External Review
Molecular and Environmental Plant Sciences
Graduate Program
Self Study
March 2014
Molecular and Environmental Plant Sciences
Texas A&M University

Molecular and Environmental Plant Sciences
Graduate Program Self Study

March 2014
College of Agriculture and Life Sciences
College of Geosciences
College of Science
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EXECUTIVE SUMMARY

This is the third external review of the Molecular and Environmental Plant Sciences (MEPS) program, and this document was prepared specifically for this purpose. Texas A&M University established the interdisciplinary MEPS graduate degree program in 1989. At present there are 10 university approved interdisciplinary programs (IDP) at Texas A&M University. One new IDP, Ecology and Evolutionary Biology, is in the process of being approved by the University and Texas Higher Education Coordinating Board (THECB). Interdisciplinary faculty act through an executive committee and a program chair who guide the program. The MEPS program currently comprises 54 faculty in 8 departments in the Colleges of Agriculture and Life Sciences, Science, and Geosciences. Not all of the 54 members of the MEPS faculty are counted as active. At present, 42 faculty are active members in terms of functioning as a MEPS student chair since the last review in 2006. Faculty who participate in MEPS supervise and fund students in their respective departments, but they also supervise and fund students in the MEPS program. The MEPS program is structured to provide interdisciplinary breadth. Courses offered through the program provide students with an understanding of molecular and biochemical mechanisms that regulate plant function at the cellular, whole plant and community scale. The program offers two degrees: a Master of Science and a Ph.D.

The Master of Science is a research-based thesis degree designed as a base of core disciplinary knowledge in basic plant sciences that provides structural flexibility to accommodate students working at the basic or applied cellular, whole plant or plant environmental community interaction level. The Ph.D. is a dissertation-based research degree designed to give students a comprehensive knowledge of basic molecular and whole plant function while again providing flexibility outside of the core curriculum to accommodate the broad level of disciplinary training afforded by the individual MEPS faculty. Both degrees are designed to prepare students for academic, government or industry research careers.

Enrollment in the program has fluctuated between approximately 25 to 40 students. Due to funding limitations, the program admits 4-9 students per year. Two to three of these students are offered initial 9-month MEPS rotational assistantships prior to being recruited and supported by MEPS faculty. Other MEPS students are self supported by home country scholarships, recruited on competitive Texas A&M University fellowships, or recruited directly into MEPS faculty programs. All rotational MEPS students are supported with a full stipend and coverage of tuition, fees and healthcare costs. Overall, about 13% of the students have pursued a master’s degree and about 87% the doctorate. The student demographic is roughly 30% of domestic origin and 70% international. There are slightly more female than male MEPS students. The enrollment of under-represented minority students averages 10%. The master’s students are largely U.S. citizens. The doctoral program has a 1:3 ratio between domestic and international students. The population of international students is diverse, comprising students from numerous countries. Of the 21 students who have graduated from the program, all but 2 are employed in plant science disciplines. Doctoral degree graduates are working in academic or industry and government research positions. The core MEPS faculty have excelled in publication and external funding. MEPS faculty members have generated approximately $43 million in external funding between 2007 and 2012. These funds have supported dynamic research programs and contributed to MEPS graduate student support.
Funding from the Office of Graduate and Professional Studies (OGAPS) has been steady, and as such our student enrollment has been level. Current MEPS funding is calculated on a complex but fair formula that multiplies the number of MEPS students by the number of unique MEPS student faculty Chairs or Co-Chairs by weight student credit hour. The funding comes from a $1 million dollar pool of OGAPS funds that is split between the 12 current IDP at TAMU. This pool of funds is understood to be independent of the funds TAMU Colleges and their departments. However, during the recent economic downturn, financial resources became limited for departments and their faculty and their student graduation dropped to the point where the home departments of several MEPS faculty were in danger of losing degree programs through the THECB. As such, some departments justifiably increased the pressure on faculty to recruit students through their departmental rather the MEPS or other IDP programs. This issue may continue to significantly impact the viability of the MEPS program. Despite the financial limitations, the MEPS program has been aggressive in seeking University and external fellowship and scholarship support to help faculty recruit students. These efforts will need to continue and increase for the sake of current faculty who based on the student skill and interest find it easier to attract the graduate students through the MEPS program than through their home department. The dilemma revolving around struggling departments with low graduation rates, IDP that form successful interdisciplinary faculty and graduate student recruiting communities, and the perception that IDPs are draining resources, and contributing departmental decline needs to be solved between Texas A&M University, college and departmental level administration in consultation with the THECB. Leaving the dilemma to a confrontation between IDP faculty and their home department supervisors is dysfunctional for all of Texas A&M University leading to poor student and faculty retention.

Modern basic research laboratory equipment is adequate and available for MEPS faculty and student use on the TAMU campus. Additionally, there are 13 Texas A&M University AgriLife Research and Extension Centers along with satellite research stations available throughout the state for agricultural and ecological research. However, modern plant growth facilities are completely inadequate. Modern facilities containing temperature controlled greenhouses and growth chambers are available in the Borlaug Center, which houses the Institute for Plant Genomics and Biotechnology (IPGB) (http://ipgb.tamu.edu/ipgb). The facility contains laboratory space for 8 current faculty, 8 small multi-user temperature controlled greenhouses, 4 large multi-user temperature controlled greenhouses, and 22 plant growth chambers. Because the greenhouses are multi-user, individual experiment temperature and daylength control is problematic to impossible. At its inception, the Borlaug Center was developed as a community-wide (2 colleges and 3 state agencies, and USDA-ARS) facility available to plant science faculty throughout the 8 departments of MEPS regardless of whether the faculty members were located in the IPGB. Under its current management, the facility has become organized as an IPGB member-only use facility for use of growth chambers, and increasingly the smaller greenhouses. Other, much older, greenhouses exist under departmental management. While a few of these are in good condition, many are dilapidated to dysfunctional. Thus most of the plant-science community including the 54 MEPS faculty and an additional 133 broader plant science community faculty within departments, must contend among each other for the use of 4 large modern but multi-user greenhouses in the Borlaug Center. To put this problem in a larger context than competition among faculty members, Texas A&M University is the Land Grant
university of Texas. Together with three state agencies (Texas AgriLife Research and Extension, and the Texas Forest Service) it is charged with conducting and disseminating agricultural and state ecological research. This is a huge responsibility especially given that Texas is a large populated state with a future water shortage, based on a projected increasing population and a decreasing above- and below-ground water supply for municipal, ecological, and agricultural use. As such, the current condition of plant growth facilities for undergraduate and graduate student training and faculty research is wholly inadequate for the tremendous responsibilities bestowed on the Texas A&M System.
1. INTRODUCTION

1.1 Welcome
Howdy. On behalf of the Graduate Interdisciplinary Faculty of Molecular and Environmental Plant Sciences Program the students and the entire Texas A&M University community, let me welcome you to Texas A&M University and sincerely thank you for your time and external view and expert analysis on the program. This external review is a required periodic review of all Texas A&M University academic programs. The document provides an overview of the program, its history, faculty, students, curriculum, and our overall efforts at developing the next generation of plant scientists. We are honored you are serving on this review, and we value the experience you bring to the process. We look forward to your feedback as we strive for excellence.

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1.2 Charge to the Review Team
Thank you for assisting us with continuous quality improvement of academic programs for the Molecular and Environmental Plant Sciences (MEPS) Interdisciplinary Graduate Program at Texas A&M University. The Academic Program Review (APR) to which you are contributing is part of a periodic review of all Texas A&M University academic programs. APR affords an opportunity to assess the standards of our programs and to learn from review team members’ experiences with similar programs. In addition to the charge to the committee, this self-evaluation will provide you with a brief overview of the MEPS graduate programs. The review team is charged with examining the program and making recommendations that we may use to develop a vision and schedule for improving the MEPS program. Resources that you will have for this assessment are this self-study, other materials that may be provided by the Department and our office, information you gain through personal interactions while visiting Texas A&M University, and any additional information that you request. Within the broad charge of informing continuous quality improvement are the following specific questions that the APR process would like you to address:

- Based on the data / information provided in the self-study report or gathered by the review team, what are the department’s overall strengths and weaknesses?

- How well do the department’s strategic goals align with those of its college and with those of Texas A&M University?

- How would you compare this department/program with its peers?
• What improvements (including student learning and faculty development) has the department/program made since the previous program review?

• With only current resources or a modest infusion of new ones, what specific recommendations could improve the department/program’s performance, marginally or significantly?
2. TEXAS A&M UNIVERSITY SYSTEM
The Texas A&M University System (TAMUS) is one of the larger systems of higher education in the U.S. The System comprises 11 universities (Fig.1), seven state agencies, and a health science center. TAMUS educates more than 120,000 students and serves about 22 million Texans each year. With nearly 27,000 faculty and staff, TAMUS has a physical presence in 250 of the state’s 254 counties and a programmatic presence in every Texas county. TAMUS brings in more than $772 million annually in externally funded research helping to drive the state’s economy.

Figure 1. The Texas A&M University System within the State
The Texas A&M University System consists of the following entities:

**Universities:**
- Texas A&M University – College Station (flagship university)
- Texas A&M University at Galveston (branch)
- Texas A&M University at Qatar (branch in the Middle East)
- Prairie View A&M University
- Texas A&M University at Commerce
- Tarleton State University at Stephenville
- West Texas A&M University at Canyon
- Texas A&M University at Kingsville
- Texas A&M University at Corpus Christi
- Texas A&M International University at Laredo
- Texas A&M University at Texarkana
- Texas A&M University Central Texas at Killeen
- Texas A&M University at San Antonio
- Texas A&M Health Science Center

**State Agencies:**
- Texas A&M AgriLife Research
- Texas A&M AgriLife Extension Service
- Texas A&M Engineering Experiment Station
- Texas A&M Engineering Extension Service
- Texas A&M Forest Service
- Texas A&M Veterinary Medical Diagnostic Laboratory
- Texas A&M Transportation Institute

### 2.1 Texas A&M University

On October 4, 1876, Texas A&M University started as Texas’ first public institution of higher learning. To date, the university has awarded more than 380,000 degrees. It is one of a select few academic institutions in the nation to hold triple federal designations as a Land-Grant, Sea-Grant and Space-Grant University. It offers more than 120 undergraduate degree programs and 240 M.S. and Ph.D. degree programs. Texas A&M University operates two branch campuses that award “Texas A&M University” degrees in Galveston and Qatar. The university also operates centers in Mexico, Costa Rica and Italy to facilitate education, research, and outreach. The annual research portfolio at the University is estimated to be in excess of $689 million in FY 2010, placing it among the top 20 universities nationwide and third behind MIT and University of California-Berkeley for universities without medical schools. More than 80% of the 2,800 faculty members hold doctoral degrees. The faculty includes Nobel Prize, National Medal of Science, and Wolf Prize recipients. There are over two dozen faculty members who are members of the National Academy of Sciences, National Academy of Engineering or the Institute of Medicine. Texas A&M University is also home to The George Bush Presidential Library and Museum and the associated Bush School of Government and Public Service.

There are more than 50,000 Aggies currently enrolled on the main campus in College Station of which more than 9,500 are graduate students. Texas A&M University is the country’s sixth
largest university in terms of student enrollment. It ranks among the top U.S. universities in attracting international students with more than 4,500 students from 120 countries. It consistently ranks among the country’s top 20 universities in terms of enrollment of National Merit Scholars.

These are the 10 academic colleges at Texas A&M University:
- College of Agriculture and Life Sciences
- College of Architecture
- Bush School of Government and Public Service
- College of Education and Human Development
- College of Geosciences
- College of Liberal Arts
- College of Science
- College of Veterinary Medicine and Biomedical Sciences
- Dwight Look College of Engineering
- Mays Business School

2.2 The College of Agriculture and Life Sciences (COALS)
The College of Agriculture and Life Sciences is composed 14 Departments hosting 400 faculty, and 7,000+ students. COALS is also home to 14 Departments, 7 institutes. It also services as the administrative home for 4 state agencies, 13 Texas A&M University Research and Extension Centers, 4 TVMDL Centers, 94 TFS offices, and 258 Texas A&M University County Extension Offices (see Figure 2).

Departments:
- Agricultural Economics
- Agricultural Leadership, Education & Communications
- Animal Science
- Biochemistry & Biophysics
- Biological & Agricultural Engineering
- Ecosystem Science and Management
- Entomology
- Horticultural Sciences
- Nutrition and Food Science
- Plant Pathology & Microbiology
- Poultry Science
- Recreation, Park and Tourism Sciences Dept.
- Soil & Crop Sciences
- Wildlife & Fisheries Sciences

State Agencies
- Texas A&M University AgriLife Research,
- Texas A&M University AgriLife Extension,
- Texas Forest Service (TFS),
- Texas Veterinary Medical Diagnostic Laboratory (TVMDL)

Institutes
- National Center for Foreign Animal and Zoonotic Disease Defense
- Institute for Obesity Research and Program Evaluation
- Institute of Plant Genomics and Biotechnology
- Institute of Renewable Natural Resources
- Norman E. Borlaug Institute for International Agriculture
- Texas A&M Institute for Genomic Medicine (TIGM)
- Texas Water Resources Institute

![Map of Texas with various locations marked](image)

**Figure 2.** Texas A&M University, College of Agriculture and Life Sciences State Agencies location.

### 2.3 Aggie Traditions

**Aggie Ring**

One of the greatest moments in the life of every Aggie is the day that he or she receives an Aggie Ring. This tradition began with the Class of 1889. The original rings were very different from the one worn today because, at that time, several companies made different versions of the Aggie...
Ring. E.C. Jonas, Class of 1894, designed a ring that is similar to the ring worn today. There have been only slight changes to this design, including the name of the institution in 1964, from the Agricultural and Mechanical College of Texas to Texas A&M University. The Aggie Ring is rich in symbolism and tradition and is perhaps the most recognizable and enduring symbol of the Aggie Network. The Ring can only be obtained through the Association of Former Students when students must meet eligibility requirements, including completion of at least 95 hours of coursework, before they can order their Aggie Ring. Traditionally, students wear their ring with the class year facing them to signify that their time at A&M is not yet complete.

Silver Taps
By far, one of Texas A&M’s most honored traditions is Silver Taps. Silver Taps is held for a student who passes away while enrolled at A&M. This final tribute is held the first Tuesday of the month when a student has passed away the previous month. The first Silver Taps was held in 1898 and honored Lawrence Sullivan Ross, the former governor of Texas and president of A&M College. Silver Taps is currently held in the Academic Plaza. On the day of Silver Taps, a small card with the deceased students name, class, major, and date of birth is placed as a notice at the base of the academic flagpole. Around 10:15 that night, all campus lights are extinguished and hymns chime from Albritton Tower. Students silently gather at the statue of Lawrence Sullivan Ross. At 10:30 p.m., the Ross Volunteer Firing Squad marches into the plaza to honor the deceased with a 21-gun salute. Buglers then play a special rendition of Silver Taps by Colonel Richard Dunn. Taps is played three times from the dome of the Academic Building: once to the north, south, and west. It is not played to the east because the sun will never rise on that Aggie again. After the buglers play, the students leave from Academic Plaza in complete silence.

Muster
Muster began in June of 1883 as members of the Ex-Cadets Association came together to “live over again our college days, the victories and defeats won and lost upon drill ground and classroom” and to “let every alumni answer a roll call.” In 1922, April 21st became a formalized day of events for all A&M clubs to celebrate San Jacinto Day in the same fashion. Since then, events that occurred on April 21st have grown in size and number. Muster gained national recognition in 1942 when newspapers reported that a Muster ceremony was held by 24 Aggies on the island of Corregidor in the Philippines just days before the land fell to the Japanese. Throughout World War II, there were reports of Aggies coming together from across the globe. Two men were said to have held Muster in a submarine. Accounts such as these inspired Aggies to establish annual Musters around the world and to inaugurate the first campus Muster ceremony in 1944. Today Aggie Muster is celebrated in more than 400 places worldwide. The ceremony brings together more Aggies and friends of Aggies on one occasion than any other at any other university in the world. Students coordinate the
Campus Muster that is held for students, faculty and Former Students of the Brazos Valley. Each year Muster is dedicated to the 50-year reunion class. The Campus Muster involves a day of activities for students of past and present. Former Students enjoy a special program including personalized tours of the campus. At noon, all Aggies converge at the Academic Plaza to enjoy food, friendship and entertainment with a barbecue, reminiscent of the early years at Texas A&M. The day closes with the “Roll Call for the Absent” ceremony, when over thirteen thousand people come together to honor and remember those who are no longer with us. Following the Singing Cadets, Aggie Band and Muster speaker, lights are dimmed and the roll call is called for Aggies who are no longer with us. As each name is called, a candle is lit and a friend or family member answers “here” to remind us all that each Aggie, though no longer present in body, will always remain with us in spirit.

