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As summer comes to an end, we get to witness the graduation of another crop of students. Many are now ready to enter the agricultural workforce and have accepted positions. Others are choosing to continue their education — searching for their precise niche. We congratulate them all and wish them the best of luck.

Summer is a busy time for our science, and a time for our faculty to display their accomplishments at field days. While many field days are now behind us or wrapping up soon, plans for the fall are evolving rapidly. The wheat workers held their annual meeting last week along with the Small Grains Advisory Group. They are rapidly developing a strategic plan to build for the future (see photos page 14).

The Beef Cattle Short Course saw presentations from many of our faculty, and the forage workers group met in conjunction with the short course to explore opportunities to move forward with our research, extension and teaching programs. Their meeting is driven by a need to recognize the role of forages in environmental services, wildlife services and the livestock industry, and to develop concepts to fund many research opportunities.

Many of our Plant Breeding students and faculty will be participating in the National Association of Plant Breeders meeting in Guelph, Canada, this week. Our turf team was instrumental in programming at the recent Texas Turfgrass Association Summer meetings. We had the opportunity to meet with TJ Helton as he was in town to visit with many of our faculty and participate in the Watershed Roundtable.

We also had an opportunity to host a listening session for the USDA on gene editing that included Dr. Jack Okamuro, National Program Leader, Plant Biology; Doug McKalip, Senior Advisory Regulatory Services; and Gwen Burnett, Agriculturalists, Biotechnology Regulatory Services. This was a great opportunity to share concerns and opportunities with this new technology.

A big congratulations to all our faculty for a big push with grant writing this year. Several grants have recently been finalized and many are still in review. A few recent major awards include Dr. Haly Neely’s leadership of an NRCS grant. Many are anxiously awaiting decisions on their proposals, It was great to participate in the annual Soils Critique in Uvalde and a big shout out to Dr. Dong and his team for organizing and hosting. This provided a good opportunity to review what we do in soils across the State and to plan for future emphases in our soils work. I will miss graduation this summer as I committed to do a keynote at International Millet Conference and they are in direct conflict.

The wheels have already begun turning for the upcoming school year. Officers from the TAMU Agronomy Society have planted the corn field for this fall’s corn maze and this year were able to install drip irrigation so the corn is doing well. We hope things go well this year — with moderate rains, and look forward to another fun and successful education opportunity!

A Big Congratulations to Dr. Richard White who will be retiring on August 31st. Dr. White was able to take advantage of the early retirement program last year, but has decided to close out his contract work now. Thanks for many years of dedicated service to our teaching and research programs, join us as we celebrate his career on August 17 (See flier page 14).

Welcome to our new faculty! Dr. Peyton Smith has filled the Soil Carbon position in College Station, Dr. Lindsey Hoffman has joined us as the new Extension Turfgrass Specialist in Dallas (see article on page 6). Dr. Murilo Maeda has been selected to fill the cotton Extension Cotton Specialist position in Lubbock, and Dr. Noland Reagan will be our Extension Agronomist in San Angelo. They will both begin October 1.

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/
Congratulations!
to those earning advanced degrees this month!
We wish you all Good Luck in the next phases of your lives!

Agronomy

Brady Arthur
Brady received his Master of Science in Agronomy under the supervision of Dr. Gaylon Morgan.
Originally from Ralls, Texas, Brady earned his Bachelor’s degree in Plant and Soil Science from Texas Tech University. His affinity for agronomy began as a child on his dad’s farm.
He will remain at TAMU to work on his doctoral degree under the supervision of Dr. Julie Howe.

Sadie Church
Sadie received her Master of Science in Agronomy under the supervision of Dr. Ronnie Schnell.
She chose to study agronomy because she loves the culture of rural/agriculture people and the diversity of what can be done with an agronomy degree.
Sadie has moved back to Montana and has accepted a position as an independent sales representative for Pioneer.

Kaisa Werner
Kaisa received her Master’s in Agronomy under the supervision of Dr. Muthu Bagavathiannan. Her research focus was in weed science.
Kaisa chose to study agriculture because of the beneficial impact it has on the overall well-being of communities. She feels that when people have adequate food they can explore other ways to benefit society.
Kaisa has accepted a position as an agronomist for South Valley Farms in Wasco, California.

