

# Feeding the World...Protecting Our Natural Resources



Texas A & M University

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## Department of Soil & Crop Sciences

Beginning this month, the Department will replace its annual newsletter with one that is published quarterly. It is our hope that by increasing the frequency of this newsletter we will be more effective in keeping you, our students (current as well as former) and faculty, better informed about the Department, its people, and programs.

In each issue, we will try to provide you with a list of upcoming events, a report from our student organizations, as well as insight into the achievements of our faculty, staff, and students. It is also our intent to publish this newsletter in an electronic format. Issues will be sent to you via email in addition to being available on the departmental website. I would ask that you direct questions or send any information you might have for inclusion in the newsletter to Ms. Judy Pruitt at [jpruitt@ag.tamu.edu](mailto:jpruitt@ag.tamu.edu) or 979-845-8322.

Finally, with another school year upon us I would be remiss if I did not take a moment to thank the faculty, students, and staff within the Department for their commitment to excellence. As you will learn in future newsletters, this Department has a lot to be proud of due in no small measure to the high quality of its students, faculty and staff who continue to be at the forefront in solving the complex problems facing both urban and rural Texas, the nation, and the world.



Dr. Mark Hussey  
Professor and Head  
Dept. of Soil & Crop  
Sciences

*"...this Department has a lot to be proud of due in no small measure to the high quality of its students, faculty and staff..."*

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## Cotton, Inc. Scholarships and Recipients

In 2002, Cotton, Inc. established the Cotton Incorporated Fellowship (CIF) to provide funding for qualified applicants to continue and expand their studies in cotton breeding and genetics research projects in private industry and at public universities across the "Cotton Belt."

Texas A&M is just one of the links between the Agricultural Research Department (ARD) at Cotton, Inc. and the textile industry, cotton producers, and the university's research and extension communities.

Two current and one former graduate student in the Soil and Crop Sciences Department have been recent recipients of these fellowships. We want to introduce our Cotton, Inc. fellows in this newsletter and provide an overview of their research.

**Chris Braden**, majoring in Plant Breeding, is working with Dr. Wayne Smith on a project to improve cotton fiber properties. Improvements in fiber quality are necessary in order for U. S. cotton to stay competitive with man-made fibers and to maintain a respected reputation to appeal to spinners in world markets. Processing performance and increased productivity in the textile industry determine which fiber qualities are desirable in the cotton product. To remain competitive, producers must continually work to improve fiber properties of the cotton grown here in Texas. The objectives of this project are 1) to obtain genetic information on combining ability of selected parents and crosses, 2) to assess the type of gene action, heritability and estimate the genetic variances of near-long staple (NLS) upland cotton genotypes, and 3) to investigate the mode of gene action and inheritance of advance fiber information system (AFIS) distribution data.

**Steven Hoffman** is working with Dr. Alan Pepper (Biology Department) and with Dr. John Yu from the USDA-ARS Crop Germplasm research unit. Steve received his M.S. in Molecular and Environmental Plant Sciences with Dr. Tom Cothren in 2002. Steve's current research project involves the creation of a genetic linkage map of the cotton genome by developing and phenotyping new highly portable, PCR-based polymorphic SSR (microsatellite) markers. Once the map is created, it will be possible to find markers which are linked to any gene of interest and increase the efficiency of breeding.

They are currently developing new markers to create a map with enough reference points to incorporate all known cotton microsatellite markers as well as develop new ones. Linkage analysis will begin soon. Once the map is assembled, they can utilize the map, along with some segregating populations (from USDA research), to determine where the DNA responsible for a particular gene is located in the genome.

**Brian Gardunia** is working with Drs. David Stelly and Wayne Smith in the cotton cytogenetics and breeding program to transfer beneficial traits from wild cotton species to domesticated cotton plants. This project is divided into three parts: population development, field evaluation, and molecular marker analysis. The project intends to identify the traits in the hybrid populations which hold the most potential for selection and improvement of upland cotton varieties.

One part of Brian's work involves the development of random breeding populations. Such random breeding techniques present challenges in that desired traits are sometimes hidden by the negative traits or by the lack of expression in the hybrid plants. The researchers intend to test the effects of this random mating in the field and at a molecular level or in linkage groups. By cross-breeding generations, researchers hope to identify and isolate the desirable traits found in the wild cotton species.