**Corps of Cadets**
The tradition of the Texas A&M University Corps of Cadets, a student military organization, is as old as the university itself. Originally established as an all male military college, Texas A&M remained a primarily all male military institution with mandatory membership in the Cadet Corps until 1965, when Corps membership became voluntary. The Corps brings young women and men from all walks of life into the ultimate Aggie experience. The military inspired cadet program provides students a structured lifestyle where academic excellence is emphasized, balanced with a university life rich in extracurricular and leadership opportunities available only to Corps members. Through the Corps experience, cadets learn master management and organizational skills and build their leadership capability. Many cadets graduate with an Academic Certificate in Leadership Studies along with their selected degree and begin careers in business, nonprofit or government. However, approximately 40 percent become commissioned officers and join one of the Military services upon graduation. Texas A&M has consistently produced more military officers than any other institution in the nation, except for the service academies. More than 225 of its graduates have become generals or admirals. The Cadet Corps at Texas A&M sent over 20,229 former cadets into World War II, 14,123 of them as commissioned officers, more than the combined totals of both military academies. The Corp includes members of the world famous Texas A&M University Aggie Band.

**The Big Event**
In 1982 Joe Nussbaum, then Vice President of the Student Government Association at Texas A&M University, started The Big Event as a means for students to show their gratitude by completing various tasks at area residents’ homes. The Big Event provides the students of Texas A&M University with the opportunity to say “Thank You” to the community of Bryan/College Station for their continued support throughout the years. This past year, over 17,500 students
volunteered to complete almost 1,650 jobs, performing tasks that range from painting, to yard work, and to cleaning. Already the largest one-day, student-run service project in the nation, The Big Event has expanded to 95 other schools across the nation and now to international schools in Spain, Australia, Germany & Italy. The Big Event Committee is responsible for planning and organizing all events surrounding this day, allowing students to work with residents in their community.
2.4 Graduate Interdisciplinary Degree Programs

At Texas A&M University, graduate degrees are awarded by traditional discipline-based academic departments, as well as by graduate interdisciplinary faculties. Graduate interdisciplinary faculties are relatively new to Texas A&M University with the earliest such faculty being officially recognized only in 1989. The formation of interdisciplinary faculties is primarily a faculty-driven process, created when faculty members and researchers from diverse academic departments who have overlapping programmatic interests come together to capitalize on their collective strengths. According to the University rules, an Interdisciplinary Degree Program (IDP) involves a group of faculty from more than one discipline representing single or multiple colleges, organized and administered for the purpose of enhancing research and scholarly activities and overseeing graduate education for a degree program not offered in any existing academic unit. Approval of interdisciplinary degrees themselves is granted through the Texas Higher Education Coordinating Board (THECB). Oversight of IDPs falls under the responsibility of the Council of Participating Deans, which consists of the deans of the colleges having faculty participating in the IDP, together with the Dean of Faculties and Associate Provost and Provost for Graduate Studies. Faculty participation in an IDP may be incorporated into promotion, tenure, and merit raise decisions based upon recommendations of the IDP. In addition, graduate degrees granted by IDPs are also subject to external review as part of the University’s commitment to academic excellence. Currently, there are 12 Interdisciplinary Degree Programs at the university level that are approved by the Texas Higher Education Coordinating Board. The newest Ecology and Evolutionary Biology was approved by the Texas A&M University Board of Regents in February 2014. These are:

<table>
<thead>
<tr>
<th>Interdisciplinary Degree Programs</th>
<th>Masters</th>
<th>Doctorate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agribusiness</td>
<td>MAB</td>
<td></td>
</tr>
<tr>
<td>Biotechnology</td>
<td>MBIOT</td>
<td></td>
</tr>
<tr>
<td>Ecology and Evolutionary Biology</td>
<td></td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Engineering Systems Management</td>
<td>MS (Online)</td>
<td></td>
</tr>
<tr>
<td>Food Science and Technology</td>
<td>MS</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Genetics</td>
<td>MS</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Materials Science and Engineering</td>
<td>MS, ME</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Molecular and Environmental Plant Sciences</td>
<td>MS</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Neuroscience</td>
<td>MS</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Nutrition</td>
<td>MS</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Toxicology</td>
<td>MS</td>
<td>Ph.D.</td>
</tr>
<tr>
<td>Water Management and Hydrological Science</td>
<td>MS, MWM</td>
<td>Ph.D.</td>
</tr>
</tbody>
</table>

Molecular and Environmental Plant Sciences
3. MEPS PROGRAM STRUCTURE
3.1 Program History

**Formation of the Department of Plant Sciences.** In the early 1960’s, the College of Agriculture consolidated several departments; one of the “weddings” consisted of the Department of Plant Physiology and Pathology joining the Department of Genetics to form the Department of Plant Sciences under David Rosberg as Head. During the thirty-year period from 1950 and 1980, the University (renamed in the mid 1960’s) experienced tremendous growth, and the Department’s faculty grew in number (total of 28 including 9 plant physiologists) and moved into a new building, the first “academic” building on campus to be fully air-conditioned. For a depiction of the history and evolution of the MEPS program see Figure 3.

**Figure 3.** History of Plant Physiology and Evolution of the MEPS program at Texas A&M.
About 1980, the plant pathologists became dissatisfied with the multiple-discipline department and felt they could develop their discipline more fully in a separate department. After a period of study and debate, the Dean of the College of Agriculture converted the existing unit into a Department of Plant Pathology and Microbiology in 1983. Plant physiologists and geneticists were assigned to departments in the College complementary to their personal research interests and in keeping with their preferences. All of the plant physiologists were reassigned; the distribution was: Biochemistry (3), Forest Science (1), Horticulture (1) and Soil and Crop Science (4).

Formation of the Faculty of Plant Physiology. It was apparent to Dean of Agriculture H.O. Kunkel that the reassignment of plant physiologists along lines of research interests would not allow coordination of teaching activities nor support discipline identity. In early 1983, he appointed a Steering Committee to form an interdepartmental and intercollegiate Faculty of Plant Physiology. Members of this committee represented all plant science related departments in the College of Agriculture, and the Department of Biology in the College of Science. Page W. Morgan served as chair. The committee prepared by-laws and a program description which was approved by the appropriate deans. The Faculty was authorized to begin operation in December of 1984. The Faculty was assigned to the Department of Soil and Crop Sciences (SCSC) for administrative purposes.

The steering committee benefited from the experience of the Faculty of Genetics, first organized in the 1960’s, because there were several geneticists in the College of Agriculture who were not in the Department of Plant Sciences. With the dissolution of the Department of Plant Sciences, the Faculty of Genetics was reorganized to include members from other colleges (Science, Medicine and Veterinary Medicine) with terminal degrees in genetics. The committee defined Plant Physiology as a “hybrid discipline using tools and techniques from a number of pure disciplines to investigate plant function and behavior”. They further held that “approaches of the discipline range from molecular to whole plant.” Thus a terminal degree in plant physiology was not required for membership, and members were accepted who were studying plant function and behavior, regardless of their primary discipline identification. On this basis, 40 charter members were accepted from 8 departments in 3 colleges (Agriculture, Engineering and Science).

The primary mission of the Faculty was to coordinate teaching, administer the M.S. and Ph.D. degree programs and to advance the discipline. Most of the charter members did not identify plant physiology as their primary discipline and had not previously been able to direct students to degrees in Plant Physiology. Access to the Plant Physiology degree program was a significant advantage for some members as well as those Department of Plant Science faculty members being transferred. Many students had no preference as to whether their degrees were in Biochemistry, Biology or Plant Physiology, so there was less of a tendency to use the Plant Physiology degrees by members of the Faculty housed in the Departments of Biochemistry and Biology. There was no change in course offerings as a result of the formation of the Faculty. There was no specific research function specified for the Faculty.

An initial application for university approval was lost, but subsequently the Faculty Senate granted recognition as an Intercollegiate Faculty in 1988. From its formation until 1993, the chairs in order of service were: Page Morgan, Roberta Smith, Ron Newton, Greg Cobb, Don
Vietor and Bill Park. In 1993, due to declining interest, a change in the by-laws for direct election of the chair for a period of 4 years. Page Morgan was elected and succeeded by Wayne Jordan. In 2002, Marla Binzel became chair of MEPS. She coordinated the last MEPS academic program review in 2006. Jean Gould was chair of MEPS from 2007 to 2010, while the current chair Dirk Hays has been chair from September 2010 to present.

The first name change. In 1989, the Program Development Committee of the Faculty undertook an internal review of the program and its organization. The committee took special note of the rapid evolution of tools generated by molecular genetics and cellular biology and their incorporation into plant physiological investigations. Some faculty expressed concern that the Faculty might be incorrectly perceived as representing only “classical” plant physiology. The definition of plant physiology and qualifications for membership adapted at the formation of the Faculty in 1983 insured that the discipline would not be static and that had not been the case. Nevertheless, to insure that an incorrect perception was not conveyed internally or externally, the name of the group was changed in April of 1991 to the Faculty of Plant Physiology and Plant Biotechnology (FPPB). This change applied to the name of the Faculty only, not the degree.

A second name change. The Faculty underwent an external doctoral review, initiated by then Vice President of Research and Associate Provost Robert Kennedy in 1998. Included in the recommendations of that external review team (Appendix A) for an overhaul of the plant science graduate program was that the FPPB consider changing the name of the faculty and the degree to become more inclusive of the diversity of plant scientists at TAMU. Following extensive discussion and debate, a vote was held and the name “Faculty of Molecular and Environmental Plant Sciences (MEPS)” was chosen. This change was extended to include a change in the name of the degrees granted by the Faculty as well.

The new name of the Faculty received internal approval of the Faculty Senate in the Fall of 1999. The Texas Higher Education Coordinating Board approved a request to change the name of M.S. and Ph.D. degrees from Plant Physiology to Molecular and Environmental Plant Sciences effective September 1, 2000.

Prospective members are nominated by MEPS faculty through their respective department heads, voted to membership by full MEPS members, and approved by the appropriate dean. The MEPS Faculty comprises 54 full and 7 associate members. Associate members, researchers and adjunct faculty, have all the rights and privileges of full members except they may not vote nor hold elected office. As of August 1, 2013, there are 32 graduate students enrolled in MEPS M.S. and Ph.D. degree programs. Three Ph.D.s graduated from the program in academic year 2011-2012.

Institute of Plant Genomics and Biotechnology. In 1988, Charles Arntzen came to TAMU as Vice Chancellor of Agriculture, coalescing the roles of Dean of the College of Agriculture (which was renamed College of Agriculture and Life Sciences under his term), and Director of TAES and Texas Agricultural Extension Service (TAES, since renamed Texas Cooperative Extension). He conferred with many individuals about the needs of various programs, one of which was the broad area of plant sciences. One early result of these discussions was the conclusion that more molecular/biotechnological research was needed in the College of Agriculture and that there was a deficiency of facilities for transgenic/recombinant DNA work.
Dean Arntzen appointed a committee to develop a program of requirements for a $7.5 million facility to support molecular research on the plants in the College of Agriculture. The committee was chaired by Page Morgan and had members from Biochemistry, Entomology, Forest Science, Horticulture, Plant Pathology and Soil and Crop Sciences, as well as an additional representative of the plant breeders in TAES. This committee met with Dean Arntzen and then visited relatively new laboratory/growth chamber/greenhouse containment facilities at Monsanto and Washington University in St. Louis. Roger Beachy visited the College of Agriculture and Life Sciences as a consultant and made recommendations. The committee then developed an operational plan for the facility that would: (a) support plant/crop improvement facilities, (b) take advantage of institutional strengths in plant breeding, plant physiology/biochemistry and pest management disciplines, (c) foster interdisciplinary collaboration of molecular biologists with workers in other areas, especially plant breeding, and (d) provide a working environment to foster interaction. The plan specifically viewed the facilities as one in which a molecular oriented researcher from each of the listed departments would be assigned laboratories. The Department of Biology and the USDA were added as partners to the plan during development. Service laboratories, plant growth chambers and containment-rated greenhouses were part of the facility. Several elements in the plan fostered collaboration: (1) lab leaders remained members of their home departments for tenure and promotions and (2) facilities (tissue culture, DNA sequencing, plant growing spaces, etc.) in the building were to be made available to plant scientists campus-wide.

While the facility was under construction, John Mullet was selected as Director. Mullet, TAES Associate Director Robert Merrifield and Page Morgan submitted a USDA facilities grant which was funded for $7 million. Those funds were allocated in the proposal to: (1) purchase of plant growth chambers, (2) construction of a headhouse/greenhouse to increase plant culture space, and (3) construction of additional lab space. In the latter category is a plant science training laboratory which houses laboratory courses taught as part of the MEPS program, as well as non-credit training courses. The facility was initially named the Southern Crop Improvement Facility (SCIF) and became the Borlaug Center for Southern Crop Improvement when the building was dedicated to Norman Borlaug in 1999. The programmatic title of the research unit was the Crop Biotechnology Center until 2001, when the Board of Regents approved the restructuring of the Center into the Institute of Plant Genomics and Biotechnology (IPGB).

The facility contains laboratory space for 8 current faculty, 8 small multi-user temperature controlled greenhouses, 4 large multi-user temperature controlled greenhouses, and 22 plant growth chambers. Membership in the Institute extends broadly beyond those housed in the Borlaug Institute. That said, this original model of the Borlaug Institute as a community wide collaborative facility has deteriorated very significantly in the past few years, and is now managed as a facility primarily restricted for the use of faculty housed in the facility. Many members of the IPGB are also members of MEPS. As a result of the formation of the Institute, scientists trained in the techniques of plant molecular biology have been added to faculties in the departments of Biology, Entomology, Forest Science, Horticulture, Plant Pathology and Soil and Crop Sciences.

Originally the IPGB was established to foster interdisciplinary collaboration across the plant science community at TAMU. It represents an informal, intercollegiate, interagency research organization, much as the MEPS IDP represents a relatively informal intercollegiate teaching
and graduate training organization. Again, this original model of the IPGB has changed under its current direction.

3.2 Program Description
The Faculty of Molecular and Environmental Plant Sciences (MEPS) currently has 54 members in the Colleges of Agriculture and Life Sciences, Geosciences, and Science and from three state agencies Texas A&M University AgriLife Research, AgriLife Extension, Engineering Experiment Station and the Texas Forest Service. The MEPS program is financially administered through the Department of Soil and Crop Sciences and home departments in terms of individual student funding. Degree programs are available leading to MS and PhD degree in molecular and environmental plant sciences. Program requirements are determined and supervised by MEPS faculty. Degree programs are prepared on an individual basis by the graduate students in consultation with their advisory committee. Students hold appointments, for administrative purposes, in the department of their major professors.

MEPS Program Participating Colleges and Departments:
College of Agriculture and Life Sciences
- Biological and Agricultural Engineering
- Ecosystem Science and Management
- Entomology
- Horticultural Sciences
- Plant Pathology and Microbiology
- Soil and Crop Sciences
College of Geosciences
- Atmospheric Sciences
College of Science
- Biology

3.3 University Administration of MEPS Program
Interdisciplinary graduate programs, unlike conventional department-based programs, are a hybrid and rely on academic departments for administrative support staff, accounting, office space, and computer facilities. The level of support varies depending on the program and the department providing support. The current University administrative structure for managing IDPs, including the MEPS Program, requires that each IDP have a home dean who then reports to the Provost (Figure 4). The IDPs also report to the Dean of Faculties and Associate Provost for major policy issues. The MEPS Program is assigned to the College of Agriculture and Life Sciences whose dean has overall responsibility of the program. Since its inception the MEPS program has been “housed” in the Department of Soil and Crop Sciences. The “home” department provides office space, part-time administrative support, and accounting functions.

