University System (AgriLife Sciences) and a total of 47 years in USDA and Land Grant programs. Upon retirement the Smiths endowed several scholarships for graduate student travel in agronomy and horticulture, funded a fellowship for a Ph.D. student and undergraduate scholarships for Endowed Opportunity Award, aggieTEACH (STEM) in the College of Science, STEM teaching at Towson University, Baltimore, Maryland and the Department of Criminal Justice at Sam Houston State University.

In 1968 Dr. Smith established a weed research program in cotton in the High Plains at the Texas A&M Center at Lubbock, with emphasis on weed biology and competition, herbicide efficacy, and environmental studies.

When the Smiths’ moved to College Station in 1973, Dr. Smith served as Assistant Director, and later Associate Director, of the Texas Agricultural Experiment Station until 1996. He provided administrative oversight for state-wide research programs in crops, livestock and natural resources.

One of his greatest pleasures was helping scientists, particularly new faculty to be successful and easing their administrative burdens. Over the course of two decades Dr. Smith visited every regional Research Center, and substation and most of the labs of on-campus TAES faculty in Agriculture and Veterinary Medicine.

Dr. Smith handled tough administrative tasks quietly, with tact and ease, including research federal compliance reviews, hosting animal rights visitors, and regulatory programs in honey bees and feed and fertilizer compliance. He served as board chairman for international research consortiums on sorghum and later, peanuts.

In 1996, Dr. Smith assumed a faculty position in the Department of Soil and Crop Sciences at Texas A&M University. He worked closely with US EPA, USDA, and commodity groups to obtain pesticide registrations for specialty crops. He prepared numerous assessment/white papers on pests and pesticides on environmental and regulator issues at the request of industry groups and USDA.

These papers provided objective research perspectives and outlined modified use patterns on otherwise contentious issues for use by US-EPA. Much of his work culminated in a book “The crops of Texas”, which described the production, pest problems, and marketing niches of 200 crops of economic importance to Texas and southwestern agriculture.

Other research included sustainable agriculture and IPM, economic impacts of chemical use, and international agriculture. He published over 100 scientific articles and papers, plus invited presentation at European conferences.

However, Dr. Smith’s most important contribution was teaching in the classroom, where he excelled in helping undergraduate students to discover their potentials as he empowered them to strive for excellence.

For a decade he taught an
undergraduate course on career opportunities in agronomy, including turf. He met with each student individually at the beginning of each semester to better assist them in achieving their goals. Local and regional field trips helped students expand their horizons and career opportunities. A senior-level program focused on career orientation, enabling students to develop competitive resumes, research firms, and develop interview skills.

Dr. Smith received Achievement Awards for classroom teaching. He was a member of several societies and was selected as a Fellow in the American Society of Agronomy. Dr. Smith retired May 31, 2006 as Professor Emeritus.

Over 40 years, Dr. Smith and his wife, Angela, traveled throughout the U.S., Canada, Latin America and many European countries, attending agricultural meetings, visiting farmers and farm families, learning of their production systems and implications for U.S. agriculture. He also traveled to Saudi Arabia, Australia, New Zealand, Canada and Czechoslovakia for Texas A&M. Together the Smiths’ operated a cow-calf operation in Brazos County. He served as president of the OSR Water Supply Corporation during a time of community service expansion, delivering water to rural areas in Brazos and Robertson Counties. In addition to his professional work, Dudley enjoyed family, farming, working cattle, sailing, gardening, carpentry and construction, camping, meeting new people and traveling.

Dr. Smith was preceded in death by his parents. He is survived by his wife, Angela Remsberg Smith, steadfast companion of nearly 54 years; a son, Gresham R. Smith and wife, Barbara S. Smith; grandson, Wesley S. Smith; granddaughter, Emily S. Smith of Richardson, Texas; daughter, Beth R. Glasshoff; granddaughter, Sidney A. Glasshoff of College Station, Texas; two sisters, Mary Lou Burch of Griffin, GA, and Elizabeth Jones and husband, Bill Desmone of Bristol, VA.

