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Happy Thanksgiving! We hope to see you at our feast here in College Station on the 21st.

As we enter the holiday season, we remember all the things for which we are thankful. We in agriculture can be thankful that research and extension outreach efforts continue to improve global food security.

Our department should be thankful that we have students such as Shreya Ravisankar and Tadesse Teferra who, along with Food Science undergraduate Celeste Totten, recently created a muffin mix which won the Product Development award at the American Association of Cereal Chemists International meeting in San Diego last month (see article on page 6).

We are also glad to have filled the open positions in the business and teaching offices. Welcome to Vickie Johnson, our new business associate, and Taylor Barfield, who will be providing administrative support in our teaching office. Welcome to our new undergraduate support staff as well. We have added Nicole Jones and Payton Redfearn in the main office and Nick Frisbee in the teaching office.

The past month included the World Food Prize, the Tri-Society meetings and the Council for Agriculture Science and Technology (CAST) meetings. At the World Food Prize I was pleased to serve on a panel for the American Society of Agriculture and Biological Engineers (ASABE) as part of the Borlaug CAST Communication Award program. A video of that discussion on Water-Food energy nexus may be viewed at https://www.youtube.com/watch?v=byG-MVeOxzE. At the CAST meeting I was elected to serve a three-year term on their Board of Directors, and look forward to that opportunity.

Congratulations to Drs. Amir Ibrahim and Gerald Smith who were elected as Fellows by the Crop Sciences Society of America (article on page 3). Several others received awards at the various society meetings (see page 4). Kudos to you all. We appreciate your hard work and your representation of our department and university.

Our turfgrass faculty held a successful field day last month, with over 100 industry professionals, faculty members and students in attendance. One highlight was an ongoing research project investigating the possibilities for spent coffee grounds in turfgrass treatments. Publications from as far away as Ireland have inquired about this research (see article on page 10).

We mentioned the success of our Soils Team in last month’s newsletter. An article and pictures can be found on page 5 of this issue. Again we offer them congratulations! A big Whoop to a successful corn maze season and all who participated.

This week we are hosting the Texas Nursery and Landscape Board of Directors for a tour of the new turf facilities, and then we will have a few more conferences before the year winds to a close. I will be attending the Amarillo Farm and Ranch Show, The Cotton State Support Meeting in Lubbock, The Council of Scientific Society Presidents meeting in DC, Texas Turfgrass Association conference in Arlington and the Texas Plant Protection Association here in Bryan/College Station in early December.

I look forward to the beginning of the annual review season with reviews in Amarillo during the Farm and Ranch Show. For the rest of the faculty make sure that you get the metrics in and start your review paperwork. Thanks.

The legacy and leadership banquet and other events have provided recognition of many of our departmental donors-- a special thanks to each and every one. These funds make a huge difference across many aspects of our department, from scholarships to funded programs to professorships, assistantships, travel and teaching.

Until then, I wish everyone a very happy Thanksgiving and safe travels.

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/
Two Texas A&M AgriLife Research professors were honored for their professional achievements with the title of Fellow by the Crop Sciences Society of America Oct. 23 in Tampa, Florida.

The two honored were Dr. Amir Ibrahim, wheat breeder in the Texas A&M University department of soil and crop sciences in College Station, and Dr. Gerald Smith, Regents Fellow at the Texas A&M AgriLife Research and Extension Center in Overton.

The designation of Fellow is awarded by the Crop Sciences Society based on professional achievements and meritorious service. Ibrahim and Smith were among 10 named for 2017.

“Amir was recognized for his leadership in wheat research programs both here in the U.S. and worldwide,” said Dr. David Baltensperger, head of the Texas A&M soil and crop sciences department in College Station. “In addition to his international research, his graduate research program is producing the wheat breeders for the next generation.”

Ibrahim leads the small–grains breeding program at Texas A&M, managing wheat cultivar development for the South, Central and Northeast regions of the state, Baltensperger said. He also noted Ibrahim has been recognized for southern-adapted oat varieties and other small-grain research. Ibrahim has released and/or co-released 18 winter wheat and three oat cultivars.

His award recognition also cited his applied research on genetic control of end-use quality and biotic and abiotic stress tolerance in wheat, as well as his continuing research of hybrid wheat.

In addition to his teaching duties, Ibrahim has served as the adviser or co-adviser of 17 doctorate and 15 master’s students, most of whom hold research and leadership positions in the public and private sectors. He has published 90 refereed journal articles, 36 Extension papers, 11 technical reports, two book chapters and 87 abstracts and proceedings.