3.4 Administrative Structure of MEPS Program
3.4.1 Executive Committee and Chair
The MEPS program is administered through a four member elected Executive Committee and an elected Chair. The executive committee members serve 2-year terms. The committee establishes the long term planning for MEPS, and approves the MEPS curriculum, nominates updates and assigns course responsibilities, completes yearly program reviews through the Texas A&M
University online Weave system, and approves budget allocations. The current faculty serving as MEPS chair and on the Executive, Admissions, Symposium and Nomination Committees are listed in Table 1.

**MEPS Chair**
The Chair of MEPS administers yearly academic reviews through the WEAVE online system, through the Program Coordinator administers program funds and approves spending, attends Graduate Program Council meetings, represents the MEPS program at Office of Graduate and Professional Studies (OGAPS) meetings, acts as the official advisor to graduate students, approves degree plans, defense exams, proposals, and dissertation and thesis degrees. The chair crafts graduate admission offer letters, nominates students for graduate fellowships through the MEPS program, and officially admits students into the program that have been selected by the Admissions Committee.

**3.4.2 Program Coordinator**
Mrs. LeAnn Hague was hired in 2012 as the Program Coordinator. She serves and assists the MEPS chair and the Executive and Admissions Committee members. She manages day-to-day activities of the program, including, but not limited to advising graduate students, responding to inquiries, responding to emails from faculty and other Texas A&M personnel, drafting memos, letters, and other correspondence, and arranging seminars. She is also responsible for compiling and disseminating graduate applications for review by the faculty, correspondence with applicants, handling general graduate program inquiries, and compiling data for required reports. The Program Coordinator position is tremendously important to the success of the MEPS program and we are very fortunate that Ms. Hague has provided outstanding service to the students, faculty and program.

**3.4.3 Admissions Committee**
The admissions committee yearly nominates students from MEPS graduate applicants for admission as MS or PhD students. The committee is comprised of 4 to 6 elected members with no more than 2 members representing one department. The committee primarily nominates graduate students for two or three 9-month rotational MEPS assistantships from funds provided by OGAPS. Additionally the admissions committee also approves additional students nominated by individual faculty intending to support students on their grant funding.

**3.4.4 Symposium Committee**
On a yearly basis the MEPS program sponsors and administers a MEPS Fall and Spring Symposium. The MEPS Fall Symposium provides the opportunity for new students to meet current students and faculty and for all MEPS participants to view ongoing MEPS student research (see Appendix B). The MEPS Spring Symposium focuses on plant signaling as a overall theme with yearly focuses to this theme. Plant signaling is a theme that ranges from cellular signal transduction to plant responses to biotic and abiotic environments. The Spring Symposium will include seven invited national and international speakers,a poster session for current students, and oral presentations selected from student submitted abstracts. The Spring Symposium attracts students and faculty from Texas A&M University, Universities throughout Texas and faculty from universities in Louisiana, Arkansas, and Oklahoma (See Appendix 3).
3.4.5 Nomination and Awards Committee
The Nomination and Awards Committee nominates new faculty for membership in the MEPS program, nominates new Executive Committee members and a Chair of the program. Additionally the committee nominates MEPS faculty for MEPS, University and society awards.

3.5 Budget Allocations and Program Expenditures
Funding for the MEPS program is provided by the Provost through the Office of Graduate and Professional Studies (OGAPS). Funding for the last three years and the current year is presented in Table 3.4. MEPS funding from OGAPS is calculated on a very fair formula as follows:

$Funding = [Chair support($15,000)] + [Staff support($300*# students) + ($250*# chairs/co-chairs)] + [Graduate Enhancement (WSCH*$12)] + [Strategic Support ($300*#PhD students) + ($240*#MS students) ($500#PhD graduated) + ($400*#MS graduated)]

*WSCH = weighted student credit hour.

Funds are used primarily for the MEPS Program Coordinator position and to support graduate students stipend, tuition and fees a fringe benefits (Table 2). In FY 2007 to present the MEPS program coordinator support was $20,000 for a half-time position. Program funds are also used
to fund travel scholarships for students, and supports both the MEPS Fall and Spring Symposia.

Table 1. Faculty of MEPS committee membership

<table>
<thead>
<tr>
<th>Executive Committee</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Dirk Hays</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td></td>
<td>Jason West</td>
<td>Ecosystems Sciences Management</td>
</tr>
<tr>
<td></td>
<td>Hisashi Koiwa</td>
<td>Horticulture</td>
</tr>
<tr>
<td></td>
<td>Wayne Varsaw</td>
<td>Biology</td>
</tr>
<tr>
<td></td>
<td>Russell Jessup</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td>Outgoing Committee Member</td>
<td>Tom Cothren</td>
<td>Soil and Crop Sciences</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Seminar</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Jason West</td>
<td>Ecosystems Sciences Management</td>
</tr>
<tr>
<td></td>
<td>Alan Pepper</td>
<td>Biology</td>
</tr>
<tr>
<td></td>
<td>Hisashi Koiwa</td>
<td>Horticulture</td>
</tr>
<tr>
<td></td>
<td>Scott Finlayson</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td></td>
<td>Akihito Fukudome</td>
<td>MEPS Student Representative</td>
</tr>
<tr>
<td></td>
<td>Enamul Huq</td>
<td>Institute of Cellular and Molecular Biology, University of Texas</td>
</tr>
<tr>
<td></td>
<td>Carol Loopstra</td>
<td>Ecosystems Sciences Management</td>
</tr>
<tr>
<td></td>
<td>Thomas McKnight</td>
<td>Biology</td>
</tr>
<tr>
<td></td>
<td>Wayne Versaw</td>
<td>Biology</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Admissions</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Clint Magill</td>
<td>Plant Pathology</td>
</tr>
<tr>
<td></td>
<td>Betsy Pierson</td>
<td>Horticulture</td>
</tr>
<tr>
<td></td>
<td>Russell Jessup</td>
<td>Soil and Crop Sciences</td>
</tr>
<tr>
<td></td>
<td>Xiuren Zhang</td>
<td>Biochemistry and Biophysics</td>
</tr>
<tr>
<td></td>
<td>Patricia Klein</td>
<td>Horticulture</td>
</tr>
<tr>
<td></td>
<td>Paul deFigueiredo</td>
<td>Plant Pathology and Microbiology</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nomination and Awards</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Michael Kolomiets</td>
<td>Plant Pathology</td>
</tr>
</tbody>
</table>

The chair support is fixed at $15,000 per IDP. The support for the staff and other budget items, which is calculated based number of MEPS PhD and MS student is shown in Table 2 and 3. Graduate enhancement and staff support funds are based on weight student credit hours (WSCH) basis which is a factor of the number of students in both MEPS undergraduate and graduate courses (Table 2 and Table 3). Funding in Table 3 is calculated on a funding by department basis. As is evident, at present, faculty in the Department of Soil and Crop Sciences and Horticulture contribute to over 80% of the funding to the MEPS program based on teaching.
MEPS courses and student training. Ecosystems Sciences Management and Biochemistry were previously strong contributors to the MEPS program (Figure 5).

Potential exists for this funding level to rise or fall based on several factors. Factors that have and may continue to contribute to funding decline include: i. loss of critical faculty to other institutions who recruited students to MEPS and contributed very significantly to MEPS student training and teaching (in SCSC Wayne Jordan, Jeffery Chen, Scott Senseman, and Don Vietor; in ESSM Mark Tjoelker, Jean Gould, Kostya Krutovsky, Robert Washington-Allen; in Horticulture Astrid Vorder, Marla Binzel and Steve King); ii. Loss of faculty interest in recruiting students to MEPS; iii. migration of some MEPS faculty to other IDPs; iv. low funding; and v. pull by MEPS faculty from home departments to recruit new or transfer existing students into their home departments. Hopefully, this trend will be offset by recent hires who are enthusiastic supporters of MEPS, fantastic grant getters, and MEPS efforts to recruit existing faculty in MEPS with expertise in plant breeding, molecular genetics, plant based food chemistry, turf grass ecology, agriculture engineering, plant microbe interactions, and others. MEPS will continue to push these efforts, by providing a voice for the replacement of key faculty and plant science disciplinary expertise. Additionally, in some cases there is more faculty interest in recruiting graduate students through MEPS because of the high quality new graduate student applicants we attract through the application process. Additionally, it is critical that Texas A&M University College Administration Deans recognize the critical loss of expertise in key disciplines of plant sciences such as plant cell biology and tissue culture, ecological physiology, plant root biology, molecular and population genetics, and crop ecology. Without replacement of these losses Texas A&M University will lose its standing as a top ranked graduate institution for the plant sciences.

3.5.1 Funding for Current Graduate Students
The majority of MEPS’ allocation is used for graduate student support. Graduate student support includes research assistantships, scholarships, tuition, and fee payments. These assistantships occur as 9-month rotational fellowships. On a yearly basis 2-3 students are recruited into MEPS rotational fellowships. Where possible, scholarships through MEPS are offered to help recruitment. The MEPS Program Coordinator, the MEPS Chair and MEPS faculty have actively nominated 2-3 graduate applicants for Texas A&M University OGAPS or College of Agriculture competitive fellowships such as the Merit or Diversity Fellowships while also actively recruiting students with Fulbright Fellowships and other national and international fellowships. These fellowships offer full or partial stipend support for 1-3 years plus coverage of tuition and fees for the years funded by the OGAPS Fellowship. These efforts have resulted in MEPS obtaining an extra $1,174,290 in student fellowship support since 2007. This has added to student numbers and allowed for the recruitment 1-5 additional students per year in addition to the 2-3 per year MEPS rotational fellowships (Table 4). We expect these efforts to continue and increase. MEPS also submitted an IGERT proposal in 2010 focused on coalescing a graduate degree program focused on crop, urban and ecological remote sensing. We will proceed forward with this vision.

In addition, a number of graduate students are recruited and supported by MEPS faculty through their research budgets, and this support is not included in the table. Our doctoral students are primarily supported from research funds provided by the chair of their advisory committee. All of our doctoral students receive support. Current sources of MEPS student funding are listed in
Table 2. MEPS Program Budget

<table>
<thead>
<tr>
<th>Source</th>
<th>2010 Budget</th>
<th>2011 Budget</th>
<th>2012 Budget</th>
<th>2013 Budget</th>
<th>2014 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>COALS</td>
<td>$43,000</td>
<td>$43,000</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>College of Science</td>
<td>$3,000</td>
<td>$3,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regents</td>
<td>$13,000</td>
<td>$13,720</td>
<td></td>
<td></td>
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<tr>
<td>Provosts Office</td>
<td>$24,000</td>
<td>$24,000</td>
<td>$75,000</td>
<td>$71,234</td>
<td>$73,458</td>
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<tr>
<td>Total Income</td>
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<td>$83,720</td>
<td>$75,000</td>
<td>$71,234</td>
<td>$73,458</td>
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<tr>
<td>Balance Fwd</td>
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<td>$2,233</td>
<td>$2,233</td>
<td>$5,090</td>
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<td>Total Spendable</td>
<td>$83,000</td>
<td>$83,720</td>
<td>$80,800</td>
<td>$73,467</td>
<td>$78,548</td>
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<tr>
<td>Funding for Chair</td>
<td>-$4,150</td>
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<td></td>
<td></td>
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</tr>
</tbody>
</table>

Expense

| Grad Student Support    |             |             |             |             |             |
| Stipends/Fellowships/   |             |             |             |             |             |
| Rotation Fellowships    | $45,000     | $45,000     | $45,090     | $40,000     | $30,000     |
| Fringe & Ins            |             | $6,302      | $6,302      | $4,200      | $4,200      |
| Fall Symp Awards        | $600        | $600        | $300        | $300        | $300        |
| Tuition & Fees pad      | $1,000      | $1,000      | $8,700      | $5,600      | $8,400      |
| Travel Scholarships     | $4,000      | $4,000      | $4,000      | $4,000      | $4,000      |
| Prosp Student Trav      | $1,000      | $1,000      |             |             | $1,000      |
| Fall Symposium          | $500        | $500        | $100        | $100        | $100        |
| Luncheons               | $500        | $500        | $50         | $50         |             |
| Spring Symposium        | $7,000      | $7,000      | $1,500      | $4,500      |             |
| Phone Bill              | $500        | $500        | $120        |             |             |
| MEPS Review             |             |             |             | $1,000      |             |
| Chair Incentive         |             |             |             | $5,000      |             |
| MEPS Staff              | $20,000     | $20,000     | $20,000     | $20,000     | $20,000     |
| TOTAL BUDGET            | $80,100     | $86,100     | $80,662     | $75,750     | $78,500     |
Table 3. OGAPS formula funding contributed to MEPS per department FY 2013-2014.

<table>
<thead>
<tr>
<th>Department</th>
<th>Staff Support/ Graduate Enhancement (Training)</th>
<th>Graduate</th>
<th>Chair Support</th>
<th>Total</th>
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<tr>
<td>Biochemistry</td>
<td>$1,100</td>
<td>$2,747</td>
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<td>$3,847</td>
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<tr>
<td>Biology</td>
<td>$550</td>
<td>$558</td>
<td></td>
<td>$1,108</td>
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<tr>
<td>Entomology</td>
<td>$550</td>
<td>$3,345</td>
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<td>$3,895</td>
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<td>Ecosystems Science Management</td>
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<td>Horticulture</td>
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<tr>
<td>Plant Pathology and Microbiology</td>
<td>$1,100</td>
<td>$5,389</td>
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<td>$6,489</td>
</tr>
<tr>
<td>Soil and Crop Sciences</td>
<td>$5,550</td>
<td>$20,426</td>
<td>$15,000</td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$13,300</strong></td>
<td><strong>$45,158</strong></td>
<td><strong>$15,000</strong></td>
<td><strong>$73,458</strong></td>
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</tbody>
</table>
Figure 5. Weighted student credit hour funding contributed to MEPS by department.
### Table 4. 2013-2014 MEPS Student Funding

<table>
<thead>
<tr>
<th>Name</th>
<th>Degree</th>
<th>Dept</th>
<th>Advisor</th>
<th>Funding Sources</th>
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</thead>
<tbody>
<tr>
<td>Aksoy, Emre</td>
<td>PHD</td>
<td>HORT</td>
<td>Koiwa</td>
<td>NSF Grant</td>
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<td>Alsolami, Wail Faris</td>
<td>MS</td>
<td>SCSC</td>
<td>Hays</td>
<td>Saudi Arabia Fellowship</td>
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<tr>
<td>Bruton, Richard</td>
<td>PHD</td>
<td>SCSC</td>
<td>Hays</td>
<td>Texas A&amp;M AgriLife Cropping Systems</td>
</tr>
<tr>
<td>Camarillo, Fatima</td>
<td>PHD</td>
<td>SCSC</td>
<td>Hays</td>
<td>CONACYT Fellow, Mexico</td>
</tr>
<tr>
<td>Casto, Anna</td>
<td>PHD</td>
<td>SCSC</td>
<td>Rotating</td>
<td>MEPS Fellowship</td>
</tr>
<tr>
<td>Chen, Yuanyuan</td>
<td>PHD</td>
<td>SCSC</td>
<td>Murray</td>
<td>China Scholar Council</td>
</tr>
<tr>
<td>Chick, Chris</td>
<td>PHD</td>
<td>SCSC</td>
<td>Hays</td>
<td>Monsanto Beachell Borlaug International Scholar</td>
</tr>
<tr>
<td>Delgado, Alfredo</td>
<td>MS</td>
<td>SCSC</td>
<td>Hays</td>
<td>Texas A&amp;M AgriLife Cropping Systems</td>
</tr>
<tr>
<td>Elsayed, Ahmed</td>
<td>PHD</td>
<td>SCSC</td>
<td>Hays</td>
<td>Monsanto Beachell Borlaug International Scholar</td>
</tr>
<tr>
<td>Abdelfattah</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finley, Cameron</td>
<td>PHD</td>
<td>PLPA/HORT</td>
<td>Kolomiets/Pierson</td>
<td>TAMU Diversity Fellowship</td>
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<tr>
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<td>PHD</td>
<td>HORT</td>
<td>Koiwa</td>
<td>JASSO Fellowship, Japan</td>
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<tr>
<td>Ge, Chunxiao</td>
<td>PHD</td>
<td>BICH</td>
<td>Xiuren Zhang</td>
<td>NSF Grant</td>
</tr>
<tr>
<td>Gu, Xiangkun</td>
<td>PHD</td>
<td>SCSC</td>
<td>Hays</td>
<td>China Scholar Council</td>
</tr>
<tr>
<td>Holalu, Srinidhi</td>
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<td>SCSC</td>
<td>Finlayson</td>
<td>NSF Grant</td>
</tr>
<tr>
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<td>PHD</td>
<td>SCSC</td>
<td>Hays</td>
<td>Bayer Crop Sciences</td>
</tr>
<tr>
<td>Ibanez, Facundo</td>
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<td>HORT</td>
<td>Lombardini</td>
<td>Fulbright</td>
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<tr>
<td>Islam, MD Habibul</td>
<td>PHD</td>
<td>ESSM</td>
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4. THE MEPS GRADUATE PROGRAM

4.1 Admission Requirements and Procedures
Admission to the MEPS program requires meeting all the Texas A&M University requirements and approval by the MEPS admissions committee. Grades earned during the applicant's entire college career are considered, and a satisfactory grade point average is required. All basic applications are filed electronically and transcripts and letters of reference are submitted to the Texas A&M Office of Admissions. TAMU requires all applicants to submit a satisfactory General Record Exam score taken within the previous five years. The standard portions of the exam are required. To allow sufficient time for Texas A&M to receive scores, applicants should take the GRE by May to apply for fall admission and June for spring admission. TAMU requires a satisfactory Test of English as a Foreign Language (TOEFL) score from within the last two years from applicants whose native language is not English. Exception is made for those applicants completing all four years of a baccalaureate degree in the United States or achieving a GRE Verbal score of 400 (old format) or 146 in the new scoring format.