In lieu of flowers, a memorial may be sent to the Texas A&M Foundation, for account 57967 (Graduate Student Travel Awards in the Soil and Crop Science Department). 401 George Bush Drive, College Station, TX 77840-2811.

The family will receive friends from 5 pm to 7 pm Wednesday, June 12 at Callaway-Jones Funeral Center in Bryan. There will be an inurnment at 10:00 am Thursday at College Station City Cemetery, 2530 Texas Avenue South, College Station, TX 77840. The Memorial Service will be held at 11:00 am Thursday at Christ United Methodist Church, 4201 Hwy 6, College Station, TX 77845. Services are in the care of Callaway-Jones Funeral Center, Bryan-College Station.

Our sympathy goes out to:

Seth Abugho and his family as they mourn the loss of his father, Bernie Abugho, who passed away May 23. Seth is a graduate student in weed science. His family lives in the Philippines.

The family of Dr. Charles Wendt, who passed away May 28 after a lengthy illness. Dr. Wendt was a soil scientist at the AgriLife center in Lubbock until his retirement.

The family of Dr. Dudley T. Smith, Professor Emeritus, who passed away June 8, from Lewy Body dementia. (see obituary page 5)

Please keep these members of our Soil & Crop Sciences family in your thoughts and prayers.
“Cotton and Conservation” is the title of a new series of videos being developed by the Texas A&M AgriLife Extension Service and North Plains Groundwater Conservation District.

Dr. Jourdan Bell, AgriLife Extension agronomist in Amarillo, said she is excited about this new partnership that will report on cotton development and irrigation conservation at demonstration sites throughout the water district.

“We’ll use the video series to describe the growth stage of the cotton, any insect or disease pressure and report on irrigation, soil moisture and any management variables,” said Kirk Welch, North Plains Groundwater Conservation District assistant general manager, public outreach, Dumas. “This will help producers in the North Plains better manage their cotton in hopes of saving water while maintaining or increasing yield.”


The total planted cotton acreage across the eight counties that comprise the North Plains Groundwater Conservation District has increased approximately 283,000 acres from 2013 to 2018. Of that, the irrigated cotton acreage has increased from 46,557 to 250,221 acres during this five-year period.

Bell said as cotton acreage has expanded into the northwestern corner of the Panhandle, it is important to account for weekly development of the cotton crop and evaluate the accumulation of growing degree days with respect to key growth stages for the region.

“What we have seen as cotton has progressed further north is that the development does not necessarily agree with growing-degree calendars from other cotton-producing regions,” she said.

Growing degree day accumulation and the cotton plant development is a standard across the globe for cotton, Bell said, because heat drives the development of the cotton plant.

To help producers stay on top of their crop, Bell created an accounting process for AgriLife Extension agents to record plant development and field conditions over each week at the six locations. Weather stations were set up at each location to monitor the daily temperatures.

Helping provide information for the project will be AgriLife Extension agriculture and natural resources agents Scott Strawn, Ochiltree; Mike Bragg, Dallam and Hartley; Marcel Fischbacher, Moore; Kristy Slough, Hutchinson; J.R. Sprague, Lipscomb; and a regional agronomy agent covering Dallam, Hartley, Sherman and Moore counties.

“This is a great opportunity to increase educational programming in cotton irrigation management as regional groundwater levels decline across the Texas Panhandle,” Bell said. “Where producers may be unable to meet the water demand for many crops, cotton is a viable alternative for northern Texas Panhandle irrigated acres.”

Due to variable precipitation patterns, irrigation is necessary to stabilize and optimize cotton production as with other irrigated crops, she said, but because cotton is drought-tolerant, it is poised to increase on dryland acres as seen in recent years.

Management strategies vary between irrigated and dryland production systems, so this educational programming can help increase profitability on dryland acres and allow producers to concentrate irrigation supplies to enhance the profitability of irrigated acreage, Bell said.

Since the northern Texas Panhandle is a short-season cotton production region, variety selection is a critical decision. Texas A&M AgriLife currently has five Replicated Agronomic Cotton Evaluations, or RACE variety trials, across the water district coordinated by Bell.