Prabhu Govindasamy
Prabhu received his doctoral degree in Agronomy under the supervision of Dr. Muthu Bagavathiannan. He focused his research in weed science.
Prabhu grew up in a farming family in India, which prompted him to pursue his degrees in agriculture.
He is returning to India to continue in his job as a scientist with the Indian Council of Agricultureal Research (ICAR), which is similar to the USDA in the U.S.
Molika Sinha

Molika earned her Master of Science in Biotechnology under the supervision of Dr. David Stelly.

She became interested in Biology in high school after receiving a 97 on her Biology test. She chose biotechnology since it is a nice amalgamation of engineering and medicine (the two most pursued fields in her native India).

Molika is applying for research associate positions and preparing for her GRE subject test to begin pursuing her Ph.D. She hopes to work in a research lab where she can execute and learn both experimental and computational techniques.

Murat Aci

Murat received his Master of Science in Plant Breeding under the supervision of Dr. Hongbin Zhang.

Originally from Sanliurfa, Turkey, Murat earned his Bachelor’s degree in Agriculture Engineering from Igdir University in Turkey.

Haley Kennedy

Haley received her Master of Science in Plant Breeding under the supervision of Dr. Steve Hague.

She is a native of Baytown, Texas and earned her Bachelor’s degrees in Plant and Environmental Soil Science and Bioenvironmental Sciences, both from Texas A&M.

Haley is looking forward to entering the workforce.

Karina Morales

Karina received her Master of Science in Plant Breeding under the supervision of Dr. Michael Thomson.

She chose to pursue an education in plant breeding after spending a summer in Japan conducting research in rice physiology. During that time she recognized that food insecurity is a global problem and that plant breeding is one way she could contribute to fixing that problem.

Karina will remain at TAMU to pursue her Ph.D. in Plant Breeding under Dr. Thomson.

Barret Page

Barret received his Master of Science in Plant Breeding under the supervision of Dr. Steve Hague.

He is originally from Wisconsin.
**Plant Breeding**

**Ian Scadden**

Ian earned his Master of Science in Plant Breeding under the supervision of Dr. Steven Hague.

Ian has a desire to make a positive difference in the world inspired by something a religious leader once said, “There is great work for the Saints to do. Progress and improve upon and make beautiful everything around you. Cultivate the earth and cultivate your minds…”

He has accepted a position as a Plant and Soil Science Lecturer in the Department of Agriculture at Sam Houston State University in Huntsville.

**Yan Yang**

Yan received her Ph.D. in Plant Breeding under the supervision of Drs. Shuyu Liu and Amir Ibrahim.

She had previously earned her Master of Science in Horticulture from TAMU. Yan is a native of China.

**Soil Science**

**Aditi Pandey**

Anditi received her Master of Science in Soil Science under the supervision of Dr. Fugen Dou.

She is a native of Nepal and had earned Bachelor’s degree in Chemistry from Mahidol University International College.

**Partson Mubvumba**

Partson received his Doctoral degree in Soil Science under the supervision of Dr. Frank Hons and Dr. Paul DeLaune.

Originally from Zimbabwe, Partson earned his Master of Science in Plant, Soil and Environmental Science from West Texas A&M University.

**Sewwandi Rathnayake**

Sewwandi received her Ph.D. in Soil Science in Plant Breeding under the supervision of Dr. Paul Schwab. She chose this field of study because she loves nature.

Sewwandi received the Schlumberger Faculty of the Future fellowship for $100,000; She was the President of the Sri Lanka Student Association at TAMU 2015-16; She was on the Executive committee of the Academy for Future Faculty program affiliated with the Center for Teaching Excellence at TAMU 2016-18. She has started applying for jobs in the Houston area.
Efficient varieties and informed management practices can help Texans make the most of turfgrasses’ natural human health and environmental benefits, said the Texas A&M AgriLife Extension Service’s new turfgrass specialist. Dr. Lindsey Hoffman assumed her post at the Texas A&M AgriLife Research and Extension Center in Dallas July 9. She said her public outreach initiatives will deliver holistic approaches for coaxing maximum benefit from turfgrass use.

“Turfgrasses provide a number of services to the ecosystem,” Hoffman said. “They control erosion, contribute to cooler spaces and provide viable surfaces for sports and recreation. We also know green spaces in general contribute to human emotional well-being.” However, she added, proper selection and best management practices must work hand-in-hand to ensure Texans make the most of turfgrass resources.

“We have a number of efficient, resilient, warm-season turfgrasses on the market now,” Hoffman said in reference to the latest varieties by Texas A&M AgriLife Research breeders in Dallas. “These varieties, with efficient irrigation and smart input use, can provide innumerable aesthetic and functional benefits in a landscape alongside a palette of regionally adapted plant material.”