4.2 The Curriculum
General requirements for graduate degrees are established by the University and address such issues as residency, credit hours required, limitations to use of transfer work and undergraduate credits, etc. The Chair of the MEPS program will advise entering students until they choose a permanent advisor. First year students recruited as rotational fellows through MEPS funds will normally undertake two or three laboratory rotations with MEPS faculty pursuing research in the student's area of interest. A permanent advisor is chosen by the end of the first year. A formal degree program (list of academic courses) is then developed jointly by the student, advisor and members of his/her advisory committee. This approach provides flexibility to customize student education and training rather than provide a one-size-fits-all education. Policies and requirements specific to graduate degrees in Molecular and Environmental Plant Sciences are as follows:

4.2.1 Master of Science
Requirements for the M.S. Degree
Students must complete at least 32 credit hours including the following:
- At least 14 hours from graduate (600 level) MEPS or related courses from other-departments including at least 2 courses from the MEPS core curriculum shown below. The exact courses are to be determined jointly by the student and his/her advisory committee (see section 4.2.4).
- Statistics 651 or equivalent.
- Not more than 6 hours of courses at the 400 level may be counted toward the 32-hour requirement.
- One seminar course (1 hour) MEPS 681 Graduate Orientation
- One seminar course (1 hour) MEPS 681 or equivalent in the student's home department where the student presents a seminar.
- Not more than 8 hours of MEPS 691 (Research).
- TA one course for a minimum of one semester is strongly encouraged.
• Completion of a final examination and a thesis.

Check List for Master of Science Degree

1. Meet with departmental Graduate Advisor, before first semester registration.
2. Establish Advisory Committee by the end of student’s second long semester.
3. Submit a degree plan to OGAPS prior to the start of the student’s third long semester and no later than 90 days prior to final oral or thesis defense.
4. Submit thesis proposal, before the end of the student’s third long semester. Must have approval of Advisory Committee, Departmental Graduate Advisor and Office of Graduate and Professional Studies (OGAPS).
5. Apply for degree, pay graduation fees during the first week of student’s final semester.
6. Confirm with Advisory Committee that all degree plan courses are complete, submit thesis to Advisory Committee, before submitting request to schedule final exam. International students should confirm with their committee chair that all English Language Requirements have been completed.
7. Complete residence requirement, if applicable.
8. Submit request for permission to schedule final exam. Must be received by OGAPS at least 10 working days prior to the exam. Additional time requirements are on the OGAPS calendar for deadlines. NOTE: Results are to be submitted to OGAPS within 10 working days of the exam. Get approval from Advisory Committee and departmental Graduate Advisor.
9. Upload one approved final copy of the thesis as a single .PDF file (thesis.tamu.edu) and submit a signed approval page to the Thesis Office (Evans Library, 845-2225). See OGAPS calendar for each semester’s deadlines and get approval from Advisory Committee and departmental Graduate Advisor.
10. If required, submit Research Focus and Benefits form. (See Thesis Manual for format: http://thesis.tamu.edu/thesis-manual.) See OGAPS calendar for each semester’s deadlines and get approval from Advisory Committee and departmental Graduate Advisor.

11. **NOTE: Students must be continuously registered until all degree requirements are met.**

4.2.2 Doctoral Degree

Requirements for the Ph.D. Degree

Complete at least 96 credit hours beyond the B.S. degree or 64 hours beyond the M.S. degree to include the following:

- A minimum of 20 hours in MEPS courses or related departmental courses including at least 3 courses from the MEPS core curriculum shown below. The exact courses for the degree program are to be determined jointly by the student and his/her advisory committee (see section 4.2.4).
- Not more than 6 hours of undergraduate level (400) courses may be applied to the degree program (more may be needed as leveling or prerequisites, but only 6 hours may be used to meet the credit hour requirements for the degree.
- Students should take Biochemistry 601 if they lack an adequate background in biochemistry and Genetics 603 if they lack an adequate background in genetics.
- Students lacking a rigorous, contemporary background in plant physiology should take MEPS 601.
• Statistics 651 or 652 or equivalent.
• One seminar course (1 hour) MEPS 681 Graduate Orientation
• Second seminar course (1 hour each) a departmental course in which students are required to present a seminar.
• Additional hours of 685 (Directed Studies), 689 (Special Topics) and 691 (Research) courses to meet the credit hour requirements for the degree.
• TA one course for a minimum of one semester is strongly encouraged.
• Satisfactory completion of a qualifying examination, final examination and a dissertation.

Check List for Doctor of Philosophy Degree
1. Meet with departmental Graduate Advisor before first semester registration and get approval.
2. Establish advisory committee by the end of student’s second long semester.
3. Submit degree plan prior to the start of the student’s third long semester and no later than 90 days prior to preliminary examination. Get approval from Advisory Committee, departmental Graduate Advisor and the Office of Graduate and Professional Studies (OGAPS).
4. Complete English proficiency requirements, if applicable, before preliminary exams.
5. Review eligibility requirements for the preliminary exams several weeks before the proposed date. Have checklist signed by Advisory Committee chair, departmental Graduate Advisor. Submit list with preliminary exam scores.
6. Prior to the end of their third long semester and several weeks before they anticipate taking their prelims, students should review the eligibility requirements for the preliminary exam. Students should obtain the preliminary exam checklist form from the OGAPS homepage (ogs.tamu.edu). This checklist must be approved by the student’s advisory committee chair and departmental Graduate Advisor. This checklist must be attached to the “report of exam results” and forwarded to OGAPS after completion of the preliminary exams.
7. Complete the dissertation proposal by the end of the third or fourth long semester so that it can be used as a guide and contract for the student and advisor.
8. Determine dates of prelim exams, notify OGAPS, and announce schedule to committee, and MEPS at least 10 working days prior to the beginning of the preliminary exam. The time frame from the first written exam until the oral exam should be no greater than three weeks. Additional time requirements and deadlines are posted on the OGAPS calendar or in the graduate catalog.
9. Complete prelim exams prior to the end of the student’s fifth long semester, and submit the Report of the Preliminary Examination and the Preliminary Examination checklist to OGAPS within 10 working days of completing the prelim oral exam. All prelim exams, including the oral prelim, MUST be completed at least 14 weeks prior to the student’s dissertation defense.
10. OGAPS will notify the student and chair of any discrepancies/problems with the exams.
11. Complete residence requirement before submitting request to schedule Final Exam.
12. Apply for degree, pay graduation fees during the first week of the final semester. 13. If required, submit Research Focus and Benefits form.
14. Confirm with advisory committee that all degree plan courses are complete, submit dissertation to advisory committee well before submitting request to schedule final exam.
15. Submit request for permission to hold and announce final oral exam at least 10 working
days prior to the exam.

13. Upload one approved final copy of the dissertation as a single .PDF file (thesis.tamu.edu) and submit a signed approval page to the Thesis Office (979-845-2225). Students should check the OGAPS calendar for semester deadlines relative to submission and graduation. The dissertation must be approved by the advisory committee, co-chair if applicable, and departmental Graduate Advisor.

14. **Note: Students must be continuously registered until all degree requirements are met.**

4.2.3 Degree Plan
The Degree Plan establishes all course work required for the graduate degree and also establishes the Graduate Advisor and Advisory Committee. It will list the courses that a student must complete for their degree. In addition, prerequisite courses that the student’s Advisory Committee recommends are necessary to fill in gaps in the student’s previous training or education may be listed. Degree Plans are submitted electronically [http://ogsdpss.tamu.edu](http://ogsdpss.tamu.edu). Degree plans must be completed and filed with OGS prior to registration for a third term for Master candidates and fourth term for Doctoral candidates (excluding summer terms) and no later than 90 days prior to the date of the final oral examination or thesis defense for Masters candidates or preliminary exam for Doctoral Candidates.

4.2.4 Advisory Committee
Entering students will be assigned a temporary academic advisor to guide them in course selection and assist with other administrative requirements until a permanent faculty advisor is selected (usually after 1 or 2 semesters). The Chair of MEPS acts as the student’s academic advisor until a permanent advisor is chosen. The permanent advisor then becomes the Chair of the Advisory Committee (e.g., major professor). In addition, the Advisory Committee will include: A minimum of three (for MS degree) or four (for Ph.D. degree) members of the Graduate Faculty with one member outside of the home department of the student and Chair. The Chair and at least one other member must also be members of MEPS.

4.2.5 Designated MEPS Courses
**Core Curriculum**
- MEPS 601 Plant Physiology
- MEPS 605 Plant Biochemistry
- BIOL 635 Plant Molecular Biology
- ESSM 621 Physiological Plant Ecology (formerly RELM 607)

**Molecular and Environmental Plant Sciences Course Descriptions**

**MEPS 313. Introduction to Plant Physiology. Credit 3.** General course dealing with principal life processes of higher plants; influence of environmental factors on these processes. Agricultural and ecological significance of life processes of plants. Prerequisites: BIOL 101; CHEM 102 or CHEM 104; CHEM 222 or CHEM 228.

**MEPS 601. Physiology of Plants. (3-0). Credit 3.** Advanced physiology of higher plants, includes water relations, mineral metabolism, biochemistry, growth, development, hormones,
environmental signals and stress physiology. Emphasis on current literature and research trends; cellular and sub-cellular mechanisms related to whole plant behavior. Prerequisites: BICH 410 and MEPS 313 or approval of instructor.

**MEPS 605. Plant Biochemistry. (3-0). Credit 3.** Major metabolic pathways in plant metabolism; emphasis on biochemistry unique to plants. Prerequisites: BICH 410; MEPS 313.

**MEPS 610. Physiological and Molecular Basis for Plant Stress Response. (3-0). Credit 3.** Provide the tools to understand the molecular and physiological consequences caused by environmental factors (abiotic and biotic) on plant growth and development and the mechanisms of stress adaptation to stress. Prerequisite: MEPS 313 or equivalent. Cross-listed with HORT 610.

**MEPS 611. Plant Nutrition. (3-0). Credit 3.** Inorganic nutrition of plants; solute absorption, accumulation and translocation, growth in artificial media, physiological roles of various elements, and biophysical/molecular aspects of solute transport; genetic regulation of mineral nutrition and transport. Prerequisite: MEPS 313 or equivalent.

**MEPS 612. Phytohormones and Plant Growth Regulators. (3 0). Credit 3.** Biosynthesis mechanisms of action and developmental roles of the classes or groups of plant hormones; uses of hormones and synthetic growth regulators in plant production. Prerequisite: MEPS 313.

**MEPS 618. Root Biology. (3-0). Credit 3.** Basic concepts and current topics in root-soil ecology; managed and natural ecosystems including grasslands, cropping systems and forests; role of roots in the rhizosphere, the effects of soil, nutrient and water stress and climate change in C and N cycling and carbon sequestration; participate in discussions and critique recent literature. Prerequisite: Approval of instructor. Cross-listed with HORT 618.

**MEPS 619, Plant Associated Microorganisms (3-0). Credit 3.** Basic concepts and current topics in plant-microbe interactions including the diversity of plant-associated microorganisms; the plant as a microbial environment; endophytes; microbial roles in plant nutrition and fitness. Will discuss issues related to sustainable agriculture and uses of microorganisms for improving plant health. Students will discuss and critique recent literature. Was taught previously as MEPS 689 Fall 2010, Spring 2013 and will be taught as 619 Spring 2015. Cross-listed with HORT 619 and PLPA 619.

**MEPS 620. Plant Cell Structure and Function. (3-0). Credit 3.** Overview of plant cell organization, function and physiology to incorporate whole-plant processes with sub-cellular, molecular and genetic mechanisms; origin of eukaryotic cells, nuclear organization and processes, cell cycle, organelle biogenesis and inheritance, photosynthesis, endomembrane system, cell trafficking, symplast, cytoskeleton, extracellular matrix, cell wall, disease, plant microbe interaction, development and differentiation. Prerequisites: MEPS 313 or equivalent, graduate classification, or permission of the instructor.

**ESSM 621. Physiological Plant Ecology. (3-0). Credit 3.** Investigation of physiological mechanisms influencing ecological patterns and processes, including plant acclimation and adaptation in contrasting habitats, abiotic controls on species productivity and distribution, relevant conceptual and experimental approaches, and integration among ecological scales. Prerequisites: RENR 205 or MEPS 313 or equivalent; graduate classification.

**MEPS 630. Post-Harvest Biology, Physiology and Genetics of Plants. (3-0). Credit 3.** Overview of biological, physiological and genetic mechanisms which impart phenotypes associated with quality and value of plant products; current emphasis in areas of ripening, senescence, fruit and flower development, and relevant applications of biotechnology will be focus of course. Prerequisite: Approval of instructor. Cross-listed with HORT 630.
BIOL 635. Plant Molecular Biology. (3-0). Credit 3. Molecular aspects of plant growth, development, reproduction and evolution, emphasizing the structure, function, regulation, interaction and manipulation of plant genes; practical applications of plant molecular biology.
MEPS 650. Plant Cell Culture for Crop Improvement. (3-1). Credit 3. Focus on techniques in plant cell culture which can be applied to all crop plants, including agronomic crops, horticulture and forestry crops for germplasm improvement. Prerequisites: MEPS 313; CHEM 101; graduate classification.
MEPS 654. Analysis of Complex Genomes. (3-0). Credit 3. History and current status of genetic and molecular analysis of higher eukaryotic genomes; coverage of techniques for dissection of genomes into manageable parts; investigations in genetics, breeding and evolution; emphasis on quantitative inheritance, genetic mapping, physical mapping, map-based cloning, with examples drawn from a wide range of organisms. Prerequisite: GENE 603. Cross-listed with GENE 654 and SCSC 654.
MEPS 655. Analysis of Complex Genomes Lab. (0-7). Credit 3. Laboratory methods in molecular genetic techniques for genetic mapping, physical mapping, and map-based cloning of both qualitative and quantitative phenotypes. Prerequisite: GENE 603 or equivalent or approval of instructor. Cross-listed with SCSC 655 and GENE 655.
MEPS 671. Plant Growth and Development. (3-0). Credit 3. Comprehensive analysis of plant development primarily focused on the molecular and cellular processes underlying morphogenesis, vegetative growth and reproduction; role of the major phytohormones as coordinators of development will be analyzed; plastic development responses to conditioning environmental signals. Prerequisites: MEPS 601 or approval of instructor. Cross-listed with SCSC 671.
MEPS 673. Environmental Mechanisms of Plant Growth. (4-0). Credit 1. Analysis of physical and molecular mechanisms of whole plant responses to environment. Prerequisites: MEPS 313 and BICH 410 or concurrent registration or approval of instructor. (Four weeks)
MEPS 676. Solute Transport and Utilization in Plants. (4-0). Credit 1. Analysis of inorganic nutrient uptake, long distance transportation and genetic control of nutrient acquisition. Prerequisites: MEPS 313 and BICH 410 (or concurrent registration) or approval of instructor. (Four weeks)
MEPS 677. Plant Growth and Development. (4-0). Credit 1. Analysis of mechanisms of hormone action during vegetative and reproductive development, gene expression during development, photomorphogenesis and photoperiodism, dormancy and tropisms. Prerequisites: MEPS 313 and BICH 410 or concurrent registration or approval of instructor. (Four weeks)
MEPS 681. Seminar. Credit 1 each semester. Professional development for students pursuing careers in plant physiology; oral and poster presentations, writing skills, grantsmanship, job search and the promotion and tenure process.
MEPS 685. Directed Studies. Credit 1 to 4 each semester. Individual problems or research not pertaining to thesis or dissertation. Prerequisite: MEPS 313.
MEPS 689. Special Topics in... Credit 1 to 4. Selected topics in an identified area of plant physiology. May be repeated for credit. Prerequisite: Approval of instructor.
   Root Biology, Credit 3.
   Plant Cell Biology, Credit 3.
   Plant Hormone Analysis, Credit 3.
   Plant Stress Response, Credit 4
   Plant-Associated Microorganisms, Credit 3
MEPS 691. Research. Credit 1 or more each semester. Original investigations in support of thesis or dissertation.

