AgriLIFE RESEARCH & EXTENSION
Texas A&M System

TEXAS A&M UNIVERSITY

COLLEGE OF AGRICULTURE
AND LIFE SCIENCES

Department of Soil and Crop Sciences
Academic & Student Advising Office

TEXAS A&M PLANT BREEDING BULLETIN OCTOBER 2011

Two of our outstanding undergraduates participated in our Plant Breeding Internship program during the summer of 2011. This program is completely supported by Texas A&M and Texas AgriLife Research Plant Breeders and provides the participants with exposure to three plant breeding programs during the summer months. We have conducted this program for three years and are pleased with the exposure and enthusiasm of the students.

Jacquelin Ebeling and Mitchell Schumann were our Plant Breeding Interns this year. Below are their comments about the experience.

Jae Ebeling accepting an award from Dr. Baltensperger, Dept. Head, at the Soil and Crop Sciences' Spring Awards Banquet.

Jacquelin A. Ebeling
Programs: Jackie Rudd-Wheat;
Jane Dever-Cotton;
Russ Jessup-Perennial Grasses

I felt very rusty (no pun intended) after Dr. Rudd started quizzing me on the A, B, and D wheat genomes and combinations thereof. However, it was interesting to see the various types of crosses (backcross, etc.) applied to not only a few genes of interest, but rather to combine whole genomes. The synthetic hexaploids were especially intriguing—to think that a weed could provide something useful.

I really enjoyed all the people I worked with at Bushland and the wheat breeding program. Roguing, labeling, and organizing bags for harvest, and taking a few field notes were some of my duties. On a side note, my back hired out for an assassin after that first afternoon of harvesting wheat by hand. This proves that nothing worthy ever came without pain! After wheat, I headed south to join Dr. Jane Dever in cotton breeding.
Nail polish companies shouldn't try to market "Cotton Boll Green;" I found that it's not an attractive color for the nails after pollinating, but then, who wants a job where they don't get their hands a little dirty? I did get to read a lot about cotton physiology and grading during down time. Not only that, but I learned how difficult it is to eliminate transgenes from your fields when you have a ton of volunteer cotton when there hasn't been enough rain to break down anything from last year. The idea that a crop isn't worth much if nobody will grow it was shown by the fact that several okra-leaf varieties have outperformed regular cotton in yield trials up here, but no one seems to want to grow it due to old prejudices against it.

My third opportunity as a Plant Breeding Intern was with Dr. Russ Jessup in College Station and perennial grass breeding. Picture yourself in a pith helmet with a machete hacking through the rampant growth of the tropics. Actually, it's some perennial grass folks taking a stab at a LOT of napiergrass. I think it was good to get a look at a more vegetatively propagated crop, but it does bother me that it's not as much of a dual-purpose crop here in Texas because it gets very woody at the base after its first year. In Florida or the Deep South, maybe so, but I think that a crop needs to be able to work more than one way in an agricultural operation (food and fodder) to really become widely used if it isn't outrageously profitable by itself.

In short, I enjoyed the internship very much and learned a great deal. Now all I need to do is figure out where to go to grad school so I can become a breeder too!

Mtchell Schumann
Programs: Gerald Smith-Forage Legumes;
Rodante Tabien-Rice;
Bill Rooney-Sorghum

This summer I had a tremendous opportunity to intern with three different plant breeders in the Texas A&M system. Through this experience I gained a unique insight into these three breeders' perspectives and programs. I also had the opportunity to observe and perform various tasks used in different parts of the season. I know that although my internship was brief, only the duration of one summer, the knowledge that I acquired will go long way in my career development.

The first breeder that I worked with was Dr. Gerald Smith in forage legumes at the AgriLife Research and Extension Center in Overton. This was my first experience ever in Plant Breeding and agriculture in general since I don't have an agricultural back ground. During my time in Overton, I helped plant a variety trial, took part in the processes involved in nursery establishment, worked with field equipment such as tractors and planters, and even had my own little project of coming up with a screening test for salinity tolerance in LabLab.