Her plan is to promote a system that marries these disciplines, giving Texans vibrant landscapes that contribute to healthy living and human development, she said.

Hoffman looks to connect with large organizations that carry substantial influence for spreading public information on turfgrass best practices.

“I will be reaching out to homeowners associations, homebuilders, school districts, cities, sporting associations — basically engaging any organization with a large constituency of Texans vested in using turfgrass,” she said.

Hoffman attended the University of Massachusetts, Amherst, where she earned a master’s degree in turfgrass agronomy and doctorate in turfgrass physiology. Before joining AgriLife Extension, she worked as a research associate at her alma mater. Hoffman has also worked as a postdoctoral research associate at the University of Minnesota and Rutgers University.

She joins Dr. Becky Grubbs as AgriLife Extension’s second turfgrass specialist for Texas.

Reach Hoffman with turfgrass inquiries by phone at 972-952-9212, by e-mail at lindsey.hoffman@ag.tamu.edu or on Twitter by following her handle @lhoffman2578.
Congratulations to Dr. Steve Hague, Dr. Ronnie Schnell and Dr. Endang Septiningsih for their promotions, which will become official on September 1.

**Steve Hague** has been promoted from Associate Professor to Professor. Dr. Hague specializes in cotton breeding, with his research focused on creating cotton cultivars and germplasm with high-yield potential coupled with drought tolerance and resistance to insects endemic to Texas.

He teaches SCSC 304 - Plant Breeding and Genetics; SCSC 421 - the study abroad course in Mexico, and SCSC 305 - Production Agronomy Experiences which includes site visits in Texas and the Mississippi Delta.

left: Dr. Hague visits with high school students during the Borlaug Youth Day.

**Ronnie Schnell** has been promoted from Assistant Professor to Associate Professor. He is also the AgriLife Extension State Cropping Systems Specialist.

Dr. Schnell specializes in sorghum, corn and bioenergy cropping systems, with his research focusing on precision agriculture, nutrient management, management of emerging pests and crop rotation.

As the State Cropping Systems Specialist he conducts producer meetings, crop tours and creates informative publications. Ronnie leads the grain sorghum and corn hybrid testing programs.

Dr. Schnell discusses sugarcane aphid tolerance in grain sorghum during the BASF Field Day.

**Endang Septiningsih** as been promoted from Assistant Professor to Associate Professor with Tenure.

Dr. Septiningsih specializes in plant genetics and genomics, with her research focused on rice and peanuts. She studies abiotic and biotic stresses, grain quality, yield and other agronomic traits.

She teaches a distance course in the analysis of complex genomes, SCSC 654, and is currently an Associate Editor of the Crop Science Journal and a member of the editorial board of the of the Plant Breeding and Biotechnology Journal.

left: Dr. Septiningsih at work in the plant genome editing lab.
A newly developed fertilizer system will provide nutrition to engineered cotton crops worldwide and a deadly dose to weeds that are increasingly herbicide resistant, according to a Texas A&M AgriLife Research study.

The new system applies phosphite to cotton crops engineered to express a certain gene — a gene that makes cotton able to process the phosphite into nutrition while the same compound suppresses weeds that are unable to use it, researchers said.

“We believe the ptxD/phosphite system we have developed is one of the most promising technologies of recent times that can help solve many of the biotechnological, agricultural and environmental problems we encounter,” said Dr. Keerti Rathore, an AgriLife Research plant biotechnologist in College Station.

Phosphorus is a major element required by all living beings — life is not possible without it. Most organisms can only utilize phosphorus in the form of orthophosphate.

“We have determined ptxD-expressing cotton plants can utilize phosphite as a sole source of phosphorus while weeds cannot, thus making it effective at suppressing weed growth,” Rathore said.

The transgenic plants expressing the bacterial ptxD gene gain an ability to convert phosphite into orthophosphate, he said. Such plants allow for a selective fertilization scheme, based on phosphite as the sole source of phosphorous for the crop, while offering an effective alternative to suppress the growth of weeds that are unable to utilize this form of phosphorus.”