There are a large number of courses offered on campus that satisfy the 14 (M.S.) or 20 (Ph.D.) hours in “MEPS courses or related departmental courses” besides those offered by MEPS or on the list of core courses. Some of the courses used or potentially used are listed below.

ANSC 689-602 Data Programming for Biologists  
BICH 628 Computational Biology  
BICH 635 Nuclei acid-protein interactions  
BICH General Biochemistry I  
BIOL 602 Fundamentals of TEM in Biology  
BIOL 651 Bioinformatics  
BIOL 672 Mol. Biology of Photosynthesis and Light Signal Transduction  
BIOL/BICH 650 Genomics  
ESSM 601 Forest Ecosystems and Global Change  
ESSM 609 Plant and Range Ecology  
ESSM 622 Nutrient Cycling  
ESSM 634 Plant Functional Ecology  
ESSM 635 Forest Biotechnology  
GENE 603 Genetics  
GENE 606 Quantitative Phylogenetics  
GENE 612 Population Genetics  
GENE 631 Biochemical Genetics  
GENE 689-601 DNA Microarray Analysis  
GENE/ANSC626 Analyses of Gene Expression  
GENE/BICH 431 Molecular Genetics  
GENE/SCSC 643 Quantitative Genetics and Plant Breeding  
PLPA 617 Molecular Plant Pathogen Interactions  
SCSC 603 Cytological and Histological Principles in Plant Breeding  
SCSC 607 Crop Physiology  
SCSC 611 Introduction to Environmental Biophysics  
SCSC 641 Plant Breeding I  
SCSC 642 Plant Breeding II  
SCSC 689-600 Plant Growth and Development

4.2.6 MEPS Funded Assistantships

MEPS Program Assistantships
The MEPS program offers assistantships to qualified, incoming students. The MEPS program typically offers 2-3 assistantships through MEPS funds, while adding additional rotational students through nomination of MEPS applicants for University and College Fellowships. A MEPS assistantships award provides a monthly stipend that includes insurance. Assistantships provide a monthly stipend and usually cover the cost of the student’s insurance. An assistantship also requires a minimum number of registered hours per semester in addition to 20 hours of work for the department. In previous years MEPS offered undergraduate courses in Plant Physiology that provided teaching assistant positions. Due to curriculum redevelopment in the Department
of Soil and Crop Sciences in the past 3 years these positions have been lost. MEPS 313 Introduction to Plant Physiology exists within the Department of Horticulture and attracts a significant number of students, however this course is presently a 3 hour course with no laboratory. Some home departments do allow MEPS students to TA departmental laboratory courses, though this has been inconsistent.

Program Scholarship Award
The MEPS Program now offers its own “Academic Excellence Award” based on the student’s academic success and contributions to the MEPS program. Students submit a letter of application that is reviewed by the MEPS Awards Committee. The award is based upon the committee’s recommendation and may be used by the student however it is needed. Due to low program funding, this award has been placed on hold.

Travel Awards
MEPS Travel awards are presently offered as $400-$500 scholarships which are used to cover expenses for attending professional meetings to present papers and/or posters based on the student’s research. Travel awards are provided on a competitive basis.

4.2.7 MEPS graduate student engagement
MEPS program website
The MEPS program website (https://meps.tamu.edu/) is administered through the Department of Soil and Crop Sciences. The site hosts administration, faculty and student rosters, web-page links, new and existing graduate student information (i.e, application links, degree requirements, MEPS core courses, and links for financial assistance), a history and vision of the program, student and faculty awards and recognition, MEPS Fall and Spring Symposium registration and advertisement links, the MEPS student association, the MEPS by-laws, and links for the Office of Graduate and Professional studies.

MEPS Graduate Student Association
The MEPS Graduate Student Association is a MEPS faculty advised association comprised of MEPS students and student elected officers. At present, the MEPS Graduate Student Association does not host a regularly scheduled journal club or student research presentation forum. Correcting this shortcoming is an immediate goal of the MEPS Executive Committee.

Welcome Incoming MEPS Students Luncheon
Every fall in September the MEPS Graduate Student Association hosts a New Incoming Student Luncheon. The luncheon functions as a casual social event to introduce new MEPS students to faculty and fellow MEPS students.

Fall Symposium
Each fall the MEPS students participate in a symposium by presenting posters regarding their research. A team of Faculty members judges posters. Dinner is served and it is an excellent time for interaction between students. New MEPS students are encouraged to attend.

Spring Symposium
Each spring since 2005, the MEPS Program has hosted an Annual Spring Symposium. It brings
noted experts to campus to participate. The varied topics and experiences of the speakers add to the total learning experience of MEPS students. Attendance is expected of all students with the opportunity for personal visits between small groups of students and symposium speakers over lunch at no cost to participating students. The Spring Symposium is widely advertised and attended by plant science faculty and students at both large state and private universities throughout Texas, Louisiana, Oklahoma, Arkansas, and New Mexico. Annually, the meeting attracts 70 to 150 participants. Outside the invited speakers, faculty and student registrants also submit abstracts. Of these 4-6 students are selected to present their research as oral presentations, the remainder present poster presentations. Registration is free, and where possible some travel scholarships are provided through MEPS, Symposium sponsor funds or NSF Symposium Grants. Flyers and abstracts for the 2013, and 2014 MEPS Spring Symposium are included in Appendix B and https://meps.tamu.edu/symposia/2014/index.html.

Texas A&M University Departmental Seminar Series
Each fall and spring academic semester departments, whose faculty are members of the MEPS IDP, each host their own weekly departmental seminar series (see Table 5 for weekly schedule). Each seminar series routinely hosts university, home departmental, invited or Texas Agrilife Research or Extension center faculty. MEPS faculty and students consistently attend these seminar series. The Departments of Biological and Agricultural Sciences, Atmospheric Sciences the Texas Water Resource Institute, The Borlaug Institute for International Agriculture and the new Ecology and Evolutionary Biology IDP also host frequent but irregularly scheduled seminars of plant science research at multiple scales.

<table>
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<th>Thursday</th>
<th>Friday</th>
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<td>Soil &amp; Crop Sci 4-5PM</td>
<td>Horticulture 4-5PM</td>
<td>Plant Breeders Circle 12-1PM</td>
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5. MEPS STUDENTS
5.1 New MEPS student enrollment trends
Since the 2007 MEPS review the total annual enrollment in the program has remained steady (Figure 5). Thirty-eight students have enrolled in the program. Although enrollment varies from year to year (see Table 6) an average 6 students join the program each year. Application-to acceptance ratios average about 5 to 1, and more than 90% of the students who are accepted enroll. Many of our applicants apply to more than one school, and those who are accepted but don’t enroll usually do so based on a better financial aid package from another school.
Table 6. Applied admitted by ethnicity and gender demographics.

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<th>Year</th>
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<th>Gender</th>
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<td>Male</td>
<td>2</td>
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</tr>
<tr>
<td></td>
<td>White Only</td>
<td>Female</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<td></td>
<td></td>
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<td>Total</td>
<td></td>
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**Note:** PLEASE NOTE: Since 2013-2014, 12 new students out of 32 applicants have been admitted into the MEPS program. Of these, 9 were female, 3 male and 3 were domestic while 9 were international. A grand total of 40 graduate students have been enrolled in the MEPS program since 2007.
5.2 MEPS student enrollment trends and retention
Overall student retention has not been a major issue. Of course, we would like to have a 100 percent retention rate, but that is difficult. Of the 40 M.S or Ph.D. degree students only eight have not completed the program to date. Others are on track to complete their degrees. A few of the 8 students who have left the program will not complete. A few are still working on their dissertations and are enrolled for the minimum hours although not currently supported. Most left for personal, financial, or career change reasons. Master’s degree students comprise 10 to 15% of the students enrolled in the program. This balance between master’s and doctoral students reflects the fact that MEPS attract students primarily interested in academic, government or industry careers requiring Ph.D. degrees.

From a gender perspective over 50% of the students are female. This ratio is fairly consistent in the master’s and doctoral degree programs across the years of admission (see Figure 6 and Table 7).

![Figure 6](image)

**Figure 6.** Total annual enrollment and enrollment by gender.
Table 7. Number of students enrolled in MEPS by year, by degree, and gender.

<table>
<thead>
<tr>
<th>Year</th>
<th>Female PhD</th>
<th>Female MS</th>
<th>Male PhD</th>
<th>Male MS</th>
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<td>2009</td>
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<td>23</td>
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<tr>
<td>2010</td>
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<td>2</td>
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<tr>
<td>2011</td>
<td>10</td>
<td>1</td>
<td>13</td>
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<td>23</td>
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<td>2</td>
<td>12</td>
<td>2</td>
<td>21</td>
<td>4</td>
</tr>
</tbody>
</table>

5.2.1 Country of Origin of MEPS Students
Roughly one third of the students in the MEPS program are domestic with the remainder being international (Figure 4). Currently 9 students are U.S. citizens and 23 students are international.

Figure 7. Country of origin of currently enrolled students

Nearly two thirds of our domestic students are from Texas. Our master’s students are predominately U.S. citizens while our doctoral program reflects nearly an equal balance between domestic and international students. Our international students are truly diverse hailing from some 11 different countries (Figure 7).
5.3. Student Publications and Presentations

The program has not maintained a cumulative total on the number of MEPS student publications and presentations. However, from 2009-2012, as part of the student learning objectives, we have identified publication and presentation objectives for our master’s and doctoral students. Data is collected from both yearly faculty achievement reports and a university collected 18 characteristic report the MEPS program collects on MEPS faculty for the university on a yearly basis. Neither sources of data are complete. The students in the MEPS degree program are averaging approximately 20 published manuscripts per year with and average student enrollment of 24 students during the same period. The MEPS faculty averaged 5.4 publications per year or 293 publications from 2010 to 2012 (Table 8).

*In general student productivity is reasonable yet could improve in terms of both student publications and students being given the opportunity to attend society conferences.*

| Table 8. Student and faculty publication productivity 2009-2012. |
|------------------|-------|-------|-------|-------|-------|
|                   | 2009  | 2010  | 2011  | 2012  | Total |
| MEPS Faculty Number | 32    | 41    | 44    | 42    | NA    |
| MEPS Faculty Publications | NR    | 89    | 89    | 115   | 293   |
| MEPS Student Number | 25    | 24    | 26    | 25    | NA    |
| MEPS Student Publications | NR    | 17    | 17    | 23    | 57    |

5.4 MEPS Student Graduation

Our mission is to “prepare the next generation of basic and applied plant scientists, through teaching and research.” A metric of our success in meeting this mission is how many students we place in permanent positions. We are falling short of our mission. We have current job placement information for 32 of the MEPS graduates since 2007 (as shown in Table 9 and Table 10). Of these, 10 are in non-permanent postdoctoral or research scientist positions. On a general observation, most of these students graduated from MEPS faculty whose focus are more basic plant molecular biology disciplines. Students with more applied research training appear to be transitioning to more permanent academic, industrial or government positions. This discrepancy may not be surprising given the large number of universities that train plant molecular biologists versus the more limited number of institutions that train plant breeders, horticulturist, agronomist etc., for academic and industry positions. Some students received MS degrees and have transitioned into PhD programs.

<p>| Table 9. Number of MEPS students graduated by degree, gender and year. |
|------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Year             | Female    | Male      | Total     | Female    | Male      | Total     |
|                  | PhD       | MS        | Total     | PhD       | MS        | Total     |
| 2008             | 5         | 5         | 10        | 3         | 3         | 6         | 13        |
| 2009             | 2         | 1         | 3         | 2         | 2         | 4         | 7         |
| 2010             | 2         | 1         | 3         | 2         | 1         | 3         | 4         | 1         | 7         |
| 2011             | 3         |            | 3         | 2         | 2         | 5         | 8         |
| 2012             | 2         | 2         | 4         | 1         | 1         | 2         | 5         |
| Total            | 14        | 2         | 16        | 10        | 1         | 11        | 24        | 2         | 40        |</p>
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<th>Current Employment</th>
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<tr>
<td>2013</td>
<td>Urriola Simons</td>
<td>Jazmina</td>
<td>PHD</td>
<td>Keerti Rathore</td>
<td>Research with foreign government</td>
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<tr>
<td>2013</td>
<td>Chen</td>
<td>Yuan</td>
<td>PHD</td>
<td>Tom Cothren</td>
<td>Part time employment at TAMU</td>
</tr>
<tr>
<td>2013</td>
<td>Gawde</td>
<td>Archana</td>
<td>PHD</td>
<td>Joseph Awika</td>
<td>Postdoctoral Research Associate with Mississippi State University</td>
</tr>
<tr>
<td>2012</td>
<td>Chittoori</td>
<td>Ratnaprabha</td>
<td>PhD</td>
<td>Lee Tarpley</td>
<td>Postdoctoral Research Associate at Boise State University</td>
</tr>
<tr>
<td>2012</td>
<td>Manohar</td>
<td>Murli</td>
<td>PhD</td>
<td>Kendal Hirschi/Bhimu Patil</td>
<td>Postdoctoral Research Associate at Boyce Thompson Research Center, Cornell, NY</td>
</tr>
<tr>
<td>2011</td>
<td>Arnold</td>
<td>Marianne</td>
<td>PhD</td>
<td>Jean Gould</td>
<td>Postdoctoral Research Associate at TAMU</td>
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<tr>
<td>2011</td>
<td>Weers</td>
<td>Brock</td>
<td>PhD</td>
<td>John Mullet</td>
<td>Postdoctoral Research Associate at TAMU</td>
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<tr>
<td>2011</td>
<td>Rao</td>
<td>Sheetal</td>
<td>PhD</td>
<td>Marla Binzel</td>
<td>Research Assistant - MD Anderson Cancer Center</td>
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<tr>
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<td>Seeve</td>
<td>Candace</td>
<td>PhD</td>
<td>Carol Loopstra</td>
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<td>Thompson</td>
<td>Sean</td>
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<td>Yue</td>
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<td>Hisashi Koiwa</td>
<td>Senior Market Research Analyst, Shire Pharmaceuticals</td>
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<tr>
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<td>Kranthi</td>
<td>PhD</td>
<td>Tom McKnight</td>
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<tr>
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<td>Sreenath</td>
<td>PhD</td>
<td>Carol Loopstra</td>
<td>Postdoctoral Research Associate at TAMU</td>
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<tr>
<td>2010,2014</td>
<td>Rothe</td>
<td>Julie</td>
<td>MS/PhD</td>
<td>Dirk Hays</td>
<td>Breeder Syngenta</td>
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<tr>
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<td>Mason</td>
<td>Richard</td>
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<td>Dirk Hays</td>
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<td>Pillai</td>
<td>Tushara</td>
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<td>Terry Gentry</td>
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<tr>
<td>2009</td>
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<td>Francis</td>
<td>MS</td>
<td>Dirk Hays</td>
<td>Line Development Breeder at Monsanto</td>
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<tr>
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<td>Kourtnee</td>
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<td>Texas Tech Medical School</td>
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<th>Current Employment</th>
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<td>PhD</td>
<td>Kendall Hirschi/Jean Gould</td>
<td>Instructor and Assistant Director in Clinical Cytogenetics, Department of Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai</td>
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<td>Abdul</td>
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<td>Jeffery</td>
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<td>2008</td>
<td>Hollister</td>
<td>Emily</td>
<td>PhD</td>
<td>Thomas Boutton</td>
<td>Instructor, Baylor College of Medicine: Director of Bioinformatics and Microbial Ecology, Texas Children's Microbiome Center</td>
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<td>Lee Tarpley</td>
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<td>Veria</td>
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<td>Jung</td>
<td>PhD</td>
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<td>Gutierrez</td>
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<td>Alan Pepper</td>
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<tr>
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<td>Hur</td>
<td>Jung-Im</td>
<td>PhD</td>
<td>Terry Thomas</td>
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<td>2007</td>
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<td>James</td>
<td>PhD</td>
<td>Kendall Hirsch</td>
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<td>Madhulika</td>
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<td>Leo Lombardini</td>
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<td>Justin</td>
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</table>

* Only includes graduates through 2013

6. MEPS FACULTY
Texas A&M University established in 1989 the interdisciplinary MEPS graduate degree program. Interdisciplinary faculty acts through an executive committee and a program chair who guide the program. The MEPS program currently comprises 54 faculty, 42 of which are counted as core faculty, in 8 departments in the Colleges of Agriculture and Life Sciences, Science, and Geosciences. Faculty who participate in MEPS supervise and fund students in their respective departments, but they also supervise and fund students in the MEPS program. The MEPS program is structured to provide interdisciplinary breadth. Courses offered through the program provide students with an understanding of molecular and biochemical mechanism that regulate
plant function at the cellular and whole plant and community scale.