Ibrahim earned his bachelor’s degree from the University of Gezira in Sudan, his master’s degree from the American University of Beirut in Lebanon and his doctorate from Colorado State University.

“Also an international leader, Dr. Smith is highly recognized in the area of legume breeding for forages, having released new cultivars adapted to the southern states,” Baltensperger said. “He is known for leading the way with forage genetics.”

Smith’s primary research emphasis is to improve forage legumes and grasses through genetics and plant breeding with a focus on new scientific discoveries, genetics of disease resistance and cultivar development, his award recognition stated.

He is working to improve forage-livestock pasture systems with a focus on cultivar development, nutrient cycling and genetics of disease resistance.

Smith’s cooperative breeding programs have led to the release of new cultivars of arrowleaf, white and crimson clover, annual sweet clover and lablab bean.

He has dedicated his research program to serve the agricultural community by delivering improved forage cultivars and advanced technologies to Texas and U.S. farmers, ranchers and consumers, the nomination stated.

Smith earned his bachelor and master’s degrees from Auburn University and a doctorate from Mississippi State University. He is active in the Crop Science Society of America and has served as chairman for the North American Trifolium Conference.
Several of our students, and students supervised by our faculty, participated in a variety of competitions at the Tri-Society meetings last month.

Dr. Haly Neely had two students claim the top positions in the graduate student Soil Physics and Hydrology competition. Candice Medina and Catherine Kobylinski, both working toward their Master of Science, placed first and second, respectively.

Yan Yang, a doctoral student supervised by Dr. Shuyu Liu and Dr. Amir Ibrahim, received the Excellent Student award from the Association of Chinese Soil and Plant Scientists in North America.

Dorothy Menefee, a doctoral student under the supervision of Dr. Nithya Rajan, placed first in the oral and poster graduate student competitions organized by the Evapotranspiration Measurement and Modeling (EMM) community of the American Society of Agronomy.

Texas A&M was well represented at SASES, the undergraduate conference, as well.

Franklin Linam was selected as a Golden Opportunity Scholar. This program pairs students with a society professional in their area of interest who will serve as a mentor, and help guide them through their education and beyond. Some of the scholars will be invited to attend Congressional Visits days in the spring.

The Texas A&M Chapter of the Agronomy Society, received 2nd place in the Club Poster contest and 3rd in Quiz Bowl.

The poster was created by Caitlin Lakey, a junior agricultural science major; Brayden Stockton, a senior plant & environmental soil science (PSSC) major; Kyle Kennedy, a junior in ag communications & journalism; and Nicole Shigley, a junior PSSC major.

The Quiz Bowl team consisted of Shigley, Savanna Shelnutt, a junior PSSC major; Morgan Sanders, a sophomore in animal science; and Jon Prieto, a senior in PSSC.

Joseph Burke, a student at Texas Tech University supervised by Dr. Katie Lewis, placed first in the SSSA - Soil and Water Conservation oral presentation competition, and received the Gary “Pete” Peterson Dryland Soil Management Scholarship.

Mark McDonald, also a Tech student supervised by Lewis, placed third in the ASA-Environmental Quality poster contest.
The Texas A&M University Soil Judging team came out on top at the Region 4 competition in San Marcos last month, and earned a spot in the national competition to be held at the University of Tennessee at Martin next March.

Three members of the team finished among the top ten individuals at the contest.

Leading the way for the Aggies was Nicole Shigley, a junior Plant and Environmental Soil Science (PSSC). Nicole was the high point individual for the contest.

Cooper Stence, a junior in Agriculture Systems Management placed 5th high, followed by Kenny Le, a senior Spacial Science major.

Seniors Frank Linam, PSSC, and Lauren Gayre, Bioenvironmental Science, rounded out the Aggies’ championship team.

“I wanted to be on the soils team ever since they hosted the area Land Evaluation contest for FFA my senior year in high school,” said Shigley, who has been on the team for three semesters. “I think walking into a pit and seeing something you have never seen before is the best part!”

To her, the most challenging part is travelling to a new state and learning the parent material and geology there.

“I got involved in soil judging after taking Dr. Morgan’s class and working in her lab,” said Linam, who will be pursuing higher degrees in soil chemistry after graduation. “It has allowed me to see many more soil pits than I had before.”

To Linam, the most challenging aspect of the contest is the time constraints.

“Since it is timed, you have to come to a decision very quickly and move on to other parts of the contest,” he said.

The team is coached by Sarah Vaughn, a graduate student working on her Master of Science in soil science and Dr. Cristine Morgan, a soil science professor in the soil and crop sciences department at TAMU.