These provide an unbiased evaluation of key varieties positioned for the Texas Panhandle region under different environmental and management systems. These trials evaluate not only the yield potential of top varieties but also variety stability.

“The 2019 results will be especially important because we are able to evaluate cotton development under unfavorable planting conditions,” Bell said.

She explained the abundant rains and standing water have caused planting and seeding issues. These unfavorable conditions have already caused the loss of the planned field sites in Hutchinson and Ochiltree counties.

“These varieties have a shorter bloom period and are generally more determinant than full-season varieties,” she said. “As a result, earlier maturing varieties are often unable to recover from in-season stress, so monitoring their environment, available heat units and water needs is key to helping producers make educated decisions in their cotton production moving forward.”
The Texas A&M AgriLife Extension Service’s 17th annual late-planting guide, “2019 Alternative Crop Options after Failed Cotton and Late-Season Crop Planting for the Texas South Plains,” is now available online at https://tinyurl.com/yybmpbbo.

“The annual guide is a ‘first things’ approach to helping farmers who have lost crops or have been unable to plant,” said author Dr. Calvin Trostle, AgriLife Extension agronomist, Lubbock.

A variety of wild weather conditions affected many Texas producers this year and in some areas delayed planting or wiped out entire crops. The updated late-planting guide is geared toward the South Plains, but contains helpful information for adjacent regions.

“Whether to keep a field of young cotton that may have excessive damage is a tough choice,” said Dr. Murilo Maeda, AgriLife Extension cotton specialist, Lubbock, who contributed to the updated guide. “Sometimes we need to wait a week to know for sure if we have a keeper.”

The guide draws on Trostle’s 20-plus years as an agronomist in West Texas and answers questions about replanting and late-planting options, including the last recommended planting dates for several potential crops.

“We always hope the annual replanting guide is not needed, but the frequency of damaging storms and winds in the Texas South Plains on vulnerable cotton seedlings unfortunately means farmers face undue risk until the crop is well established,” said Trostle.

The guide has three primary goals:

• to offer guidelines for crop replant options after failed crops, especially cotton
• to assist with late-season planting decisions where timely planting, duration to crop maturity and fall weather risks may impact successful cropping
• to provide contractor contact information as well as recent approximate pricing, particularly for crops where price is fixed at contract signing.

“As planting season drags on in the South Plains, severe weather has producers in the area scrambling to sand fight, plant and replant cotton,” said Maeda. “Unfortunately, many early planted acres that were looking great have been damaged by hail, blowing sand and standing water. While we are pretty late already for planting or replanting cotton in many parts of the Panhandle, the Lubbock area is not too far out either.”

Cotton stands damaged by hail and sand may survive and have good yield potential, but producers need to account for the delay in early season growth caused by such damage, and weigh that against a new planting, Maeda said.

“It is to try to minimize possible end-of-season problems with fiber quality, in case of an early freeze and/or lack of heat unit accumulation, which are fairly common.”

Updates, changes and additions to the guide from the two previous editions include added comments on cotton variety selection, growth and regrowth after hail damage, and targeting late-season uniformity across the field; updated online chemical label look-up information and more.

Addtional AgriLife Extension guides and resources related to the South Plains may be found at https://lubbock.tamu.edu/.

Normal (left) and damaged cotton seedlings in Lubbock County. The seedling on the right survived wind damage and the growing point is alive, producing new leaves. (AgriLife Extension photo by Calvin Trostle)

Foliar damage on seedling cotton. The growing point in the center is not yet demonstrating any regrowth, which is essential to future productivity. (AgriLife Extension photo by Calvin Trostle)
Wheat curl mite, greenbug and Hessian fly have long been troublemaker pests for Texas wheat, but a team of Texas A&M AgriLife Research scientists is ready to go high tech to help control them.

Dr. Shuyu Liu, AgriLife Research wheat geneticist in Amarillo, will lead a team to develop hard winter wheat germplasm with resistance to these pests using genes from a wild wheat relative. The research is funded by a U.S. Department of Agriculture National Institute of Food and Agriculture grant.