6.1 Faculty Teaching in MEPS Program
One of the features that attract students to the MEPS program is the faculty. The expertise of the MEPS faculty extends from model systems to rangeland, molecular genetics and genomics to crop physiology and ecology (refer to Appendix A for curriculum vitae from the individual faculty). The addition of Ron Lacey from the Department of Biological and Agricultural Engineering brings a new dimension to the program. Besides the 8 TAMU departments represented (Table 11, Figure 7), we have faculty members from the TAMU AgriLife Research and Extension Centers located around the state, USDA/ARS, the Texas Forest Service, the US Forest Service, and faculty such as Kendal Hirschi who is part of Baylor College of Medicine, but also holds an adjunct faculty position at TAMU.

<table>
<thead>
<tr>
<th>Last Name</th>
<th>First Name</th>
<th>DEPT</th>
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<td>*Awika</td>
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<td>*Boutton</td>
<td>Thomas</td>
<td>Ecosystem Science &amp; Management</td>
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<td>*Cisneros-Zevallos</td>
<td>Luis</td>
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<td>J. Tom</td>
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<td>Davies</td>
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<td>Horticultural Sciences</td>
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<td>*DeFigueiredo</td>
<td>Paul</td>
<td>Plant Pathology &amp; Microbiology</td>
</tr>
<tr>
<td>*Devarennne</td>
<td>Timothy</td>
<td>Biochemistry/Biophysics</td>
</tr>
<tr>
<td>*Dickman</td>
<td>Martin</td>
<td>Plant Pathology &amp; Microbiology</td>
</tr>
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<td>*Faridi</td>
<td>Nurul</td>
<td>Ecosystem Science &amp; Management</td>
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<td>*Finlayson</td>
<td>Scott</td>
<td>Soil and Crop Sciences</td>
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<td>*Gentry</td>
<td>Terry</td>
<td>Soil and Crop Sciences</td>
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<tr>
<td>*Gould</td>
<td>Jean</td>
<td>Ecosystem Science &amp; Management</td>
</tr>
<tr>
<td>*Griffing</td>
<td>Lawrence</td>
<td>Biology</td>
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<td>Hall</td>
<td>Timothy</td>
<td>Biology</td>
</tr>
<tr>
<td>*Hays</td>
<td>Dirk</td>
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<td>*He</td>
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<td>*Hirschi</td>
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<td>Amir</td>
<td>Soil and Crop Sciences</td>
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<td>Isakeit</td>
<td>Thomas</td>
<td>Plant Pathology &amp; Microbiology</td>
</tr>
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<td>Jessup</td>
<td>Russell</td>
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<tr>
<td>Johnson</td>
<td>Charlie</td>
<td>Genomics and Bioinformatics</td>
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<td>Kiniry</td>
<td>Jim</td>
<td>USDA/ARS</td>
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<td>Patricia</td>
<td>Horticultural Sciences</td>
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<td>Robert</td>
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</tbody>
</table>
The MEPS program and their home departments have lost critical faculty through retirement, early retirement, and to other institutions. These faculty recruited students to MEPS and contributed very significantly to MEPS student training and teaching (in SCSC Wayne Jordan, Jeffery Chen, Scott Senseman, and Don Vietor; in ESSM Mark Tjoelker, Jean Gould, Kostya Krutovsky, Robert Washington-Allen; in Horticulture Astrid Volder, Marla Binzel and Steve King).

Texas A&M University is making some effort to rebuild the plant science faculty, through a combination of refilling some of the original positions, plus the addition of new positions associated with the university’s ‘faculty re-investment program’. There are at least eight new faculty on campus with expertise in the plant sciences. These new faculty, especially those involved in molecular aspects of plant biology, have all sought out membership in MEPS. New disciplines that are represented by new faculty include 3 plant breeders, 1 cereal chemist, 1 soil
microbiologist and 3 plant pathologists. These new faculty teach several of our MEPS courses or allied courses that are regularly attended by MEPS students, train their graduate students in the MEPS program, and actively serve on MEPS committees. These new hires have contributed to our improved student numbers, with 32 students currently enrolled.

Promotion and tenure decisions are initiated by the department, and then submitted for evaluation at the college and eventually university levels. Departments are supposed to solicit input from the intercollegiate faculties if the faculty being considered for promotion or tenure reports membership in an interdisciplinary program in their dossier. In the past 5 years, for all but one faculty that MEPS has been asked to provide input, tenure and promotion decisions have been positive. Enforcement of the university rule requiring this input has been uneven, and not all departments or colleges have requested input when MEPS members have gone up for tenure or promotion.

6.2 Faculty Advising
University rules and those of the MEPS program govern the formation of student advisory committees and degree plans. Students in the master’s degree program must select a graduate chair, form an advisory committee, and file their degree plan by the end of the second semester. Prior to forming their committee, the MEPS chair or Program Coordinator provides advising. A master’s degree advisory committee consists of no fewer than three members, one of which must be members of the MEPS faculty and one must be external to the student’s home department.
The committee chair must be a member of the MEPS faculty. Doctoral students often have identified a chair from the MEPS faculty who has agreed to serve in that capacity before they can be admitted to the program. Those admitted as 9-month MEPS Rotational Fellows receive advising from the MEPS chair or Program Coordinator. The rotational Fellows typically rotate through 3 MEPS faculty programs during the span of 9 months. The MEPS chair provides assistance in finding suitable lab rotations for the students. At the end of nine months the rotation fellow joins and is supported by a MEPS faculty. Ph.D. students have until the end of their third semester to finalize their advisory committee and file their degree plan. Advisory committees for the doctoral degree will consist of no fewer than four members, one of whom must be a member of the MEPS faculty. At least 42 different members of the MEPS faculty have or are currently chairing student committees, and nearly all members of the faculty have served on a student committee. Table 4 is a list of current students and their committee chairs.

6.3 Research Funding for MEPS Program Faculty
Faculty who participate in the MEPS program have exceptional records not only in their publication records but also in receiving MEPS-related external grants. Grants support students in their respective departments as well as students in the MEPS program. Collectively, the core group of 41 active MEPS faculty members has generated approximately $43 million in external
funding from competitive funding programs between 2007 and 2012 (Figure 8 and 9). These totals do not include millions of dollars per year funded through state and university initiatives, or student fellowships. The funds have supported robust research programs that helped steer the intellectual and scientific direction of the graduate program in addition to providing both financial support and research opportunities for students. Funding sources included USDA, NSF, DOE, Department of Transportation, USAID, Fulbright, and major US corporations. The funding record reflects the commitment of the faculty to Texas A&M University, as a Tier 1 Research Institution, to maintain highly productive research programs that help attract the world’s best faculty and graduate students.

![Figure 8. Faculty external funding 2007-2012](image)

**6.4 Faculty Publications**
Collectively, the MEPS faculty are prolific publishers in the plant sciences. Over the past 5-7 years they have produced more than 298 publications, including books, book chapters and journal articles. This is not a complete record of their career publications as faculty are requested, for purposes of this report, to limit their publication listing to two pages. Many faculty have CVs that are more than 50 pages. Very brief MEPS faculty CVs are listed in Appendix A.

**6.5 Demographics of MEPS Faculty**
Participation as a member of the MEPS program is a voluntary action of each faculty member assigned to an academic home department. The MEPS program does not make hiring decisions and has no control over the Texas A&M University faculty diversity. Thus the MEPS faculty is a reflection of department hiring practices. The MEPS program supports University efforts to increase faculty diversity.

A review of the MEPS faculty indicates that of the 42 active members: 19 members of
international origin, 8 female members and 1 members of Hispanic origin. The MEPS faculty diverse intellectual teaching, research, and publication backgrounds are indicated in Appendix A.

Figure 9. Average MEPS faculty external funding per core faculty member 2007-2012.

VISION, GOALS, AND ASSESSMENT
7.1 Texas A&M University
Vision 2020 The Southern Association of Colleges and Schools Commission (SACS) and the Texas Higher Education Coordinating Board (THECB) assesses the quality of Texas A&M University as a whole. In 1999, Texas A&M embarked upon a comprehensive evaluation and planning program to meet the SACS and THECB guidelines and with the aim of securing recognition as a consensus “Top 10” public university by the year 2020. The program known as “Vision 2020” (vision2020.tamu.edu) was intended to build upon Texas A&M’s tradition of excellence, while identifying areas requiring improvement and recommending necessary action, without sacrificing the core values upon which the university is solidly founded or its proud and unique heritage. The report, Vision 2020: Creating a Culture of Excellence, sets forth individual recommendations categorized into 12 “imperatives” relating to all aspects of Texas A&M and its relationships with students, faculty, staff, the community, and the state, nation, and world it proudly serves. In 2012, Vision 2020 was updated through a campus-wide process of internal assessment called the Academic Master Plan and a University strategic plan called Action 2015: Education First. The document identified a number of imperatives that the university will target over the next decade. Of relevance to this review is the commitment to graduate education.
The 12 imperatives are:
1. Elevate the Faculty and their Teaching, Research, and Scholarship
2. Strengthen the Graduate Programs
3. Enhance the Undergraduate Academic Experience
4. Build the Letters, Arts, and Sciences Core
5. Build on the Tradition of Professional Education
6. Diversify and Globalize the Texas A&M Community
7. Increase Access to Knowledge Resources
8. Enrich the Campus Environment
9. Build Community and Metropolitan Connections
10. Demand Enlightened Governance and Leadership
11. Attain Resource Parity with the Best Public Universities
12. Meet the Commitment to Texas

7.2 College of Agriculture and Life Sciences- Grand Challenges
During the 2012-2013 academic year, the College of Agriculture and Life Sciences embarked on an exciting interdisciplinary, faculty-driven initiative to chart our top priorities for the future. This year-long process, which included a series of lectures, white paper development, and a town hall meeting, culminated with the identification of five Grand Challenges – feeding our world, protecting our environment, improving our health, enriching our youth, and growing our economy. The MEPS faculty were instrumental in developing 3 of the Colleges white paper documents for developing a vision and plan for the 5 grand challenges.

Feeding Our World- The challenge involves feeding 9 billion people by the year 2050 through advances in technology, increasing the awareness for the need to increase funding for agricultural research, improving food distribution, storage, and technology adoption in developing countries.

Protecting our Environment- Agriculture and a healthy environment must go hand in hand. The challenge focuses environmental sustainability and restoring the health of our ecosystems through surveying and protecting endangered wildlife species, revitalizing rangelands, designing parks and trails throughout Texas, studying the effects of climate change and developing biofuels for a clean and secure energy future.

Improving our Health- The challenge focuses recreation and weight control to designing fruits and vegetables with more phytonutrients for cancer prevention to using the latest biotechnology advancements to search for new drugs.

Enriching our Youth- The challenge focuses on providing a world class education while providing opportunities such study abroad, field experiences, internships, undergraduate research and a wide choice of student organizations that all allow students to develop leadership, organizational and communication skills to become society-ready graduates.

Growing our Economy- The United States has greater competition in the global marketplace because more countries are producing goods. As a result, their citizens have more disposable income. The challenge focuses on reaching new markets by using technology and innovation to add value to existing products, and create new products to meet previously unseen needs, while protecting the environment from increased pressures on land, air and water needed to produce more food and fiber.
ALIGNMENT OF MEPS PROGRAM WITH THIS IMPERATIVE:

**Imperative 2: Strengthen Graduate Programs**
In any view to the future, the challenges of solving complex problems are certain to require interdisciplinary work. It is critical that the University foster an adaptive culture that embraces and encourages interdisciplinary research while continuing to embrace and encourage individual research. Texas A&M University and especially the College of Agriculture and Life Sciences, Science and Geosciences do make significant efforts to encourage and foster individual faculty, teams of scholars and practicing professionals from multiple disciplines to cross structural boundaries and create collaborative partnerships to advance the frontiers of knowledge in meeting increasingly complex societal challenges.

The interdisciplinary nature of the MEPS Program has demonstrated a faculty resolve despite limited institutional commitment to foster an integrated and interdisciplinary plant sciences program at Texas A&M University.

**Imperative 12: Meet Our Commitment to Texas**
Texas A&M is a public, land-grant institution that prepares educated problem-solvers to lead the state. The diverse population of Texas should have access to the best public education in America without having to leave the state. To further fulfill our mission, Texas A&M does engage in partnership with communities, industry, non-profit organizations and government entities to help solve the most difficult societal problems.

ALIGNMENT OF MEPS PROGRAM WITH THIS IMPERATIVE:
Most MEPS program graduates are employed by universities, major US agribusinesses and by government and CGIAR research centers focusing on advancing agricultural productivity, environmental and ecological sustainability, and new basic plant science research. As such, MEPS faculty and students are addressing this challenge at multiple scales and levels.

7.3 Strategic Plan/Program Assessment
7.3.1 MEPS Program Vision
Molecular and Environmental Plant Sciences seeks to understand the molecular basis for functions and behavior of plants in natural environments. It blends botany, ecology, molecular biology, chemistry, genetics and physics. Traditionally, plant scientists have been interested in the improvement of agriculture, and many of the most basic findings on photoperiodism, mineral nutrition, plant growth regulators, morphogenesis, postharvest physiology and plant competition have had major effects on modern agriculture. Today the unifying goal of plant science is to understand and improve plants. This goal involves significant interdisciplinary interactions with molecular genetics, plant breeding, environmental physics, agronomy, plant pathology and microbiology, and other plant-agriculture disciplines.

Graduate degree programs are individually designed to prepare graduates for careers in specialized areas of the discipline including molecular biology, metabolism, development, physiological ecology and environmental or crop physiology. Faculty members hold appointments in the Departments of Atmospheric Sciences, Biochemistry and Biophysics, Biology, Biological and Agricultural Engineering, Ecosystem Science and Management,
Entomology, Horticultural Sciences, Plant Pathology and Microbiology, and Soil and Crop Sciences. Courses in these departments support the curriculum along with those in chemistry, genetics, mathematics, physics and statistics.

All graduate students participate in the student seminar program, the faculty-sponsored visiting scientist seminar program, other faculty-sponsored special programs, the core curriculum of courses and regional and national scientific meetings. These activities lend continuity and unity to the graduate student group just as research topics and the selection of supporting courses lend diversity to individual programs.

Vision
The Faculty of Molecular and Environmental Plant Sciences will promote the unification of plant sciences at Texas A&M University through active support of departmental and interdisciplinary efforts to develop internationally recognized programs of excellence in research and graduate education.

7.3.2 MEPS Program Mission
The mission of the MEPS program is to serve the faculty and students of TAMU by providing leadership, intercollegiate focus and organizational structure for contemporary training of future researchers, teachers and entrepreneurs and add value to the department-based intellectual environment in all disciplines of plant sciences.