The international research team led by Rathore consists of Dr. Devendra Pandeya, Dr. Madhusudhana Janga, Dr. Muthu Bagavathiannan and LeAnne Campbell, all with Texas A&M AgriLife in College Station. Others are Dr. Damar Lopez-Arredondo and Dr. Priscila Estrella-Hernandez at StelaGenomics Inc. and Dr. Luis Herrera-Estrella at the Center for Research and Advanced Studies of the National Polytechnic Institute, all in Irapuato, Mexico.

This research was funded in part by Cotton Inc. Weed herbicide resistance and weed control are the No. 2 and No. 3 concerns of U.S. cotton farmers after input costs.

“We can and will deliver for our cotton producers in Texas and beyond, in collaboration with Cotton Inc. and partners,” said Dr. Bill McCutchen, executive associate director of AgriLife Research in College Station.

Weeds typically are managed manually, mechanically or chemically. However, he said, chemical control options are rapidly shrinking due to an increasing number of herbicide-resistant weeds in crop fields, with few alternatives on the horizon.

“Over the years, it has become abundantly clear that new strategies are needed for weed control to sustain agriculture production while reducing our dependence on herbicides,” Herrera-Estrella said. “There is an urgent need for alternative weed suppression systems to sustain crop productivity, while reducing our dependence on herbicides and tillage.”

Rathore, who has been researching genetic improvement of cotton for more than 20 years, said herbicide-resistance in weeds is not just a U.S. problem, but rather a global challenge for producers of cotton, corn and soybeans.

Such a development will also relieve some of the negative perceptions associated with the use of herbicide-resistance genes and heavy dependence on herbicides, he said.

He previously published a report identifying ptxD as a selectable marker gene to produce transgenic cotton plants. The ptxD gene derived from Pseudomonas stutzeri WM88 encodes an enzyme that changes phosphite into orthophosphate, a metabolizable form of phosphorus, when expressed in transgenic plants.

Importantly, the ptxD/phosphite system proved highly effective in inhibiting growth of glyphosate-resistant Palmer amaranth, Rathore said. Resistance to current technologies in this highly noxious weed started showing up in fields about 10-15 years ago.

continued next page
“The results presented in our paper clearly demonstrate the ptxD/phosphite system can serve as a highly effective means to suppress weeds under natural, low-phosphorus soils, including those resistant to the herbicide glyphosate, while allowing better growth of the ptxD-expressing cotton plants due to lesser competition from the debilitated weeds,” Rathore said.

Unlike weeds acquiring resistance to herbicides, he said it is highly unlikely weeds will gain the ability to use phosphite as a source of phosphorus.

“In order for a weed to acquire the ability to utilize phosphite, one of its dehydrogenase genes will have to undergo a complex array of multiple mutations in its DNA sequence – that’s unlikely to happen by random mutations that occur in all organisms,” Rathore said.

Another important point, he said, is compared to phosphate, phosphite has higher solubility and a lower tendency to bind soil components. So, if it is applied in proper formulation to prevent leaching, lower quantities can be used without sacrificing the crop yields.

“Even if some phosphate ends up in streams and rivers and eventually in lakes and the sea, the algal species will be incapable of using it as a source of phosphorus, thus preventing toxic algal blooms that kill fish and other creatures in water bodies,” Herrera-Estrella said.

Future studies will focus on testing ptxD-transformants in the fields that are low in phosphorus as well as evaluating the utility of phosphite as an over-the-top ‘herbicide,’ Rathore said. Also, long-term impact of the use of phosphite as a source of phosphorus on the soil microflora under field conditions needs to be investigated.

Well-Educated training presented in Bellville

Dr. Diane Boellstorff and her Texas Well Owner Network Team speak to water-well owners throughout the state to help educate them on the best management practices for a private water well. They were recently in Bellville where they presented information on not only well management, but also watershed protection, aquifers, groundwater conservation districts, onsite wastewater treatment and more.

“Keep all your records,” Gholson said. “This includes the well log, maintenance records and water testing reports in your well file. This will make it easier for you to manage your well.”

The TWON team also recommended keeping the area around the well head clean and accessible, and to conduct visual inspections monthly.

“The state regulates municipal water systems, but there is no one out there to tell you how you must manage your private well,” said Dr. Drew Gholson, Texas AgriLife Extension Program Specialist in the Department of Soil and Crop Sciences to the more than fifty people who filled the Bellville Volunteer Fire Department conference room. “If you own a household well in Texas, you are responsible for ensuring the safety of the water in that well.”