Joining Liu on the study are AgriLife Research scientists from Amarillo: Dr. Jackie Rudd, wheat breeder; Dr. Chenggen Chu, wheat genetics scientist; Dr. Ada Szczepaniec, entomologist; and Dr. Qingwu Xue, crop stress physiologist. Joining from College Station are Dr. Amir Ibrahim, wheat breeder, and Dr. Shichen Wang, bioinformatics scientist.

Wheat production in Texas is limited by the harsh and variable environment and a multitude of diseases, insects and other pests, Rudd said.

“We are now looking to the past, to wheat’s wild relatives, to find solutions to these stresses, which can reduce yield and end-use quality,” he said.

The specific goal of this project is to explore synthetic hexaploid wheat to find new resistance genes to defend against these three pests, Liu said.

“Currently, TAM 204 is the only commercial cultivar with this level of resistance,” he said. “It is critical we continue to diversify and find different sources of resistance to these pests.”

The synthetic wheat lines were developed by the International Maize and Wheat Improvement Center, known as CIMMYT, from artificial interspecific crosses between durum wheat and Aegilops tauschii, a progenitor species of wheat, Rudd said.

The synthetic lines are reservoirs of resistance genes not found in modern wheat varieties, he said.

“A lot of work has been done worldwide to bring genes from synthetics into spring wheat,” Rudd said. “But so far, little has been done to incorporate these into winter wheat, like we grow in the Great Plains of the U.S.”

Liu said by combining the resistance found in the synthetics with existing bread wheat germplasm, “we can broaden the genetic base for more durable resistance.”

Processes such as exome capture will help geneticists find markers that are tightly linked or even part of the gene, Chu said. The markers can then be used in an accelerated breeding process facilitated by doubled haploids to merge these genes into existing TAM varieties.

Liu said because pests evolve with host-resistance genes and biotypes of insects continually change, single major resistance genes may only be effective for a few years.

“This situation pushes researchers to keep searching for new sources of resistance and new genes in currently available sources of wheat or its relatives,” he said.

In recent years, progress in wheat genetic and genomic research has accelerated due to improved techniques and knowledge, Liu said. With improved understanding of the wheat genome and new molecular techniques, the whole process of developing superior germplasm lines and adapted cultivars can be sped up.

“Research in the molecular lab, growth chamber and greenhouse, along with field experiments, will be conducted to identify and validate diagnostic genetic markers linked to target genes controlling important traits,” he said.

“This project will provide a greater understanding of the pest-resistance mechanisms,” Liu said. “The genetic markers linked to them can aid in selection efficiency by breeders, who will use the superior germplasm to develop future cultivars with these resistances for farmers.”
Stockpiling forages and feeding small grains crops year-round can help cattle producers offset the higher costs of hay.

That is the message from Dr. Larry Redmon, Extension program leader and associate department head for soil and crop sciences at Texas A&M University in College Station. His recommendations and others by Texas A&M AgriLife Extension Service specialists were part of walking demonstrations recently at the O.D. Butler Forage Field Day at Camp Cooley Ranch near Franklin.

Redmon said small grains forage crops should be planted six to eight weeks prior to the first frost of winter. He covered several small grains forage options for beef cattle producers to consider.

“You can limit graze, letting the cattle on the pasture for short periods of time,” Redmon said. “If you don’t live on the place and only come up during the weekends, you can turn the cattle in on the pasture if you come up on a Friday, then turn them off on Sunday before you leave.”

Redmon said small grains pastures can also help add weight to stocker calves.

“You usually wean your calves when they weigh five hundred pounds, so you have the opportunity to put an additional two hundred fifty pounds of gain prior to them entering the feedlot phase,” Redmon said.

When planting ryegrass in the South Central zone, Redmon recommends 55 pounds to the acre and letting stands grow until May before beef cattle grazing. Another option, clover, can help save dollars on nitrogen application by releasing it naturally into the soil. Redmon said clover can help save nitrogen expense at about 60 cents per pound of nitrogen.

For upland regions that have sandy soils, Redmon recommends Arrowleaf clover varieties. For the Blacklands region, Burr medic. White clover varieties do well in wet regions.