Region 4 includes colleges and universities from Arkansas, Louisiana, Mississippi, Oklahoma and Texas. About 40 individuals comprising seven teams competed. The top three teams have the opportunity to compete in the national contest.

The contest includes identification, evaluation, classification and description of soils, homesite evaluation, and more.

At the National Collegiate Soil Judging contest, the two judging events occur over two days. On the first day, the students compete as individuals and will have three pits/sites to evaluate. On the second day they evaluate two sites and are judged as a team.
Soil and Crop Students win with PulCe Muffins

By: Beth Ann Luedeker

Shreeya Ravisankar and Tadesse Teferra, both doctoral students under Dr. Joseph Awika, and with Celeste Totten, an undergraduate in food science, have been working for many months to create a new breakfast muffin. Last month their efforts were rewarded.

At the American Association of Cereal Chemists International (AACCI) annual meeting in San Diego, the trio claimed first place in the product development competition with their PulCe Muffins.

According to the students, PulCe muffins are a gluten-free, whole grain mix made from a blend of different ancient grains (sorghum, amaranth and teff) and pulses (garbanzo beans and lentils).

“The busy lifestyles of consumers is making many skip breakfast and they are looking for more convenient products,” said Ravisankar. “According to research data, the sale of muffins is projected to increase rapidly in the next ten years, so we set out to develop PulCe muffins, which derives its name from the ingredients - Pul from pulses and Ce from cereals.”

With many consumers considering gluten-free products to be healthier choices, the students wanted to create a quick, ready-to-bake, gluten-free muffin mix offering several nutritional benefits.

“The muffins are a complete source of proteins, as pulses are rich in lysine and cereals are rich in methionine, offering three to five times the protein of other muffins,” Taferra said. “In addition the blend makes the muffins rich in vitamins and several minerals, including calcium, iron and manganese.”

Whole grain cereals and pulses, in combination, are sources of beneficial polyphenolic compounds which have been shown to have synergistic antioxidant and anti-inflammatory potential in recent in vitro studies, the students said.

The students faced several challenges as they developed their muffins.

First it was the “beany” flavor of the pulse flour, which they overcame by microwaving the whole beans and lentils briefly prior to grinding them into flour.

Texture was another challenge.

“The gluten in a wheat based muffin provides elasticity and extensibility to hold the product together. The lack of gluten in our product forced us to work with other additives to provide a moist product.” Ravisankar explained.

“We also had a hard time milling the garbanzo beans,” said Teferra. “The beans are naturally hard and difficult to mill, and the situation was worsened by the microwave treatment. It was a constant struggle.”

Perhaps one of the greatest challenges was time. The students all have class and research obligations which limited the time available to obtain some of the key ingredients in the form required.

“In the end, we were able to present a healthy muffin in three flavors, blueberry, strawberry and chocolate) that perfectly fits current consumer trends,” Ravisankar said. “They are gluten free, rich in protein and minerals, and have no artificial ingredients.”

The trio recognizes that whole grain products are more prone to oxidation, which limits their shelf lives, and they plan to address this during future research and development.

“We could not have achieved this without the support and guidance of Dr. Awika, and the cereal quality lab members,” Ravisankar said. “We also had support from Dr. Rhonda Miller in animal science, who helped with sensory analysis, and Dr. Suresh Pillai in nutrition and food science, who provided microbial analysis support.”
Cereal Quality Lab travels to San Diego for AACCI Conference

By: Beth Ann Luedeker

Members of the Cereal Quality Lab, led by Dr. Joseph Awika, participated in the American Association of Cereal Chemists International (AACCI) annual meeting in San Diego last month.

The product development team placed 1st in the 2017 Student Product Development competition with their gluten-free, whole grain muffin mix, PulCe Muffins. The team members were Shreeya Ravisankar, a 3rd-year doctoral student in Food Science under Dr. Joseph Awika; Tadesse Taferra, a 3rd-year doctoral student in Food Science under Awika; and Celeste Totten, a senior Food Science major.

An article about their product can be found on page 7 of this newsletter and on the Soil and Crop Sciences website https://soilcrop.tamu.edu.

Ravisankar also brought home gold in the Best Student Research Paper competition for her oral presentation. Her presentation was titled, “Mechanisms for strong synergistic anti-inflammatory action of cereal-pulse flavonoid combinations in Caco-2 monolayer model”.