One of the primary well management strategies encouraged by the TWON team is creating a well file that includes the well log with the well number (which is recorded by the state), the well’s location (GPS coordinates make this much more precise), the name of the landowner, name of the driller and construction information. The construction information includes the depth of the well, diameter, type of construction, pump level and water level.

Drillers have been required to file a well log with the state since 2002. If a well is in a groundwater conservation district, the registration or permit from the GCD should also be included in the file, along with any water quality testing reports received by the owner.
Educating the next generation of plant breeders

By: Tracy Hmielowski

An article by Tracy Hmielowski in the July 2018 issue of CSA News, “Educating the next generation of plant breeders” highlighted the different skills required for plant breeders in industry vs academia. The article highlighted the need for a different type of training for future plant breeders.

One-third of the article focused on the distance education program here at Texas A&M University. That portion of the article follows.

The Distance Ph.D.

One example of making changes to graduate education is the distance research degree in plant breeding offered by Texas A&M University.

“Maybe it’s because Texas is a big state, but we realized that essentially we have been delivering distance degrees for over a century,” said Dr. Wayne Smith, Professor and Associate Head of the Department of Soil & Crop Sciences at the university. “And so we had experience in directing and managing graduate programs and students who spent a considerable portion of their graduate student days away from campus conducting graduate research.”

The Plant Breeding Distance Education Program, which was initiated in the spring of 2013, currently has approximately 20 students enrolled in the program, and eight have completed either an M.S. or Ph.D. degree in plant breeding. The degree program is available through both Soil & Crop Sciences and Horticultural Sciences departments and is currently the only distance research degree program offered at Texas A&M.

The program requirements are equivalent to those of on-campus students in terms of courses and credit hours. Distance students must also meet three additional requirements. The first is access to research facilities at their distance location where they can conduct their thesis or dissertation research. Second, they must have a research mentor and graduate advisory committee co-chair who is located close to or at the research facilities. Lastly, applicants are required to submit a research proposal as part of their application to ensure that their project will provide the student with the appropriate research experience.

With this remote support system, students do not need to relocate to take courses, which are online, or travel to participate in meetings or seminars, which are done through video conferencing.

This is an attractive option for individuals who are already well into their career and may not be in the position to leave a job and be a full-time student, but want to further their education. Often, those in industry have some support from their employer to complete a graduate degree, just like any other relevant training or professional development activities. Smith said the program has met enrollment goals so far, but that the university would like to increase participation from international students.

“We believe that this completely distance program in plant breeding has and will continue to impact the ability of Texas A&M University to contribute to reducing poverty and hunger worldwide through training plant breeders who will improve the yield potential and product quality of agronomic and horticulture plants.”

Carrie Hopkins, who works with the Discovery Program at Monsanto Company in Galena, MD, is also a Ph.D. student in the Texas A&M distance program. Hopkins completed a master’s degree through a distance program offered by the University of Nebraska. She wanted to pursue a P.D. and found that Texas A&M was the only program with a distance option. The flexibility to do the coursework remotely makes it possible for students like Hopkins to advance their education and careers without putting their lives on hold.

Hopkins has an interesting perspective, being both an industry professional and a student simultaneously. She said one of the big differences she sees in the mentality of students and academics compared to those in industry is feeling the need to “do it all” when conducting research. While it is valuable for students to learn experimental design, field and lab methods and how to conduct analyses, individuals who go on to careers with global organizations may find that they are less involved in every step of the process. Hopkins feels that Ph.D. students in plant breeding would also benefit from training in how to work with a team, how to delegate tasks, and how to lead people.

The success of the Texas A&M distance program may serve as a model for other programs - not just in plant breeding, but broadly across agronomy and environmental sciences.

Higher education is already making changes in response to technology and may need to make additional changes to best prepare students for a wider range of employment opportunities. However, changing how education and research are funded would be a slow process and requires buy-in from researchers, educators and administration.

Discussions like the one led by Dr. Seth Murray, Associate Professor and Butler Chair at TAMU, at the 2017 ASA, CSSA, and SSSA International Annual Meeting are a starting point for collaboration.
A new forage cowpea variety – Ace – blends a number of desirable characteristics into into a well-rounded option for livestock, wildlife and improved soil health, according to a Texas A&M AgriLife Research expert.  

Ace is a small-seed cowpea cultivar developed for forage and hay production, as a cover crop and as a wildlife supplemental planting, said Soil and Crop Sciences Professor Dr. Gerald Smith, AgriLife Research plant breeder in Overton.  