Congratulations!

We are happy to introduce you to Mr. and Mrs. Will Bowling!

Dr. Becky Grubbs and Will Bowling were married on Saturday, January 19, 2019, in McKinney, TX.

The couple honeymooned at the Sports Turf Managers Association Conference in Phoenix, AZ.

Dr. Becky Grubbs-Bowling is an Assistant Professor of Turfgrass Science and AgriLife Extension Turfgrass Specialist in College Station. Will is working on his Master’s of Science in Agronomy with a focus on turfgrass.
New mentor program pairs students with scientists

By: Beth Ann Luedeker

Five students from Texas A&M University, including two from the Department of Soil and Crop Sciences, have been selected to participate in a new mentoring program sponsored by Bayer Crop Science.

Karina Morales and Catherine Danmaigona Clement, both doctoral Plant Breeding students, are part of the initial cohort of this program which pairs graduate students and post-docs with Bayer scientists who serve as mentors for the next year.

Morales, who is studying genome editing in rice under the supervision of Dr. Michael Thomson, has been paired with Dr. Edward Cargill, Science Fellow and Applied Cell Biology Lead in the area of Plant Biotechnology.

She and Cargill initially connected at the Texas A&M Genome Editing Symposium where he was an invited speaker.

“I am excited to have the opportunity to learn more about careers in the industry and to receive advice from Dr. Cargill on science, career paths and life,” Morales said.

Danmaigona Clement is working under Drs. Jane Dever, Libo Shan and Steve Hague. Her research is focused on breeding cotton for resistance to fusarium wilt race 4 (FOV4) using molecular tools. She has been paired with Dr. Brian Gardunia, the Discovery Breeding Methodology Lead for corn, soybeans, canola, cotton and wheat.

“Part of my research approach includes comparative genomics of fungal wilt pathogens and genome-wide association studies (GWAS) to identify resistant loci. Dr. Gardunia worked on cotton during his Ph.D. program in Dr. David Stelly’s lab and has vast knowledge in breeding and genomic selection,” Danmaigona said.

She and Gardunia meet every other week via webex to discuss her research and other professional development topics.

“I hope this program will help me maximize my time during my Ph.D. program and gain exposure to industry life so I will be better prepared for my career in the future,” Danmaigona said.

Students in the program also participate in professional development webinars and have “meet-ups” at the conferences during the year.

Texas A&M University is one of five schools participating in the program. Scientists are also mentoring students from the University of Illinois, Iowa State University, University of Missouri, and the University of Wisconsin-Madison.

Herbicide mode of action and weed identification course held

Story and photo by: Beth Ann Luedeker

About 30 county agents, industry representatives, distributors and graduate students gathered at the ScottsMiracle-Gro Facility for Lawn and Garden Research to learn more about weeds and how herbicides work.

Dr. Kathy Carson, Instructional Assistant Professor of Weed Science, covered the herbicide modes of action in the morning, and then took the group out to the herbicide trial plots at the research farm in the Brazos bottom.

In the field, participants examined crop and weed response to a variety of pre-emergent and post-emergent herbicide treatments.

Carson also discussed herbicide resistance. “Plants can become resistant to more than just herbicides, they can also become resistant to a process,” Carson said. “Any method of control that is used over and over again becomes a selection process and can cause a shift in population.”

The key, she stressed, is to not rely solely on one control method.

In the afternoon, Dr. Vijay Singh, Assistant Research Scientist in Weed Biology and Physiology, discussed weed identification. He demonstrated differences in key areas that allow identification of the weeds prior to flowering.

“Herbicides work best in young plants that are actively growing, so early identification is necessary,” Singh said. “If you have to wait until they flower to identify them it is too late.”

Dr. Vijay Singh explains a plant’s cupped leaves in response to the herbicide application during the herbicide mode of action course.
Sarah Marsh, a senior student at Texas A&M University, has been named a Borlaug Scholar by the National Association of Plant Breeders. (Texas A&M AgriLife photo)

Sarah Marsh, a senior in the Department of Soil and Crop Sciences at Texas A&M University, is one of 12 students recognized by the National Association of Plant Breeders, or NAPB, in the 2019 class of NAPB Borlaug Scholars.