Cereal Quality Lab members went to San Diego for the AACCI meeting. Participants included: Julia Brantsen, Derrick Amoako, Audrey Girard, Dr. Joseph Awika, Shreeya Ravisankar, Fariha Irshad, Tadesse Taferra, and Taehoon Kim.

Welcome to the Department!!

We have three new student employees in our department. They will be the smiling faces behind the reception desk, and the voices you hear on the phones. We hope to have them with us for several years!

Nicole Jones (far left) and Payton Redfearn are working in our business office. Nicole is a sophomore majoring in Agriculture Leadership and Development.
Payton is a sophomore Animal Science major.
Nick Frisbee (right) has joined the team in the instruction office. He is a sophomore majoring in Plant and Environmental Soil Science. Nick will be leaving the instruction office in December to go to work with Dr. Haly Neely.
Almost faster than weeds can sprout, Dr. Scott Nolte is being called into service. Nolte was hired Sept. 1 as the Texas A&M AgriLife Extension Service state weed specialist and as an assistant professor in the Texas A&M University soil and crop sciences department, College Station.

He said his schedule is already filling up with questions and appointments across Texas.

Nolte will be responsible for providing integrated weed management leadership for row crops, pastures, home lawns, golf courses and sports fields in Texas.

“My background is in weed science and I grew up on a farm in southern Illinois, so while the principles of weed science will be the same, I’m excited for this new opportunity to learn new crops and weeds found here in Texas,” Nolte said.

Nolte earned his bachelor’s degree in plant soil science, master’s degree in weed science and doctorate degree in biotechnology and weed science, all from Southern Illinois University in Carbondale, Illinois. He also worked for four years at Southern Illinois University as a research technician.

The past eight years Nolte has worked with Monsanto in regulatory sciences and technology development. While there, he worked with Monsanto product management, marketing, sales, regulatory and technology organizations to develop and support the launch of Roundup Ready 2 Xtend soybeans, emerging traits and technology to be utilized within the soybean agronomic system.

Nolte collaborated with academic partners to conduct research and support the launch and proper stewardship of new soybean traits and chemistry. He also developed systems-based research to help promote and drive adoption of integrated weed management programs.

“I’m excited to be back in a role where I can really dig into the problem areas and provide the answers people are looking for,” he said. “I look forward to taking the science already in place and adding my knowledge to help figure out solutions across the state.”

Nolte said herbicide-resistant weeds are an area where more education of growers is needed to help them better understand what weed control options are available and to continue to promote good weed-resistance management practices.

“Palmer amaranth and common waterhemp are certainly weeds of concern, but weed resistance in general is of importance,” he said. “I don’t want growers to solely rely upon any one herbicide for weed control, because if they do, it may reduce the effective life span of that technology.”

Nolte said he looks forward to helping growers understand how to use all weed control technologies and be good stewards of them, which will allow these technologies to remain useful and viable long term.

Vickie Johnson joined the business office in October. Originally from Dallas, Vickie received her Associates Degree from the Art Institute of Dallas in Fashion Merchandising.

Prior to joining Soil and Crop Sciences, Vickie spent twelve years as an Operations Analyst for Bank of America, predominantly working in reconciliation.

Vickie manages payment cards, assisting faculty and staff with payment limits, tax-exempt questions and issues which may arise with the cards.
Welcome to our new Instruction Office employee

Taylor Barfield joined the Soil and Crop Sciences instruction office November 16 after working as a team leader at Copy Corner for 5 1/2 years.

Originally from Cut-n-Shoot, Texas, she moved to College Station in 2012 to pursue higher education at Texas A&M University. She is a proud member of the class of 2014.

Taylor earned her B.A. in History with a minor in Sociology.

She will be providing administrative support in the instruction office and assisting with the MEPS program.

Cattle Trails Cow-Calf Conference
set for Dec. 1 in Wichita Falls

By: Kay Ledbetter

The annual Cattle Trails Cow-Calf Conference – Driving Your Cattle to Profit is set for Dec. 1 at the Region 9 Education Service Center, 301 Texas-11 Loop, Wichita Falls.

The conference is a joint effort between the Texas A&M AgriLife Extension Service and the Oklahoma Cooperative Extension Service.

This annual conference provides up-to-date information on topics that will influence cattle profits, said Dr. Emi Kimura, AgriLife Extension agronomist in Vernon.

“Wheat and cattle prices have certainly changed, and the weather and producer’s decisions will be more important than ever,” Kimura said. “This year’s agenda reflects those decisions and should be a good one with well-known speakers from our region.”

Registration is $25 and includes educational materials, a noon meal and refreshments. Make checks payable to Wilbarger Project Fund.