Cowpea is a warm-season, drought-tolerant legume. Diverse varieties are used as green vegetables for human consumption, for livestock forage and wildlife browse and as a nitrogen-fixing cover crop to improve soil health, Smith said.  

The new cowpea variety was developed in the AgriLife Research Forage Legume Breeding Program at Texas A&M AgriLife Research and Extension Centers in Overton and Vernon. It was released in May, certified by the Texas Department of Agriculture State Seed and Plant Board in June and is available from Turner Seed and Justin Seed.  

AgriLife Research breeding produced a new variety with qualities including a small seed size, high biomass yields and an extended growing season. The variety’s biomass matures earlier with a first bloom in late August and seed maturity in northeast Texas by mid-October.  

“It wasn’t bred to be an edible variety for humans, but it’s a great forage and browse cowpea, has good vegetation that grows throughout the season and can be utilized for hay or as a cover crop,” Smith said. “It can also be produced for seed here in Texas, which brings a value-added component to its potential.”  

Smith said Ace is comparable to an older variety mix called Iron and Clay, which is widely used in Texas and the Southern U.S. as supplemental plantings for white-tailed deer. But Iron and Clay is a very late flowering variety and seed production is restricted in North Texas due to winter kill prior to seed maturation.  

Forage biomass production of Ace on dryland acres in Overton was 2,539 and 4,200 pounds per acre in 2013 and 2016, respectively, Smith said. Forage biomass production at Vernon in 2015, 2016 and 2017 was 3,470, 5,302 and 6,015 pounds per acre, respectively.  

Protein content of Ace forage at Vernon in 2015 and 2016 was 16.5 percent and 16.4 percent, respectively, he said.  

Smith said Ace is clearly applicable to produce browse for deer, but researchers also will be studying its use to supplement quail and turkey.  

“It’s useful in mixtures with other wildlife plants such as millet, sunflowers and sorghum,” he said. “Its seed size means producers get more seed per pound, and that lends well to lower seeding rates, which reduces costs.”  

Smith said the new variety has also shown potential for annual reseeding.  

Greenhouse studies from two years of seed production indicate about half of an Ace cowpea seed crop will germinate in the first month after seed maturity, and the other half will germinate slowly over about 60 or 70 days assuming moisture and temperature conditions are appropriate for germination.  

The reseeding trait of Ace needs further field testing but could be a valuable tool in stand management, he said.  

“That’s another selling point for this variety,” he said. “If allowed to reseed, we think at least half the seed crop of Ace would germinate. That in turn will mean cost savings for producers.”  

Smith said Ace represents a valuable cultivar with various market applications that will be important to the Texas seed industry.  

“It’s a really good, new and different forage cowpea,” Smith said. “We think its characteristics and potential make it stand out as an option for a wide range of agricultural activities.”
Members of a collaborative research project funded by the USDA Specialty Crops Research Initiative recently met at the Scotts Miracle-Gro turfgrass facility at Texas A&M University for an update on the project. The group is studying the persistence, survival and recovery of warm-season turfgrasses under limited irrigation and long-term drought in an effort to produce more sustainable urban landscapes.

This group is comprised of twenty-four researchers from Texas A&M, the University of Florida, Oklahoma State University, the University of Georgia and North Carolina State University. These researchers are replicating trials in their respective states to better understand which turfgrass varieties are best suited for use in landscapes where water may be limited.

According to the presentation made by Kevin Kenworthy, Professor, Plant Breeding from the University of Florida, there are an estimated 40 to 50 million acres of turf in the United States, potentially three times more acres than irrigated corn, and the turfgrass industry has a multi-billion dollar impact on the U.S. economy. As water resources become more limited and the population increases, urban water restrictions will most likely increase.

Urban landscapes need to adapt to these changes.

With water scarcity concerns, we are seeing increased pressures by regulatory agencies to incentivize or mandate removal of turfgrasses from landscapes in many parts of the country because they are perceived as lacking drought tolerance,” said Dr. Ben Wherley, Associate Professor of Turfgrass Ecology in the Department of Soil and Crop Sciences at Texas A&M.

“This project aims to cooperatively develop improved grasses that can withstand and perform well even under extremely limited, infrequent levels of irrigation commonly mandated during water restriction periods in many parts of the southern and western U.S. Considering the environmental, ecological, and social benefits of turfgrasses to the landscape, this group’s efforts are more important than ever,” he said.

The group, which is made up of turfgrass breeders and physiologists, meets two times a year, rotating between the collaborating campuses.