“The NAPB Borlaug Scholarship awards are given to exceptional students aspiring to a careers in plant breeding and genetics and who have a strong desire to contribute to the improvement of the plants that we all depend upon for our daily needs,” according to NAPB.

This is especially critical in this age of continually increasing populations, climate change and uncertain global food security – issues Dr. Norman E. Borlaug, father of the Green Revolution and also a plant breeder, cared about deeply. Plant breeding uniquely addresses these challenges through applied research and improving technologies, according to the association.

“To receive this award is an honor, and it is encouragement to continue striving towards a career in plant breeding,” Marsh said. “It is my belief that plant breeding holds an ever-important space in agriculture, and to be able to be a part of that through this program is humbling.

“I have been fortunate this far to have met professors who have encouraged me in this subject. It is my hope that this award allows me to connect with more people in order to further my knowledge of this necessary subject.”

These awards include a travel grant valued up to $1,500 to attend the 2019 NAPB annual meeting at Calloway Gardens in Pine Mountain, Georgia, Aug. 25-29, plus participation in a professional development mentoring program that connects these scholars with experienced NAPB professional members. Awards come with a free new student membership in NAPB and complimentary registration for the conference.

The students were selected from an impressive field of nominees with strong recommendations from professors and advisers through a rigorous national competition, according to NAPB.

In his nomination of Marsh, Dr. Steve Hague, Texas A&M cotton breeder, said she enrolled in his Plant Breeding and Genetics course in 2017 and later took two other courses he taught, making ‘As’ in all three courses.

“In my courses, her work was creative and went beyond what most students were submitting,” Hague said. “She grasped complex systems quickly and was capable of providing original answers.

“Sarah grew up on a family farm in northern California, where they produced vegetable crops and almonds. I have no doubt that is where she acquired her dogged work ethic.”

Marsh’s career objective is to become a plant breeder. She has a particular interest in rice. Hague said this award will allow her to become familiar with plant breeders from around the country.

“She is one of the most capable students I have had the opportunity to encounter,” he said.

Marsh has been active in the Texas A&M soil and crop sciences department as a member of the undergraduate Agronomy Society, along with participating in a study abroad program to Brazil. She has been recognized for academic acumen as the recipient of the Texas A&M President’s Endowed Scholarship, as well as numerous departmental-level scholarships.

The NAPB Borlaug Scholarship awards were initiated in 2018 with an inaugural class of eight students, who attended the first internationally held NAPB annual meeting in Guelph, Canada. Due to the success and interest in the program, a 25% increase in nominations were submitted for 2019, according to NAPB.

The selection committee increased the number of awards by 50%, exceeding the original goal, according to NAPB. This was made possible by continual gifts to the NAPB/ASF Borlaug Scholars Fund by individuals and institutional donations.
Landowners are becoming increasingly aware of the value of water and water quality. These and others issues will be addressed at the Southern Region Water Conference July 23-25 in College Station, TX.

The conference, titled “Improving Adoption of Sustainable Water Management Practices” will focus on optimizing water use efficiency and protecting water quality in the southern United States. Speakers will provide relevant information for all water users, not just agriculture producers.

Wednesday’s keynote address will be a climate outlook by John Nielsen-Gammon, Regents Professor of Atmospheric Sciences at Texas A&M University and Texas State Climatologist. “Don’t Mess with Texas – Water Edition” will be the Thursday keynote address given by Brooke Paup, one of three board members for the Texas Water Development Board.

Breakout sections will address a variety of topics including private water wells and drinking water, urban water conservation, watershed management, and ecosystem services, as well as those aimed at crop irrigation, soil health and conservation tillage practices.

There will also be a workshop focused on incentives and funding opportunities available for those who wish to implement water-saving practices.

“The conference has something for anyone who uses water,” said Dr. Diane Boellstorff, Texas A&M AgriLife Extension Water Resource Specialist in the Department of Soil and Crop Sciences and one of the conference organizers. “We would love to see some people interested in turfgrass and rainwater harvesting, urban planners and homeowners here.”