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*“Evaluation is a large focus, we are constantly looking at ways to improve and there is a willingness to accept change. In our world, ideas are survival driven.”*  
*Dr. Bange*

On sabbatical from Australia, Dr. Michael Bange is visiting with researchers who work with cropping systems to develop working relationships and collaborative efforts between government, university and private corporations. A Research Agronomist and Crop Physiologist, Dr. Bange works with the Australian Cotton Cooperative Research Center (CRC) located in Narrabri.

Dr. Bange is traveling around Texas, visiting with the research centers involved in cropping systems for cotton and gathering new ideas and information to take back to farmers in Australia. Because of climate and environmental differences and concerns, the Cotton CRC works to establish sustainable farming systems.

Although the land mass of Australia is comparable to the United States, the population numbers are similar to the state of Texas. Because of this disparity, the farmers are subjected to more taxes; therefore, they must produce a higher quality crop to remain viable in the world market. Through collaborative efforts and the guidance of researchers like Dr. Bange, the farmers are able to use the latest technology and decision-making tools available in today’s cotton industry.

Dr. Bange was accompanied by his wife Gina and their two daughters to the United States. Though they have enjoyed their time here, they are anxious to get back home and check on Sunny, their Border collie. Sunny has been a part of Dr. Bange’s life since his graduate studies and was named after the sunflowers in his research project. They are scheduled to return home later next month.

Narrabri is located northwest of Sidney, in New South Wales, Australia.



Check out our updated webpage at:

<http://soilcrop.tamu.edu>



**Name:** Cristine Morgan

**Title:** Assistant Professor

**Location:** Room 545, Heep Center

**Research interests:** The ability to characterize the spatial distribution of soil properties is paramount to understanding water movement, nutrient transport, and soil erosion on a landscape. My research program focuses on methods and instruments to quantify soil properties and variability of soil properties for use in watershed- and field-scale hydrological models. I also work on improving the accuracy of these models by developing parameterization schemes to better represent soil properties. My research will improve the success of non-point source pollution modeling and precision agriculture.

**Teaching:** I currently teach the AGRO 310 Soil Morphology and Interpretations class in the spring semester. I plan to develop a graduate course that will give students in the natural resources the tools to analyze and interpret landscape patterns.

**Personal information:** We have an Australian Shepard, Paco. For fun, I enjoy camping, fishing, playing volleyball, and gardening. Gaylon (my husband) and I recently went camping in the Boundary Waters Canoe Wilderness Area in Northern Minnesota (see picture).

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**Name:** Giovanni Piccinni

**Title:** Assistant Professor – Crop Stress Physiology.

**Location:** Texas A&M Research and Extension Center – Uvalde

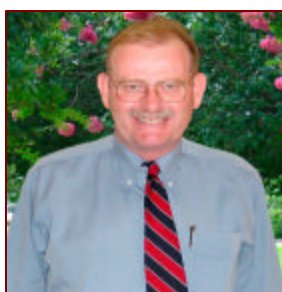
**Research interests:** Water for agricultural, urban and industrial use in the Austin – San Antonio – Uvalde corridor is pumped from the Edwards aquifer. This aquifer is in a class by itself being unique in terms of containment, recharge, and political sensitivity. In 1993 Senate Bill 1477 imposed a maximum draw of 450,000 acre-ft of water per year from the Edwards aquifer, imposing an immediate reduction of approximately 100,000 acre-ft. As 50% of the water drawn from the aquifer is for agricultural use, agricultural water conservation strategies are of utmost importance in the Edwards region. Research has repeatedly shown that proper irrigation management is the key to profitable yields, and the use of limited irrigation scheduling offers tremendous possibilities for water and fuel savings. My research program is developed around plant response to biotic and abiotic stress environment; determi-

nation of crop coefficients (Kc) for irrigation scheduling of row and vegetable crops; irrigation management of row and vegetable crops with limited water availability; and, remote sensing of biotic and abiotic stress as an irrigation management tool.