For purposes of meal planning, preregistration is encouraged. To preregister, contact your local Extension county office in Texas or Oklahoma, or Allison Ha at 940-552-9941, ext. 225 or email Allison.ha@ag.tamu.edu.

The registration form can be downloaded from http://bit.ly/2z8KzNg and mailed along with a check to Texas A&M AgriLife Extension Service, attn: Allison Ha, Box 2159, Vernon, Texas 76385.

Kimura said the expected audience will be cattle operators from the Texas Rolling Plains, North Texas and southern Oklahoma. The conference alternates between Texas and Oklahoma, where two of the more famous cattle trails – Chisholm and Great Western – crossed.

The program will include the following topics and speakers:
- Weed and Brush Control in Range and Pasture, James Jackson, AgriLife Extension program specialist, Stephenville.
- Beef Cattle Market Outlook and Update, Dr. Jason Johnson, AgriLife Extension economist, Stephenville.
- Maximizing Feeding Efficiency, Dr. Dave Lalman, Oklahoma State University Extension beef cattle specialist, Stillwater, Oklahoma.
- Conversion of Cropland into Pasture, Kevin Derzapf, U.S. Department of Agriculture Natural Resources Conservation Service rangeland management specialist, Weatherford.

Industry sponsors also will have their products on display during the event.

“Cattle operators and pasture owners who attended this conference in the past have benefited from the updated knowledge on varieties of topics as well as the interaction with our speakers,” Kimura said. “We expect the good discussion and interaction with speakers and sponsors to continue with this upcoming conference.”
Cold brew coffee phenomenon producing possible turfgrass fertilizer

By: Kay Ledbetter

From the coffee maker to the lawn, investigators in a Texas A&M AgriLife Research study are scattering spent coffee grounds on turf plots to see if the beverage leftovers can give the grass a jolt like the drink does for its consumer.

Dr. Ben Wherley, Texas A&M AgriLife Research turfgrass ecologist in College Station, said the two-year study will determine if the used coffee grounds can serve as a replacement for some of the currently used top-dressing fertilizers and soil amendments.

Wherley and his master’s student Garrett Flores will compare fresh and composted grounds to other organic and synthetic fertilizers and sphagnum peat moss, which is commonly used as a soil amendment in sand-based sports fields and golf course putting greens. https://youtu.be/FuxouYYU3xI

The work has been partially supported through a seed grant from the United States Golf Association Green Section as well as GeoJava, a new eco-friendly company started by Chad McNair, CEO of Aspen Beverage Group in San Antonio.

“We think this might provide a nice alternative by using a spent resource and not cutting into a non-renewable resource like peat moss,” he said.

What’s really brought increased interest in this is the explosion of cold-brew coffee, Wherley said.

He said Aspen Beverage Group is providing a substantial supply of spent coffee grounds for the project, which is trying to find uses both as a surface application, perhaps as a fertilizer or compost, but also as a soil root-zone amendment in sand-based systems.

Aspen Beverage is a cold-brew coffee company, one of the largest in North America, and produces about 40 cubic yards a day of spent coffee grounds. That’s enough to fill a dumpster 22 foot long by 7.5 feet wide by 8 feet high.

“And they expect to be up to 250 cubic yards a day by next year,” Wherley said. “We are trying to help them find an environmentally friendly and economical way to use these coffee grounds.”

“Cold brew is all the rage because college students find it doesn’t have the acidity of normal coffee and they like the texture and flavor,” Wherley said. “So people who haven’t been drinking coffee in the past are now drinking it, and it is replacing the energy drinks. The sheer volume being provided by not only Aspen but other cold brew extractors around the U.S. provides a new material we need to look at a little more closely for agronomic systems. There’s a need to use these or get rid of them in some fashion.”

Flores said in the study they are comparing the coffee grounds to both slow- and quick-release fertilizers to determine how they compare. Varying rates of poultry litter-based organic fertilizer, ammonium sulfate and sulfur-coated urea are being tested.

“We are primarily evaluating growth, turf quality and color,” Flores said. “We will evaluate turf color using digital imaging software. We will also take clippings to determine growth rates, as well as the amounts of nutrients that are absorbed. “We are also tracking soil moisture in the plots,” he said. “We are going to see whether coffee grounds increase the moisture retention ability of the soil.”

Flores said additionally they will be evaluating changes in the soil microbial biomass due to spent coffee grounds as well as other fertilizer treatments.

“The coffee grounds provide considerable organic matter and we will be determining how readily the microbes are able to break it down into a usable form of fertilizer for the plants to take up,” he said.