The second location was with Dr. Rodante Tabien with rice in Beaumont. I was primarily involved with visual evaluations of plants and strains, which included a lot of data collecting. I saw firsthand how he analyzed the crop for segregation and what type of traits he selected. In Beaumont I was able to catch a small glimpse of the molecular side of things. I spent time in the lab extracting DNA for sequencing and was walked through the process of marker selection.

My final stop was back in College Station with Dr. Rooney and sorghum. I arrived here just in time for the harvest. We spent every day in the field collecting samples for further analysis and taking measurements such as sugar content on the sweet sorghum varieties. One of the weeks was spent in Weslaco planting an off season nursery. Dr. Rooney has a

large scale operation and many graduate students, which afforded me the opportunity to ask questions about the processes involved in looking for and applying to graduate school.

Each program that I was a part of was unique. In the field, I worked with both self and cross pollinated crops and learned of the different procedures for making crosses. The erudite professors also were unique in their approaches to subject. I learned about the community of Plant Breeders, and expanded my professional network. I believe that the experience allowed me to refine my interest and approach as I continue forward in my academic goals and career.

Other News

Currently we have 50 graduate students seeking an MS or PhD in Plant Breeding at Texas A&M University.

Dr. Dennis Byron, VP Research for Crop Product Development-Crop Genetics Research and Development-Pioneer, visited our students and faculty in late September to share information about Pioneer and career opportunities.

Dr. Steve Calhoun, Bayer CropSciences, is scheduled to visit campus and our plant breeding faculty and students in late November. Steve is the International Cotton and Rice Breeding Manager with Bayer CropSciences.

Dr. Ray Riley, Head of Corn and Soybean R&D at Syngenta, will visit Soil and Crop Sciences in early November and visit with our undergraduate and graduate students about opportunities with Syngenta.

Sixteen Plant Breeding graduate students presented research data at the annual ASA/CSSA/SSSA meetings in San Antonio. All indications are that they represented themselves, their discipline, the Department of Soil and Crop Sciences, and Texas A&M University well. You can find their abstracts at http://www.agronomy.org.

Recent Plant Breeding publications from our faculty (plus one) include:

Repinskia, S.L., K.N. Hayesc, J.K. Millerb, C.J. Trexlerc, and F.A. Bliss. 2011. Plant breeding graduate education: Opinions about critical knowledge, experience, and skill requirements from public and private stakeholders worldwide. Crop Sci. 51:2325-2336.

Mayfield, K.L., S.C. Murray, W.L. Rooney, T. Isakeit, and G.A. Odvody. 2011. confirmation of QTL reducing aflatoxin in maize testcrosses. Crop Sci. 51:2489-2498.

Smith, C.W., S. Hague, and D. Jones. 2011. Registration of Tamcot 73 upland cotton cultivar. J. Plant Reg. 5:273-278.

Smith, C.W., S. Hague, E.F. Hequet, and D. Jones. 2011. Registration of TAM 04WB-33s upland cotton with improved fiber and yarn properties. J. Plant Reg. 5:388-392.

Starr, J.L., C.W. Smith, K. Ripple, E. Zhou, R.L. Nichols, and **T.R. Faske**. 2011. Registration of TAM RKRNR-9 and TAM RKRNR-12 germplasm lines of upland cotton resistant to reniform and root-knot nematodes. J. Plant Reg. 5:393-396.

Hague, S., C.W. Smith, G. Berger, **P.S. Thaxton**, and D. Jones. 2011. Registration of SIUP 98 and SIUP 162 germplasm lines of cotton. J. Plant Reg. 5:397-399.

Fry, J.D, D.J. Bremer, **A. Chandra, A.D. Genovesi, and M.C. Engelke**. 2011. Stolon growth and tillering of experimental Zoysiagrasses in shade. HortScience 46:1418-1422.

The 2012 NAPB annual meeting will be held in Indianapolis, Indiana and hosted by Dow AgroSciences (contact Dr. Don Blackburn). Additional information at **http://www.plantbreeding.org/napb/Meetings/meetings.html.**

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