7.3.3 MEPS Program Goals
The goal of the MEPS program is as follows:

- To actively promote a more unified approach in plant science programs.
- To enhance internal and external recognition of our programs of service, research, and graduate education.
- To increase numbers of assistantships offered by the program through aggressive pursuit of training grants.
- To enhance communications and interactions among and between faculty and graduate students.
- To support plant science-based departmental curricula by providing relevant, interdisciplinary plant biology courses.
- To support research program development and graduate student enrichment by bringing recognized research leaders and grant program administrators to campus.
- To complement and extend strong plant science research and training programs by maximizing opportunities for collaboration.
- To enrich the graduate education and training program by providing opportunities for leadership development and participation in extracurricular professional activities.
- To provide faculty members with opportunities for professional development through active participation in leadership of the Faculty.

The vision and mission statements encompass two important features. Recognition is given to the large and diverse programs in plant sciences currently organized along departmental or commodity lines. Our vision is that the Faculty will provide expertise and leadership to facilitate integration and synergism among all plant science programs. In fulfilling this role, we envision
that Faculty members can build on existing strengths to evolve recognized programs of excellence in research and graduate education that will elevate visibility of not only the MEPS program, but also the overall program in plant components of life sciences at TAMU.

7.4 Learning Outcomes
The MEPS program has maintained a set of learning outcomes for each student graduating from the program through the development of a required core course curriculum all MEPS students are required to take and pass. The core courses are:

- MEPS 601 Plant Physiology
- MEPS 605 Plant Biochemistry
- BIOL 635 Plant Molecular Biology
- ESSM 621 Physiological Plant Ecology

Broadly the MEPS program expects graduates to demonstrate knowledge within the broad spectrum of modern plant sciences, through an interdisciplinary program that includes core competencies in plant physiology, plant ecological physiology, plant molecular biology and plant biochemistry as well as competency in individual tailored curricula specific to the student and faculty chairs research thesis and dissertations. The core competencies include understanding, plant water relations, mineral metabolism, photosynthesis, primary and secondary metabolism, plant growth and development, plant hormones biosynthesis and action, environmental signals and stress physiology. At the ecological level students are expected to understand physiological mechanisms influencing ecological patterns and processes, including plant acclimation and adaptation in contrasting habitats, abiotic and biotic controls on species productivity and distribution, and relevant conceptual and experimental approaches.

Achievement target- MEPS program students are demonstrating their disciplinary competence in these topics through the high grades obtained in the MEPS required core curriculum, passing student committee preliminary written and oral exams and successful defense and publishing of their thesis and dissertation research.

8. STRENGTHS AND WEAKNESSES
8.1 Program Strengths
8.1.1 Value of an Interdisciplinary Degree
Prospective students likely chose to apply to the MEPS program due to a perceived value that the interdisciplinary MEPS degree over other TAMU departmental degrees; even some existing TAMU graduate students in departmental programs will take on the additional steps and paperwork to apply to and transfer into the MEPS program (provisional upon their advisor’s approval) once they become familiar with MEPS. Students with more basic interests such as molecular biology, genetics or biotechnology are sometimes concerned about possible limitations to their future career options if their degree is in traditional agriculture areas such as Forestry, Horticulture or Agronomy. Students seek the interdisciplinary MEPS degree as a means to be more marketable and for a greater diversity of potential career paths. MEPS is currently the only interdisciplinary program at TAMU that focuses on recruiting graduate students interested in plant science.
8.1.2 Flexible Degree
The MEPS degree program is quite flexible, and allows students and their advisory committees to determine the most appropriate courses, sequence of classes and amount of coursework above a minimum set by the program. This flexibility encourages graduate training to be tailored to each individual student, taking into account their unique backgrounds and goals.

8.1.3 Faculty Diversity and Research Expertise
The MEPS program has diverse faculty, with broad representation from different disciplines, genders, ethnicities and professorial ranks is an asset to our program. With respect to disciplines, the faculty expertise is diverse and ranges from the most basic molecular genetics and genomics, to plant breeders, ecologists and agronomists (See Appendix A for CVs).

8.1.4 Affiliated Scientists
The MEPS program also has a number of scientists from other universities (i.e. Baylor School of Medicine), USDA-ARS, and off campus research and extension centers participating in the MEPS program. These individuals can serve as co-chairs or committee members, and enhance the breadth of training that we can offer to our students.

8.1.5 Faculty Recruiting
Interdisciplinary programs such as MEPS help to make TAMU attractive basic science faculty who are being recruited into commodity or traditional agriculture oriented departments. Prospective faculty see the opportunity to teach courses in MEPS, and attract students who want to receive training in an interdisciplinary program.

8.1.5 Plant Science Community
The MEPS program helps bring together plant scientists who are not only administratively divided between colleges and departments but also physically separated in buildings scattered across a large campus.

8.1.7 Participation of New Faculty
New faculty hires in the plant sciences (i.e. Plant Pathology, Biology, Horticulture, etc.) have sought election and are actively recruited into MEPS by the faculty to provide a means to accelerate their assimilation into the plant science community. The MEPS program provides access to a pool of prospective students. This is especially important to new faculty whose new programs have yet to attract the individual attention of prospective students. The new faculty also ensures that MEPS continues to have faculty with the most current research skills.

8.1.8 Annual MEPS Spring Symposium
The MEPS program has developed a very successful Annual MEPS Spring Symposium (see Appendix B). Due to the abundance of seminar series with scheduling conflicts, audience drain, etc., the MEPS Seminar Committee shifted to a two-day symposium format. This format was used for the first time in 2005, and has been a great success since. Students, post-docs and faculty from campus departments, other institutions, as well as off-campus centers and USDA-ARS have participated, with attendance ranging from 75-150 during different times of the day. As mentioned, the symposium is widely attended by plant science faculty and students from universities throughout Texas, Louisiana, Oklahoma, Arkansas, and New Mexico. The MEPS
Chair has emphasized that the symposium should be student centered and a chance for student registrants to present oral presentations and poster presentations. This aspect of the MEPS Spring Symposium is improving.

8.1.9 Excellent Students
MEPS attracts applicants with outstanding qualifications, both in terms of measures of academic performance (GPR and GRE) and prior research experiences. Once enrolled, our students continue to exhibit their excellence, both in the classroom and in their research. Student recruitment in terms of domestic student applicants has been limited to 5 to 6 applicants per year. Additionally, outside of direct recruitment efforts, MEPS attracts very few underrepresented minority student applicants. The MEPS program will need to reverse this trend.

8.1.10 Facilities, Equipment, etc
MEPS students have access to excellent facilities and equipment, adequate laboratory space is available, and library resources, especially electronic access, are convenient. State of the art plant growth facilities are available in the Institute of Plant Genomics and Biotechnology. This facility was originally designated for plant science community-wide use, however recent changes to its management have altered the facility to a member use only facility.

8.1.11 Student Placement
Student placement in permanent academic, industry or government research positions has been reasonable on an individual discipline basis, yet significant improvements in this aspect are still needed.

8.2 PROGRAM WEAKNESSES
8.2.1 External Program Visibility
The program’s external visibility should be improved. The lack of external visibility not only hampers student recruiting, particularly among underrepresented groups, but also hinders student career placement. One effort to improve the program’s visibility is develop a MEPS brochure for distribution at state, national, and international conferences and the successful award of an NSF IGERT, REU or USDA recruitment grant will improve the programs visibility.

8.2.2 Lack of Physical Program Office Space
The MEPS program has lost a dedicated staff support. It currently shares a part time Program Coordinator position with the Department of Soil and Crop Sciences (SCSC). In this role the shared Program Coordinator not only assists the MEPS program with most programmatic functions such as recruiting, student correspondence, university reports, and student degree administration along with the MEPS Chair, but also supports the SCSC new distance education PhD and MS degree in Plant Breeding as well as serving the broader functions for the departmental degree programs as she does for the MEPS program. The lack of physical office space contributes to visibility issues, especially when prospective students contact the program or on campus visiting. The lack of a designated office also contributes to difficulties in retaining and organizing program records and files, which are not only important to efficient program operations, and are increasingly necessary to fulfill reporting mandates associated with program and institutional accountability. The lack of institutional infrastructure (office space and
designated staff assistance) is impediments to the program being able to put together a competitive training grant proposal. Reviewers are not only concerned about the quality of the participating faculty and availability of research facilities when examining these proposals, but are looking for evidence that sufficient infrastructure is in place to ensure that the administrative activities associated with the grant would be well managed.

8.2.3 Curriculum Weaknesses
The MEPS course curriculum provides a good disciplinary knowledge foundation. What is lacking however is hands-on laboratory oriented courses within all of the sub-disciplines of MEPS. Students request these opportunities on a regular basis. The MEPS program should make increased efforts to gage student interests for the types of laboratory courses they want and make efforts to accommodate those requests. Additionally, new courses in high-throughput remote sensing based plant phenotyping needs to be a priority for course development and a specialized degree within the MEPS program.

8.2.4 Internal Program Identity
Maintaining a sense of community amongst faculty and students remains the largest challenged by both the physical distances that people are distributed across campus, and the wide diversity of disciplines. The graduate orientation seminar course for first year students was primarily established to foster a cohort group amongst incoming MEPS students. The course provides an orientation to graduate school at TAMU, while also providing the students an opportunity to get to know each other. The class is well received and some non-MEPS graduate students (i.e. plant breeding) also enroll in the course. Despite this, cohesion amongst the students, and amongst the MEPS faculty is very poor and may reflect the need to identify a new MEPS program Chair, or greater emphasis by existing MEPS Committees to establish new activities such as student run journal club series that fosters increased interaction.

8.2.5 Recruiting Activities
We are attracting an insufficient pool of well-qualified applicants despite the limited number of new students that our faculty can support each year through grants and contracts. Some new MEPS faculty have been unable to find qualified students willing to join their program. A more pro-active marketing of our program would not only attract a deeper pool of applicants, but would also elevate the visibility of the program.

8.2.6 Loss of Critical Faculty Expertise
Since the last review there has been considerable turnover of faculty at TAMU. Retirements and relocations, and early retirements during budget shortfalls were particularly prevalent in the plant sciences. In addition to the retirement of several of the founding members of the early MEPS program, other institutions have been very successful in attracting many key faculty in plant cell and molecular biology. A few examples of the faculty who relocated or retired are: Jeff Chen, Wayne Jordan, Kostya Krutovsky, Mark Tjoelker, Astrid Volder, Marla Binzel, Robert Washington-Allen, William Payne, Scott Senseman Page Morgan, Don Vietor, Monica Menz, Steve King (bold denotes faculty lost from recruitment to new positions). These departures not only impacted our ability to teach MEPS courses, but also contributed to the decline in the total number of students obtaining degrees from the program. It is critical that Texas A&M University College Administration Deans recognize the critical loss of expertise in
key disciplines of plant sciences such as plant cell biology and tissue culture, ecological physiology, plant root biology, molecular and population genetics, and crop ecosystem ecology. Without replacement of these losses Texas A&M University will lose its’ standing as a top ranked graduate institution for the plant sciences. Additionally, many of these disciplinary expertise losses are critical given the state of Texas projected water shortage caused by population growth and global climate change. Replacement of lost faculty in the departments of Soil and Crop Sciences, Horticulture, and Ecosystems Science and Management are critical priorities and the university should explore the reasons for the high number of relocated faculty.

8.2.7 Critical Mass
The extent of disciplinary diversity, physical distances separating faculty and students, and limited number of students in the program create a strong need for MEPS to protect and grow its critical mass. At present, the MEPS program existence in terms financial support and programmatic function is kept alive by very few MEPS faculty. A drop in the number of students participating in the program will continue to erode the MEPS IDP. The Texas Higher Education Coordinating Board has threatened to close low graduation rate degree programs. A few MEPS program home departments are in real danger of losing their degree programs. As a consequence, departments have pushed MEPS faculty to matriculate students through departmental degrees. This has resulted in a recent trend of some MEPS faculty recruiting and admitting qualified students through MEPS program, yet then transferring students to home department degree programs. This issue will continue to erode the viability of the program and will need to be addressed by Texas A&M University administration. Additionally, and new IDP program Evolutionary and Ecological Biology has recently been approved. This new IDP may be more attractive to Ecosystem Science and Management faculty. As such, we anticipate some erosion in MEPS faculty participation and potential reductions in student recruitment could occur.

8.2.8 Informal Learning Opportunities
We recognize that there is an increasing tendency of current students to compartmentalize and seek less scientific interaction and exchange outside of the time they spend in the lab/field. We recall our own graduate training that was often enriched by extensive time spent in journal clubs, departmental and lab oriented research meetings, and scientific debates. The MEPS program does not have a current journal club program. This needs to be re-established by MEPS faculty and students.

8.2.9 Lack of Plant Growth and Greenhouse Facilities
As mentioned, State of the art plant growth facilities are available in the Institute of Plant Genomics and Biotechnology. This facility was originally designated for plant science community-wide use, however recent changes to its management have altered the facility to a member-use only facility for growth chamber space and increasingly small greenhouse space. The facility contains laboratory space for 8 current faculty, 8 small multi-user temperature controlled greenhouses, 4 large multi-user temperature controlled greenhouses, and 22 plant growth chambers. Because the greenhouses are multi-user, individual experiment temperature and daylength control is problematic to impossible. The broader plant science community 54 MEPS members and 133 additionally plant science or agriculture related faculty is left to contend with 30 to 50 year old greenhouse structures, many of which are in a state of complete
disrepair and dilapidation. If faculty retention and new faculty start-up investments are expected to pay dividends for Texas A&M University, new efforts will need to be made in building new state-of-the-art plant growth facilities. This is especially true given the dire present and projected state of Texas water resources for agriculture and urban use.

9. PLANS FOR THE NEXT 1-3 YEARS

9.1 Establish a MEPS External Advisory Committee
The MEPS program functions without an external advisory committee. However, an external advisory committee can provide several benefits. It is envisioned that the Committee will provide feedback and guidance in terms of
• Providing academic training to the students
• Developing skills to be successful in academic and industry recruiting trends
• Strengthening the curriculum to be responsive to plant science trends
• Increasing program visibility
• Enhancing student recruitment
• Developing internship and placement programs

The committee would meet once a year on campus for a day-long meeting. During these meetings, the Advisory Committee will interact with the students, faculty, and TAMU administrators.

9.2 Seek to Establish Additional MEPS Endowed Scholarships
The establishment of endowed MEPS fellowship should be a priority. This will allow MEPS to recruit more competitively. Potential donors will be identified and approached to establish scholarships or fellowships for MEPS students.

9.3 Establish a MEPS journal club. The MEPS program needs to re-establish a MEPS faculty and student run journal club.

9.4 Establishment of a New Remote Sensing Focus
Use of remote sensing via manned or unmanned digital imaging for ecological and field based plant phenotyping and physiology studies is a rapidly growing trend in plant sciences. Texas A&M University in addition to local USDA-ARS has outstanding existing expertise in this arena, yet no formal degree program or specialization exists to attract new students. The MEPS faculty and Chair will seek to establish a high throughput remote sensing based plant phenotyping/physiology degree specialization within the MEPS degree program. This endeavor should attract both new students and faculty to the MEPS program.

9.5 Establish On-Going Internships for MEPS students
A number of government, industry and CGIAR institutions and MEPS students would benefit would from student internships. It will be the goal of the MEPS program to develop formal internship programs with these institutions in the coming years.
LIST OF APPENDICES

APPENDIX A

- Faculty Curricula Vitae

APPENDIX B

- Symposia
  1. 2013 Fall Poster Competition Flyer
  2. 2013 Spring Symposium Flyer
  3. 2014 Spring Symposium Flyer

APPENDIX C

- 18 Characteristics
  1. 2012 - 18 Characteristics Report
  2. 2013 – 18 Characteristics Report
APPENDIX A

Faculty Curricula Vitae
I. ABOUT

Name: Joseph M. Awika

Title: Associate Professor

Affiliations: Soil & Crop Science Department
Nutrition and Food Science Department
Molecular and Environmental Plant Sciences

Institution: Texas A&M University, College Station, Texas.

Research Interest

Grain chemistry and biochemistry: Identify secondary plant metabolites and minor grain constituents that impact food quality and human health. The goal is to understand how the structure of phenolics and related compounds in grains and pulses interact during food processing to affect product quality and biomarkers for human health. Interactions of grain polyphenols with food macromolecules (carbohydrates, proteins) are of interest. New applications for grain polyphenols are also under investigation. We collaborate with nutritional biochemists to employ various in vitro and in vivo models for disease prevention. We aim to maximize the impact of grain components in prevention of chronic disease.