Faculty and staff from the TAMU Department of Soil and Crop Sciences will be among those presenting at the conference. Those speakers and their topics include:

- Dr. Paul DeLaune - Optimising cotton production with conservation tillage and irrigation timing.
- Ward Ling - Effectively engaging stakeholders in watershed planning projects.
- John Smith - Improving and protecting urban surface water quality.
- Joel Pigg - Texas Well Owner Network
- Drs. Diane Boellstorff and Drew Gholson of Mississippi State will lead a workshop regional and national collaboration efforts to improve water management.

The preliminary agenda can be found on the conference website: https://agrilifecdn.tamu.edu/southern-region-water-conference/files/2019/05/Preliminary_Agenda-6.pdf.

The regional conference is a collaborative effort between AgriLife Extension, Texas Water Resources Institute (TWRI), Southern Sustainable Agriculture Research and Education (SARE), Oklahoma Water Resources Center, University of Kentucky, and the cooperative extension programs from Alabama A&M and Auburn Universities, Clemson University, University of Florida, University of Georgia, Louisiana State University, Mississippi State University, North Carolina State University, and Prairie View A&M University.

Registration is open at https://agriliferegister.tamu.edu/organizationListings/90.
The window for planting cotton may have been closed by too much rain, but a Texas A&M AgriLife Research scientist said past trials show producers could still benefit from all the moisture with dryland grain sorghum or corn or other alternative crops.

“With all this moisture in the ground, producers still have an opportunity to get a crop in the ground and see good yields,” said Dr. Qingwu Xue, AgriLife Research crop physiologist, Amarillo. “Which crop will depend on their particular circumstances in their field.”

Xue said most sorghum is already being managed on limited irrigation or dryland because it is a more drought-tolerant crop. Even when it stopped raining completely in July in 2017 and 2018, dryland sorghum made 50-90 bushels per acre on average when planted in late June, with the help of rains in August and September.

“This area’s optimal planting date is June for sorghum anyway, because that’s when the chances of rain are the best in most years,” he said.

Sugarcane aphids, however, could be an issue on late-planted sorghum, whether it is for grain or silage, Xue said. Producers need to make sure they select varieties with some resistance and then scout their fields and be prepared to spray.

“The last two years, the sugarcane aphids have arrived in late July and August and that is when the sorghum will be in the bloom stage,” he said. “This is one of the most vulnerable times.”

Xue said in both 2017 and 2018, planting date and hybrid selection had significant effects on sugarcane aphid infestation, grain yield, water use and water-use efficiency. During those years, early May planted sorghum experienced more drought stress and yielded less than late June-planted sorghum.

More mid- to late-season rainfall resulted in higher yields in the later planted sorghum. In 2017, average yield was 25 bushels per acre in early May-planted sorghum and 70 bushels per acre in the late June-planted crop. In 2018, the average yield was 50 bushels per acre in early planted fields and 61 bushels per acre in the late.

For the early planted sorghum, the sugarcane aphid infestation was minimal or none because the sorghum matured before they arrived. However, there were greater sugarcane aphid populations in late-planted sorghum, which might have affected yield.

He said he also has an ongoing late-planted corn study, and, “I know we can push the date to July 1 and still make about 150 bushels per acre in irrigated corn.”

Another potential crop is cowpeas or black-eyed peas, he said. They are very drought tolerant, so make a good option if a producer can get a contract.

“So, we still have windows to plant in, but we may be past most insurance coverage dates for cotton and corn,” Xue said. “Regardless of what crop you are going to grow, the most important thing is getting good soil moisture in the profile, and that shouldn’t be a problem this year.”

A major consideration on what crop to replant will be any herbicides already applied to the field.

“So, you may need to check the herbicide labels or contact an AgriLife Extension agronomist for any replant restrictions and crop selection,” Xue said.

Also, he warned, nitrogen may have been leached out by the heavy rainfall, so more may need to be applied.