Since the project’s inception, they have identified 140 advanced lines of bermudagrass, zoysiagrass, St. Augustinegrass and seashore paspalum for short-term drought stress and released several cultivars, including TamStar St. Augustinegrass, which was created at Texas A&M, TifTuf bermudagrass (UGA), Tahoma 31 bermudagrass (OSU), FAES 1312, 1313 and 1319 zoysiagrass (UF) and FSA 1620 St. Augustinegrass (UF).
Lawn owners may be second-guessing their regular maintenance practices, especially in the hottest and driest months.

Dr. Becky Grubbs, Texas A&M AgriLife Extension Service turfgrass specialist in the Department of Soil and Crop Sciences in College Station, has published a Water-Wise Checklist for Texas Home Lawns and Other Turfgrass Areas to help with lawn maintenance this summer.

“We know this is the time of year when Texans become particularly concerned about their lawns,” Grubbs said. “As our weather grows hotter and dryer, it’s increasingly important to find a balance with water use.”

She said many lawn owners tend to overwater, which is evidenced by runoff seen accumulating on neighborhood streets and sidewalks. This overwatering can lead to problems, but a few simple management changes can optimize water use and lawn health simultaneously.

Some of the points made on the checklist are:

– Mow at the upper end of the appropriate mowing height range for your species of grass. Taller grass equals deeper roots, which can improve overall infiltration and access to water deeper in the soil. For more information on appropriate mowing heights per grass species, visit the AggieTurf website at https://aggieturf.tamu.edu/.

– Follow the “1/3 Rule.” Mow frequently enough to never remove more than 1/3 of the total grass mowing height at one time. Scalped grass is stressed grass. Stressed grass will be less tolerant to heat and drought, and more vulnerable to other pests or fungal pathogens.

– Water deeply and infrequently. Try to water to a depth of about 6 inches each time you water. Watering this way encourages deeper, denser root growth. Again, this can improve infiltration and access to water deeper in the soil.

– Wait to water until visual wilt is occurring. Water late at night or early in the morning to reduce evaporative losses, improve water-use efficiency and reduce length of overall leaf wetness, which reduces disease potential.

– Use the “Cycle Soak Method.” Because sprinkler precipitation rates usually exceed soil infiltration rates, cycle soaking improves soil water infiltration and reduces runoff by “pulsing” water onto the lawn in small amounts over several hours.

The complete checklist is available at https://tinyurl.com/lawnturfwater.

Grubbs wants to remind homeowners not to panic.

“Grasses that are well-maintained the majority of the year will go into summer dormancy when drought becomes particularly severe,” she said. “It may lose color much like it does in winter dormancy, but it’s important to remember that when water becomes available again, the grass will recover.

“The trick is to give it everything it needs to grow a healthy, vigorous root system when those resources are available and appropriate.”

Grubbs said summer heat and drought stress can invite other issues as well, which are easy to misdiagnose. These issues are also discussed in more depth on the AggieTurf website under Publications.

Also, the local AgriLife Extension county agent can be contacted if a lawn owner is unsure about a problem, she said.
Approximately fifty people gathered at the Scotts Miracle-Gro Facility in College Station for the annual Texas A&M AgriLife Small Grains Workers Meeting earlier this month.

The two-day meeting allows researchers to discuss current research and the wheat crops from around the state. The meeting also provides an opportunity for graduate students to present the research in which they are involved.

One of the current problems facing wheat is the public concern about gluten. While those people with Celiac Disease are adversely affected by eating gluten products, researchers say that most people are not. Wheat breeders and producers must deal with the general public’s misconception about gluten.

“There is something people are eating that is causing symptoms,” said Associate Research Scientist Dr. Audrey Girard. “We have done gluten studies in which we pulled the gluten out of food, and it is not the gluten causing the symptoms.”

“It is not necessarily the wheat causing the issues, but perpetuating the myth makes money for people. They can command a higher price by marketing “gluten free”. That is the problem,” she said.

“We need to show people that wheat is healthy and improve on that,” said Dr. Jackie Rudd, Professor of wheat breeding and genetics.
Awika headed to Ethiopia

Soil and Crop Sciences Professor Dr. Joseph Awika, whose research and teaching efforts focus on food science and technology, will be heading to Ethiopia later this month for ten months in Ethiopia.