“We’ll be following this study over the next two years to evaluate turf health and performance and see whether there is potential for a marketable end-use for spent coffee grounds,” Wherley said. “As we see an increased use of cold-brew coffee around the country, it would be nice to be able to utilize these in an agronomic setting.”

Dr. Ben Wherley, Texas A&M AgriLife Research turfgrass ecologist in College Station, and Garrett Flores, master’s student, look over turfgrass plots where spent coffee grounds are being tested as a fertilizer. (Texas A&M AgriLife photo by Kay Ledbetter)
Greenbug and Hessian fly infestations can significantly reduce wheat yield and quality in Texas and worldwide. Breeding for resistance to these two pests using marker-assisted selection just got a new tool from a Texas A&M AgriLife Research study.

Scientists use genetic markers to identify regions where specific genes can be found on a particular plant. Liu has identified the neighborhoods or markers for a gene offering greenbug resistance, Gb7, and a gene that provides Hessian fly resistance, H32, in wheat.

Liu’s work was recently published in the Theoretical and Applied Genetics Journal of Plant Breeding Research, detailing the development of the Kompetitive Allele Specific Polymerase Chain Reaction or KASP assays for both genes.

Joining Liu on the publication were AgriLife Research wheat team members Drs. Jackie Rudd, Amarillo, and Amir Ibrahim, College Station, both wheat breeders; Dr. Qingwu Xue, crop stress physiologist; Dr. Chor Tee Tan, an associate research scientist; as well as other students and staff in Amarillo.

Both genes were identified through previous research, and linked markers for them were mapped, but the detection methods were not well suited for marker-assisted selection for evaluating thousands of plants, Liu said.

He said knowing an address doesn’t mean someone knows where in the city to start looking for it. But by developing single nucleotide polymorphism, or SNPs, which include flanking markers closely linked and located on chromosomes, geneticists are able to give breeders the neighborhood to search.

SNPs are then converted into KASP assays, which are considered breeder-friendly because they are easier to use, faster and more accurate, he said.

Effective molecular markers closely linked to the target genes are the key for the success of marker-assisted selection on traits such as greenbug and Hessian fly resistance, Liu said.

Through his work, both genes can now be easily transferred into a new wheat line through marker-assisted selection.

Liu said the Gb7 and H32 are both found in a synthetic wheat, W7984, which is a parental line for a mapping population that wheat researchers are using worldwide. Synthetic wheats are man-made crosses between Durum or pasta-type wheats and Aegilops tauschii. These initial crosses provide access to genes of the wild relatives of wheat, thus increasing usable genetic diversity for breeders to improve winter wheat varieties.

The mapping population was developed more than 10 years ago by the International Triticum Mapping Initiative, but neither of these genes has been used for resistance in breeding programs to this point, he said.

“The reason I think they were not being used is they were in a synthetic line and it required more effort to transfer them into adaptive wheat lines,” he said.

“What we have done with the KASP marker is make them easier to find and utilize.”

For example, TAM 114, a newer, increasingly popular variety of Texas A&M wheat, does not have greenbug resistance and only has limited Hessian fly resistance, Liu said.

“But with this new knowledge, breeders can cross with TAM 114 and keep its superior end-use quality and improve it with the Gb7 and H32 genes,” he said. “This will make the new line more adaptable to the regions where Hessian fly is a problem.”

By crossing wheat lines with the identified KASP markers, the process to develop the pure line with selected properties can be much more accurate, Liu said.

To get to this point, Liu utilized genotype-by-sequencing markers developed by other research groups, and ultimately the KASP markers were validated using the set of synthetic wheat lines. Each line of that mapping population was screened for reactions by greenbug and Hessian fly by two U.S. Department of Agriculture Agricultural Research Service centers.

“We’ve determined they are very effective under many genetic backgrounds,” he said. “Genetic diversity and genetic gains are always important to wheat breeders.”
Warm temperatures and dry conditions have pushed planting of cool-season forage plantings past the normal, prime window for many East Texas producers, according to Texas A&M AgriLife experts.

Dr. Vanessa Corriher-Olson, Texas A&M AgriLife Extension Service forage specialist, Overton, said producers ideally wanted to plant winter pastures between late-September and mid-October. But roller coaster temperatures and dry conditions have pushed many producers to plant late or consider not planting at all.

“The long-term forecast is calling for a warmer, drier winter, and if we do get significant dry spells, forages, especially in ryegrass, will be in trouble,” she said. “The investment of time, land preparation, fertilizer and the cost of seed, which in the case of ryegrass is more expensive this year, will influence whether or not producers take the risk.”