More detailed information can be found in the 17th edition of Alternative Crop Options after Failed Cotton and Late-Season Crop Planting for the Texas South Plains, https://tinyurl.com/lateplantingcropalternatives.
Encouraging the next generation of college students

Teaching is an expected part of most faculty positions. What may be surprising, however, is that many of our Soil and Crop Sciences faculty members are involved with the education of school children as well as college students.

Several times during the year 4-H members, vocational agriculture students, and others from across the state of Texas visit the Department of Soil and Crop Sciences. They are introduced to soil science, agronomy, turfgrass science and other agricultural concepts through presentations and hands-on activities which may spark an interest in those fields.

Dr. Jake Mowrer, Assistant Professor and AgriLife Extension Specialist, and his team recently conducted the 4-H Roundup land judging competition. 40 students from nine counties gathered at the Beef Center to assess soil factors and then interpret how those factors will influence runoff, drainage, infiltration and the suitability of that land for cultivation.

Earlier in the spring, Drs. A. Peyton Smith and Julie Howe, hosted students as part of the College of Agriculture and Life Sciences (COALS) STEMming for Greatness workshop, and Dr. Steve Hague hosted students as part of Borlaug Youth Day.

The STEMming for Greatness workshop brought fifty admitted high school seniors from the Dallas-Fort Worth area to Aggieland to explore the Science, Technology, Engineering, and Mathematics (STEM) disciplines available in COALS. Many of these students have been admitted into COALS, though some have selected a STEM program in a different college.

Smith, Assistant Professor of Soil Science, and Howe, Associate Professor of Soil Science, presented “It’s not dirt! It’s Soil! - Exploring soil science as a career”. They provided hands-on activities that introduced the students to soil science and the role of soils in crop production, water quality, forensics and the environment.

Borlaug Youth Day brings a number of students to campus each spring to learn more about agriculture. During their hour, Hague, Professor and cotton breeder, and a panel of students discuss the importance agriculture research and crop improvements to help meet the demands of a growing world population as production acres diminish.

Hague was also involved with the State Science Fair.

In the upcoming months, faculty members will be involved with the Summer Training in Agriculture and Related Sciences (STARS) program. This two-day program allows students to learn about degree programs, as well as career and college preparation.

These programs, and others, serve to attract students to Texas A&M and to the Department of Soil and Crop Sciences.
June

18 - Stiles Farm Field Day - Thrall, TX
20 - Healthy Lawns Healthy Waters workshop - Kyle, TX  Contact: John Smith - johnwsmith@tamu.edu
21 - Lone Star Healthy Streams - Mill Creek Watershed  Contact: Ward Ling - wling@tamu.edu
25 - Healthy Lawns Healthy Waters workshop - Seguin, TX  Contact: John Smith - johnwsmith@tamu.edu
25 - 45th Annual Eagle Lake Field Day - “Texas Rice - Embracing Innovation” - 4:00 p.m.
25 - State Seed Board Meeting
26 - Brazilian Seed Board Meeting

July

4 - Independence Day holiday
10-11 - Sustainable Agronomy Conference - Omaha, NE
11 - 72nd Annual Beaumont Field Day - “Texas Rice - Embracing Innovation” 8:00 a.m.
14-16 - Texas Turfgrass Association Summer Conference, College Station
23-24 - Cotton Breeders Tour
23-25 - Southern Region Water Conference

August

3 - Graduation - Doctoral Degrees - Rudder Theater
5-7 - Beef Cattle Short Course, College Station  Register: https://beefcattleshortcourse.com/
8 - Well Educated workshop, Lampasas, TX  Contact: John Smith - johnwsmith@tamu.edu
9 - Graduation - Master’s and Undergraduates - Reed Arena
19-20 - Soils Critique, Scotts Turfgrass Facility, College Station
26 - Fall semester begins
28-29 - Small Grain Workers Meeting, College Station

Save the Date

Sept. 30 - Oct. 1, Bennett Trust Women’s Conference, Fredericksburg
Oct. 9 - TAMU Turfgrass Field Day, College Station
Oct 21-25 - Ranch Management University, College Station