The faculty development leave to the African nation is funded by a Fulbright fellowship. Awika will spend the first five months at Hawassa University in Hawassa, a small town on the shores of Lake Awasa in south-central Ethiopia. The second five months will be spent at Bahir Dar University in Bahir Dar, in northern Ethiopia at the southernmost tip of Lake Tana.

“I have been working on a collaborative research project in Ethiopia which will continue while I am there,” Awika said. “I will also be teaching and helping with the curriculum.” He will be teaching both undergraduate and graduate courses at the two universities.

Ethiopia is the northern neighbor to Awika’s native Kenya. He earned his Bachelor of Science degree at Egerton University before coming to College Station to earn his Ph.D in Food Science and Technology.

Makayla Faldyn wraps up summer water internship

Makayla Faldyn, who will begin her senior year at Texas A&M in just a few weeks, spent her summer as a water resource restoration and protection intern with the Texas A&M AgriLife Extension water program in the Department of Soil and Crop Sciences.

“I have a passion for science, communication and education, so this internship fit me perfectly,” said Faldyn. “I got to learn more about watersheds, set up meetings, and even deliver outreach education. I also got to make direct calls to the stakeholders to encourage them to be involved with meetings and events.”

She spent ten weeks working with the Texas Watershed Stewards, Mill Creek Watershed Partnership, and Geronimo-Alligator Creeks Watershed program.

Faldyn’s internship was all “hands-on”. She spent the summer further developing the online presence of the programs by updating the Mill Creek Watershed Partnership website and updating the calendar to make it more user friendly. She promoted watershed events through their Facebook page and updated the Texas Watershed Stewards online courses, designed brochures and more.

One of her favorite parts of the internship was having the opportunity to serve as a youth program leader working with Texas Parks and Wildlife programs.

“I had the opportunity to work with about 400 young people ranging from six to thirteen years old at Lake Somerville and Huntsville State Park helping to teach water quality to younger generations,” Faldyn said. “I helped tailor the information to the ages of the youth and I really enjoyed it.”

“I cannot brag enough about the quality of this Aggie,” said Dr. Jake Mowrer, Extension Specialist for Soil Nutrient and Water Resource Management, who was her primary supervisor. “Makayla was a self-starter, very bright and engaging. She really benefitted the program and has been very effective.”

Michael Kuitu, Extension Program Specialist and Program Coordinator, echoed those sentiments.

“This summer marked the second year our department offered undergraduate students an opportunity to join Extension’s water programs as an intern. Though these past 10 weeks with Ms. Faldyn working in that position seem to have flown by I can say with confidence she has made a positive, lasting impression. Her tactful and professional work ethic along with her presentation skills will take her far,” Kuitu said.

For Kuitu and the rest of the team, it was “truly rewarding” to witness an intern taking the lessons learned in the classroom and applying them to a real world scenario.

“One of the goals with this internship is to create an environment of expedited professional growth,” Kuitu said. “To achieve this, we aimed to treat our intern as a colleague, ensuring the work they are assigned is not ‘busy work’, but rather a component of our team’s collective deliverables.”

Some TAMU water program members (l to r): Michael Kuitu; Makayla Faldyn; Jake Mowrer; Ward Ling, Extension Program Specialist for Geronimo-Alligator Creek Watershed; and Drew Gholson, Extension Program Specialist.
**August**

10 - Graduation Ceremony
17 - Retirement Celebration for Dr. Richard White - 5:00 p.m. Scotts facility, College Station
20 - Fall P&T packets due
22 - Texas Well Owner Network Training - San Angelo
23 - Big Country Wheat Conference - Abilene
27 - Fall semester begins
28 - 42nd Annual Randall County Ag Day and Crops Tour - Canyon, TX
29 - Multi-county Grazing and Nutrition Workshop - Sonora
30 - Forage Management Workshop - San Antonio  RSVP: chuntzinger@ag.tamu.edu

**September**

04 - P&T Committee meeting
13 - Bushland Forage Sorghum Field Day
13 - COALS Dean’s Outstanding Achievement Awards - AgriLife Center

**October**

1-2 - Bennett Women’s Conference - Fredericksburg
4-5 - Gene Editing Symposium - MSC Gates Ballroom, College Station
10 - Turfgrass Field Day - Dallas
15-19 - Fall Ranch Management University
17-19 - Borlaug Dialogue International Symposium
26 - Soil and Crop Sciences Fall Harvest Celebration - College Station

**Save the Date**

February 25 - March 1 - Turfgrass Ecology & Mgmt Short Course - College Station