**Personal information:** I was born in Taviano, a small village in the southeastern part of Italy. After graduation, I attended undergraduate and graduate school at the University of Bari, also in Italy. Upon obtaining my Doctorate degree in 1992, I came to the United States with a fellowship from the National Research Council to conduct a year of postdoctoral research at the USDA – ARS Salinity Laboratory (now George E. Brown Jr. Salinity Laboratory) in Riverside, California. I was asked to remain at the Salinity laboratory for an additional year to complete my research on the development of a dynamic salinity stress index. In 1993 I met a girl who refused to relocate to Italy with me. She eventually became Mrs. Gina Piccinni and she now vacations every summer in Italy while I stay in Uvalde! In 1994 I joined the wheat breeding program at the Texas A&M Research and Extension center in Amarillo working with Dr. Mark Lazar on drought tolerance evaluation of closely related wheat genotypes. Two years later I relocated to Bushland, Texas Agricultural Experiment Station to work on irrigation management for disease control. I joined the faculty at the Texas A&M Research and Extension Center in Uvalde in June 2000. Best achievements of my life are my daughter Monica (9 years old) and my son Alex (6 years old). Hobbies include boating (I was born and raised near the sea, so I have a passion for boating), soccer (I coach my son's soccer team), and riding camels (see picture).

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## People you should know



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## Upcoming Events, Meetings, Programs

|               |                                                                |
|---------------|----------------------------------------------------------------|
| Oct 31—Nov 4  | 2004 ASA-CSSA-SSSA International Annual Meeting, Seattle, WA   |
| Nov 18        | Bonfire 1999 Memorial Dedication (No classes after 1:30pm)     |
| Nov 25—26     | Thanksgiving Holidays                                          |
| Dec 10, 13-15 | Fall Final Exams                                               |
| Dec 17—18     | Commencement & Commissioning                                   |
| Dec 24—31     | Christmas—New Year's Holidays                                  |
| Jan 4—7       | Beltwide Cotton Conference, New Orleans, LA                    |
| Jan 10—14     | Ag Program Conference (tentative date, more information later) |
| Jan 15—19     | Plant & Animal Genome XIII Conference, San Diego, CA           |

## New Funding Opportunities for Graduate Students

### *Hispanic Leadership Program in Agriculture and Natural Resources and Pathways to the Doctorate*

Two new funding opportunities are now available for qualified graduate students. The *Hispanic Leadership Program in Agriculture and Natural Resources* (HLPANR) and the *Pathways to the Doctorate* have been established to assist under-represented Americans in their pursuit for higher education.

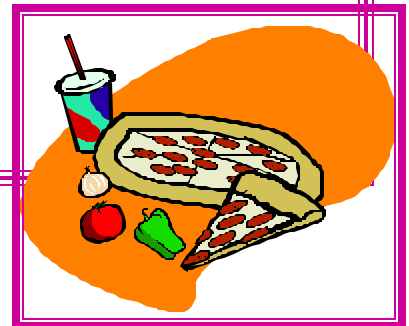
The HLPANR is funded by the USDA Forest Service and was established to encourage and support students interested in careers in food, fiber, agriculture, natural resources, human health and nutrition, and related fields in a Changed America as they relate to the growing Hispanic community.

The Pathways program was established to increase enrollment of under-represented students in doctoral programs in all disciplines within the Texas A&M system. The goal of this program is to recruit top-achieving students from all cultural environments who are interested in pursuing a career in higher education.

These two programs have been successful recruitment tools for several professors. Dr. Dirk Hays (College Station) has recruited Adriana Robbins, a graduate student formerly at TAMU-Kingsville, to work in his lab beginning fall 2004. Graduate student Satish Anbati will work with Dr. Bill Payne (Amarillo); Madhura Kunta will work with Dr. Jorge DaSilva (Weslaco); and Sreenath Reddy Palte will work with Dr. David Stelly.

For more information, go to <http://ogs.tamu.edu/> or call 979/845-3631.

*Make plans to join us for food, fun, and fellowship in Seattle. The Department of Soil & Crop Sciences will be hosting the 2004 Mixer for faculty, students, and alumni at Piccora's New York Pizza [206-322-9411] in Seattle's Capitol Hill neighborhood, located at 1401 East Madison Street on Tuesday, November 2 from 5:30 to 7:30pm. Take this opportunity to mix and mingle with current students, faculty and alumni.*



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