Corriher-Olson said there is also concern about widespread armyworm infestations and the additional cost of treating pastures to keep the pest at bay.

Pushing the planting date to later dates extends the timetable of forage availability later and later, she said, which could be problematic for producers who rely on winter pastures for grazing.

Dr. Monte Rouquette, AgriLife Research plant physiologist, Overton, said the decision to plant and what cool-season annual strategies producers should incorporate, be it ryegrass, clover or small grains, depends on the grazing needs of their herd.

Producers who were delayed and planted by mid-November should assume it may be late-December to mid-January for small-grain grazing, and could be late February or March before cows can access ryegrass pastures.

“Producers who planted a couple weeks ago following rain should be in good shape for winter grazing in late-December and January after the most recent rain event,” he said. “But that’s if they fertilize with Nitrogen according to soil tests, and temperatures are conducive to growth and we get timely rains. If cool-season annual forages aren’t planted by mid- to late November, then producers might want to consider other options such as hay and protein supplementation.”

At this point, Rouquette said producers hoping to provide winter grazing should consider planting small grains, specifically cereal grain rye, because they are tolerant of acidic soils and cold weather. They grow aggressively, he said, and are the most reliable for winter grazing compared to ryegrass or clovers.

Rye typically takes 45 days to provide adequate forage for a cow herd, he said, but that is dependent on weather. Cold temperatures and a lack of rain could push development of the pasture toward 65 days.

“At this point, Rouquette said producers hoping to provide winter grazing should consider planting small grains, specifically cereal grain rye, because they are tolerant of acidic soils and cold weather. They grow aggressively, he said, and are the most reliable for winter grazing compared to ryegrass or clovers.

‘Rye typically takes 45 days to provide adequate forage for a cow herd, he said, but that is dependent on weather. Cold temperatures and a lack of rain could push development of the pasture toward 65 days.

‘If you have fall-calving cows, replacement heifers or stockers that need to be carried through the winter, small grains are probably the best option,” he said. “But they need to be planted now and hope for good growing conditions.”

By: Adam Russell
It takes a village ... a city, a world

Aditi Pandey is one of more than 1 million young adults who left their native countries last year for an education in the U.S.

About 21 percent of the foreign students came to study engineering, another 19 percent came for business and management, and almost 14 percent came for computer science and math degrees, according to the 2016 Institute of International Education’s Open Door report.

But not Pandey.

After completing a bachelor’s degree in her native Nepal, Pandey’s family allowed her to follow an 8,440-mile dream to the Texas A&M AgriLife Research and Extension Center in Beaumont. Her heart was set on earning a master’s degree by learning ways to help farmers in her country produce food sustainably on their land.

Pandey is unique not only for choosing agriculture but because she’s a girl who, she said, by the code of her village in Nepal should have stopped school the minute she learned to read and write so her parents could save for her wedding dowry.

Agriculture has been a global ticket since the dawn of time. For millennia, traders have crossed sea and country bringing local commodities to new lands and hauling back goods from afar. But increasingly, today’s markets are more about producing enough food for the world population, scientists say.

Of the 1 million foreign students, some 12,300 — only a little more than 1 percent — are pursuing agriculture, the Open Door report noted, though researchers worldwide are clamoring to discover ways to feed the estimated 9 billion people on the planet by 2050.

Though agriculture students only comprise a tiny percent of the total number of foreign students, agriculture grew as the field of choice by 15 percent between the 2013-14 and 2014-15 school years, according to the Institute of International Education report.

Pandey is working on a master’s degree at the Texas A&M AgriLife Research and Extension Center in Beaumont. (Texas A&M AgriLife Research photo by Kathleen Phillips)

The AgriLife center in Beaumont has long been a landing spot for foreign researchers and graduate students because the facility focuses on rice, a major staple worldwide. Rice feeds more than half of humanity, according to the United Nations Food and Agriculture Organization.

Because most Texas rice is grown along the Gulf Coast, the Beaumont facility has been researching the crop in that region for more than 100 years. Top scientists from U.S., China, Vietnam, India and the Philippines are there to work on variety development, entomology, plant diseases, plant physiology, weed and water management, genetics, and soil and crop nutrition.

The center also reaches out to graduate students worldwide and hosts area public school science teachers for hands-on instruction to take back to high school classrooms. The goal of both efforts is to convey an urgency that in order to keep up with the world food demand, young minds need to fill the shoes of numerous well-known researchers who are approaching retirement, officials said.

Back in Nepal, Pandey was the only child of her mother and father, a career military man in the Nepalese Armed Forces. Though her immediate family was not involved in agriculture, Pandey said, she is following the footsteps of a great-grandfather who was.

“I have always wanted to be in science and especially in sustainable development,” said Pandey, who came to the U.S. in August 2016 and is researching greenhouse gas production in organic versus conventional rice systems. “Sustainable agriculture is the key to helping our farmers back home.”

Chief among what Pandey has learned by comparison is that Nepal is almost devoid of long-term agriculture information, the likes of which have been recorded for decades in the U.S.

“You can’t go online and find out about the soil in Nepal, for instance,” she said. “I have realized that keeping data for a really long time becomes very precious eventually.”

But what she would like to impart to American students pertains largely to the privileges of women in this country.

“I hope to let girls here know what women in our country go through for the opportunity to learn,” Pandey said. “I want them to know how lucky they are to have parents who are sending them to school to finish their degrees.”

She plans to pursue a doctoral degree after completing her master’s, which is “something that doesn’t happen very often for women back home.”
Scientists seek global collaborations to find ways to feed growing population

By: Kathleen Phillips

Three scientists on the faculty at the Texas A&M AgriLife Research and Extension Center in Beaumont make the connection between how their efforts to improve the Texas rice crop extend beyond borders, including soil and crop sciences professor Rodante Tabien of the Philippines. He and the others have each had to sacrifice along the way in order to become U.S. researchers.

“The culture had a lot in common with American ways. When I was young, I was reading donated books printed in the USA,” he said. “We were singing ‘America the Beautiful,’ and there was a logo showing a handshake between the Philippines and America.

“My father was an upland rice farmer, and we cut down trees to plant rice. But during that time, we also planted coconut and fruit trees. We were a big family with 10 children, and I am the only one who went to a big university.”

How he was able to go, however, is tinged with sadness. Ordinarily, a major university education would have been provided only to the older siblings in a family, but Tabien’s grades were better than those of his older brother, who was attending community college.

“I was lucky to be admitted to the premier university in the Philippines, and my uncle and I convinced my dad that I had to go then because the university would not defer my admission,” he said. “But that meant my older brother had to stop going to college so I could go. That put some pressure on me to succeed. Thinking back on that time, he should have been able to graduate without me being a reason not to.”

That experience has influenced Tabien’s work with high school science teachers for several years as he ponders what topics might encourage today’s high school students to pursue degrees in agriculture.

“I tell students that plant breeders are rare nowadays. I would like to encourage the younger generation to have a career in plant breeding,” Tabien said. “Hopefully, I can have some impact.”

Lack of money and a system that favors the older sibling of a family might have determined that Tabien would be a coconut farmer in the Philippines, but his high school grades made the difference.

“I was the little brother, but I got an opportunity to step ahead of my older brothers and sisters. I now want to make sure other kids get a chance to do science,” said Tabien, AgriLife Research inbred rice breeder.

As a child in the ‘60s and ‘70s, Tabien was accustomed to the U.S. customs taught in his Filipino school.
Sympathy and Concerns

Please keep Kathy Schmitt and her husband, Rick, in your thoughts and prayers. Rick is recovering from a sudden illness for which he was hospitalized in mid-October.

Please remember Staci Frerich and her husband, Toby, as they mourn the loss of Toby’s father, who passed away on November 11. Staci is a recruiter who works out of Corpus Christi.
November
17 - Faculty Meeting
20 - Grand Challenges Faculty Meeting - Heep 440
21 - Thanksgiving Feast - Heep Center room 424
23-24 - Thanksgiving Holiday
27-28 - Amarillo Farm and Ranch Tour
29 - Dec. 1 - Texas State Support Council Meeting

December
2-5 - Council of Scientific Society Presidents - Washington DC
5-6 - Texas Plant Protection Conference - Bryan-College Station
5-7 - Texas Turfgrass Annual Conference and Show - Arlington
8 - High Plains Ag Conference - Lubbock  contact: rj-scott@tamu.edu
17 - Dr. Baltensperger’s Open House - 2:30 p.m.
23 - Jan 2, 2018 - University closed for Holidays

January 2018
3-6 - Beltwide Cotton Conference - San Antonio, TX
8 - Soil and Crop Sciences Faculty Meeting
24 - Small Grains Advisory Committee

Save the Date
February 14–17 - Phenome 2018, Tuscon Arizona
February 15-19 - American Association for the Advancement of Science Annual Meeting - Austin, TX