Grain processing and quality: Understanding relationship between final product quality and grain genetics, composition and physical properties. Of special interest are functional attributes contributed by specific protein fractions of wheat, sorghum and other grains, as well as starch composition and molecular weight profile. We work closely with plant breeders and molecular geneticists to identify phenotypic traits that impart desirable functional attributes for intended products.

International activities: We actively collaborate with various international institutions in Zambia, Kenya, South Africa, Mexico, and China to develop strategies that address grain quality, safety, and nutrition and food security.
BIOSKETCH

Education

2003  PhD, Food Science & Technology, Texas A&M University, College Station, TX
1996  B.S., Dairy Science & Tech, Egerton University, Kenya

Past Positions and Experiences

2008 – 2013: Assistant Professor, Texas A&M University, College Station, TX.
2006 – 2008:  Assistant Professor, University of Missouri, Columbia, MO.
2004 – 2005:  Assistant Professor, Arkansas State University, AR.
2004 – 2006:  Adjunct Assistant Professor, University of Arkansas, Fayetteville, AR.

Teaching activities

FSTC 305. Fundamental Baking. (2-3). Credit 3. II

Fundamentals of baking; chemical and physical properties of ingredients, methods of baking all products, fundamental reactions of dough, fermentation and oven baking. Prerequisite: CHEM 222 or 227 or approval of instructor. Offered every fall.

FSTC 401. Food Product Development (2-3). Credit 3. II

Design and develop new food products using principles of food chemistry, food processing, nutrition, sensory analysis and statistics; team collaborate to improve food product characteristics to meet the needs of changing society. Prerequisites: FSTC 311, 312, 313, 314, 315, 326 or registration therein. Currently open to FSTC seniors only.


Chemistry, structure, functionality and nutritional properties of food carbohydrates; fiber chemistry, functionality and nutritional properties, artificial sweeteners, starch structure and functionality and hydrocolloid functionality. Prerequisite: BICH 410. Offered in fall, odd years.

FSTC 681. Seminar in Food Science. (1-0). Credit 1.

Oral reports and discussions of current research and developments in food technology designed to broaden understanding of problems and to stimulate research.

Publications
A. Selected peer reviewed, refereed journal articles [total = 31]


3735-3744.


**B. Books and book chapters**


II. CURRENT LAB PERSONNEL AND RESEARCH ACTIVITIES

Dr. Frederico Barros, Research Associate.
Project: Interaction of proanthocyanidins with starch and their impact on starch functionality and digestibility.

Dr. Liyi Yang, Research Associate
Projects: Sorghum flavonoids in colon cancer prevention; targeting estrogen receptor activation mechanism; new applications for 3-deoxyanthocyanins; cereal grain quality.

Mr. Tom Jondiko, PhD student, FSTC.
Project: Impact of glutenin subunit composition and pentosans on fundamental dough rheology; use of multivariate models to predict product quality.

Shima Agah, PhD student, FSTC.
Project: Chemical basis for synergistic interactions of polyphenols and implications to food quality and human health.

Kristen Dunn, MS, FSTC.
Project: Proanthocyanidin-starch interactions and impact on starch digestibility.

Amy Collison, MS, FSTC.
Project: Effect of genetics on anthocyanin and co-pigment composition of specialty corn; impact on color stability and processing quality.

Dorothy Herman, MS, FSTC.
Project: Modifying behavior of 3-deoxyanthocyanins in aqueous systems

Audrey Girrard, MS, FSTC
Project: TBD

Derrick Amoako, MS, FSTC
Project: TBD

III. HONORS AND AWARDS

National:
- 2001-2002: Bill Doherty Memorial Fellowship (American Association of Cereal Chemists)
- 2000-2001: American Association of Cereal Chemists Graduate Fellowship

University:
- 2002: Tom Slick Senior Graduate Research Fellowship, Texas A&M University
-2002-2003: Outstanding Graduate Student, Food Science & Tech. Intercollegiate Faculty Award, Texas A&M University
-2002-2003: Academic Excellence Award, Food Science & Tech., Texas A&M University
-2001-2002: Academic Excellence Award, Food Science & Tech., Texas A&M University

Regional/State:
-2000-2001: Institute of Food Technologists (Longhorn) Scholarship
-1999-2000: Institute of Food Technologists (Longhorn) Scholarship
-2000-2001: Texas Food Processors Association Scholarship
-1999-2000: Texas Food Processors Association Scholarship

Appointments

- **Associate Editor**, Journal of the Science of Food and Agriculture: 2011 – present
- **Technical Committee Member**, Bioactive Compounds in Grains, American Association of Cereal Chemists International, 2011 - present
- **National Program Research Review Panel Member**, USDA-ARS Office of Scientific Quality Review. 2010
- **External Examiner**, Doctoral candidate, Monterrey Tech, Monterrey, Mexico 2012-2013.
- **External Examiner**, Doctoral and MS candidates, University of Pretoria, South Africa; 2009-2012.
- **Local Section Chair**, American Chemical Society: University of Missouri, 2007-2008.

National/International awards by graduate advisees

- Ms. Dorothy Herman won **FIRST PLACE** in graduate research competition at the Sorghum Improvement Conference of North America (SICNA) annual meeting, August 28-30, 2013, in Lubbock, TX.
- Ms. Kristen Dunn won **SECOND PLACE** in graduate research competition at the Sorghum Improvement Conference of North America (SICNA) annual meeting, August 28-30, 2013, in Lubbock, TX.
Mr. Frederico Barros won the **SECOND PLACE**, graduate research competition at the American Association of Cereal Chemists International Annual Meeting in Hollywood, FL, in October 2012. Presentation was based on part of his PhD research.

Mr. Tom Jondiko was awarded the highly competitive American Association of Cereal Chemists International (AACC) Milling & Baking Division M. Rella Dwyer Graduate Fellowship, 2012-2013.

Mr. Leonnard Ojwang won the **FIRST PLACE**, graduate research competition at the American Association of Cereal Chemists International Annual Meeting in Palm Springs, CA, in October 2011. Presentation was based on part of his PhD research.

Mr. Tom Jondiko was awarded a highly competitive American Association of Cereal Chemists International Graduate Fellowship, 2011-2012.

Mr. Frederico Barros was awarded a highly competitive American Association of Cereal Chemists International Graduate Fellowship, 2011-2012.


Ms. Yang, Liyi won **SECOND PLACE** in graduate research competition at American Association of Cereal Chemists International Annual Meeting in Baltimore, MD, in October 2009. Presentation was based on part of her MS research.

Ms. Liyi Yang won **FIRST PLACE** in graduate research competition at the Sorghum Improvement Conference of North America (SICNA) biennial meeting, Feb 25-26, 2009, in Grapevine, TX.

### IV. PROFESSIONAL MEMBERSHIPS

- Institute of Food Technologists (IFT) 1998 – present
- American Chemical Society (ACS) 2003 – 2012

### V. SUMMARY OF RELEVANT ACCOMPLISHMENTS
Summary of graduate students receiving degrees

<table>
<thead>
<tr>
<th>Role</th>
<th>&lt;2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<td>3</td>
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*partial

Grants and contracts summary

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<th>Type and Role</th>
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<td>PI</td>
<td>5,866,782</td>
<td>1,595,898</td>
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<td>Co-PI</td>
<td>102,000</td>
<td>18,000</td>
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<td>Total (PI + Co-PI)</td>
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<td><strong>Internal</strong></td>
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<td>PI</td>
<td>798,400</td>
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<td>Co-PI</td>
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<td>Total (PI + Co-PI)</td>
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Summary of Publications and Scholarly Work

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<td>Book Chapters</td>
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</tr>
</tbody>
</table>
BIOGRAPHICAL SKETCH

THOMAS W. BOUTTON

Department of Ecosystem Science and Management
Texas A&M University
College Station, TX 77843

Telephone: (979) 845-8027
Fax: (979) 845-6430
E-mail: boutton@tamu.edu

A. Research Expertise and Areas of Interest

For the past 25 years, my research group has focused on understanding the biogeochemical consequences of land cover/land use changes and their implications for the climate system. Our work has been aimed primarily at understanding how ecosystem C, N, and P storage and dynamics are altered during grassland to woodland transitions. I also serve as co-director of the Stable Isotopes for Biosphere Sciences Lab, which is a comprehensive facility for biogeochemical and isotopic analyses of the plant-soil-water-atmosphere system.

B. Professional Preparation

B.A. Biology, St. Louis University, June 1973
M.S. Biology, University of Houston, June 1976
Ph.D. Botany, Brigham Young University, December 1979

C. Appointments

2011-now Associate Department Head for Graduate Programs, Dept. Ecosystem Science & Management
2010-now Senior Faculty Fellow, Texas A&M AgriLife Research, Texas A&M University System
2006-now Regents Professor, Dept. Ecosystem Science & Management, Texas A&M University
2006-2009 Affiliate Faculty Member, Dept. Crop & Soil Science, Oregon State University
2006-2007 Visiting Scholar, Dept. Earth and Atmospheric Sciences, Purdue University
1994-now Professor, Dept. Ecosystem Science & Management, Texas A&M University
1987-1994 Associate Professor, Dept. Rangeland Ecology & Management, Texas A&M University
1985-1987 Assistant Professor, Dept. Pediatrics, Baylor College of Medicine, Houston, TX
1983-1985 Instructor, Dept. Pediatrics, Baylor College of Medicine, Houston, TX
1982-1983 Postdoctoral Fellow, Dept. Pediatrics, Baylor College of Medicine, Houston, TX
1980-1982 Postdoctoral Fellow, Dept. Biology, Augustana College, Sioux Falls, SD

D. Honors and Awards

Senior Faculty Fellow, Texas A&M AgriLife Research, 2010
Regents Professor, Texas A&M University System, 2006
Best Poster, Soil Biology and Biochemistry, Soil Science Society of America Meeting, 2006
Leu Distinguished Lecturer, University of Nebraska, 2004
Outstanding Achievement Award, Society for Range Management, 2004
Faculty Fellow, Texas A&M AgriLife Research, 2003
Best Poster, Forest & Rangeland Soils, Soil Science Society of America Meeting, 2002
Fellow, Soil Science Society of America, 2001
Fellow, American Society of Agronomy, 2001
Most Effective Graduate Course (Nutrient Cycling), Texas A&M University, 2000, 2002
Most Effective Graduate Course (Ecology & Land Use), Texas A&M University, 2002
Royal Society for Chemistry Lecturer, 1999
Stapledon Lecturer, Biotechnology and Biological Sciences Research Council, UK, 1999
Royal Society for Chemistry Lecturer, 1997
Editor's Citation for Excellence, Soil Science Society of America Journal, 1994
E. Recent Publications (* denotes grad student, postdoc, or undergrad student)


F. Recent Grant Funding


Boutton TW, Scott A. 2010-2013. Soil carbon storage and dynamics in the western Gulf Coastal Plain as impacted by forest management. **U.S. Forest Service Cooperative Agreement** (10-CA-11330124-093) ($25,000).


G. Synergistic Activities

**Co-Director**: Stable Isotopes for Biosphere Science Laboratory, Department of Ecosystem Science and Management, Texas A&M University, 1987-present. Lab consists of two isotope ratio mass spectrometers, 3 elemental analyzers, a discrete chemistry analyzer, DOC/DON analyzer, a gas chromatograph, and sample preparation equipment. This lab has supported the research of approximately 120 faculty, postdocs, and graduate students from TAMU and other universities.

**Session Co-Organizer and Co-Chair**: “Global Change and the Biogeochemistry of Dryland Ecosystems,” annual meeting of the American Geophysical Union, 2012.


**Advisory Panel Member**: National Science Foundation, 2008-2011.

**Committee Member**: NEON Domain Science and Education Coordination Committee, Southeastern Region, 2009-present.

**Advisory Board and Faculty Mentor**: Sloan Foundation Minority Ph.D. Fellowship Program, and Texas A&M Hispanic Leadership Program in Agriculture and Natural Resources, 2007-present.
NAME: Byron L. Burson

TITLE: Research Geneticist, USDA-ARS

EDUCATION: B.S. Oklahoma State University, Agronomy, 1962
M.S. Texas A&M University, Cytogenetics and Plant Breeding, 1965
Ph.D. Texas A&M University, Cytogenetics and Plant Breeding, 1967

PROFESSIONAL EXPERIENCE:
Assistant Professor, Agronomy Department, Mississippi State University, 1967-1971
Associate Professor, Agronomy Department, Mississippi State University, 1971-1975
Research Geneticist, USDA-ARS, Grassland, Soil, and Water Research Laboratory, Temple, TX, 1975-1993
Research Geneticist, USDA-ARS, Southern Plains Agricultural Research Center, College Station, TX, 1993-present
Adjunct Professor, Department of Soil & Crop Sciences, Texas A&M University, 1995-present
Member, Molecular and Environmental Plant Sciences Faculty, Texas A&M University, 2000-present

PROFESSIONAL ACTIVITIES:
Membership in Professional Societies
American Association for the Advancement of Science
American Forage and Grassland Council
American Genetic Association
American Society of Agronomy
Crop Science Society of America

Advisory Committees
National Crop Germplasm Committee for Forage and Turf Grasses, 1985-present
  Chairman, Crop Germplasm Committee, 1991-1994
  Chairman, Warm-Season Grass Sub-committee, 1986-1991

Honors and Awards
1974: Recipient, Sigma Xi Research Award, Mississippi State University
1982: Recipient, $2,000 Travel Grant from Fulbright Commission
1992: Fellow, American Society of Agronomy
1994: Fellow, Crop Science Society of America
1998: Fellow, American Association for the Advancement of Science
2000: Merit Award, American Forage and Grassland Council
Member, Alpha Zeta
Member, Sigma Xi
Member, Gamma Sigma Delta
Member, Phi Kappa Phi

Research Activities
Research activities are focused on the cytogenetics, reproductive biology, wide hybridization, and genetic improvement of warm-season grasses. This includes: determining the cytogenetic behavior of complex polyploid grass species and hybrids; establishing phylogenetic relationships among different species in agamic complexes; identifying and circumventing incompatibility barriers that prevent hybridization between distantly related species; determining the method of reproduction of various grasses, including apomictic mechanisms; and using this fundamental information to develop novel breeding approaches to develop true breeding apomictic cultivars. Recent research activities have included using molecular tools to: 1) map economically important genes, including those controlling apomixis and dioecy and 2) determine phylogenetic relationships among different grass species.

Graduate Student Advisory Activities
Co-chair of advisory committee of three Ph.D and three M.S. students. Member of advisory committee of seven Ph.D. and eight M.S. students. Presently serving as a member of advisory committee of three Ph.D. and two M.S. candidates.

Recent Publications (90 Referred Publications, 8 Book Chapters, and 120+ Proceedings and Abstracts)


2009.


Thomas D. Byram  
Western Gulf Forest Tree Improvement Program Geneticist and Assistant Professor  
Texas A&M Forest Service and Department of Ecosystem Science and Management  
(12 month appointment)

Forest Science Laboratory  
College Station, TX 77843-2585  
Telephone: (979) 845-2556   FAX: (979) 845-3272  
email: t-byram@tamu.edu

**Education**

- 1975 B.A (Biology)  
  Hendrix College, Conway, AR  
- 1978 M.S. (Forestry)  
  Texas A&M University, College Station, TX  
- 2000 Ph.D. (MEPS)  
  Texas A&M University, College Station, TX

**Experience**

- 1976-1978  
  Research Assistant, Department of Forest Science, Texas A&M University, College Station, TX.
- 1978-2001  
  Assistant Geneticist, Texas Forest Service.  
- 2001-Present  
  Geneticist, Texas A&M Forest Service. Responsible for the direction of the TFS Pine and Hardwood Tree Improvement Programs, Western Gulf Forest Tree Improvement Program – Pine, Western Gulf Forest Tree Improvement Program – Hardwood, and Urban Tree Improvement Program.
- 2001-Present  
  Assistant Professor, Department of Ecosystem Science and Management. Research problems addresses operational tree improvement problems for both pine and hardwood species.

**Professional Memberships**

- Society of American Foresters  
- SAF Genetics and Tree Improvement Working Group  
- Seed Orchard Pest Management Subcommittee of the Southern Forest Tree Improvement Committee (Current Chair)

**Awards**

- Tony Squillace Award (Southern Forest Tree Improvement Conference): 1995 and 1999  
- USDA 2011 Honor Award for Excellence - Conifer Translational Genomics Team

**Other Activities and Responsibilities**

- Member – Nine Graduate Student Committees (two current)  
- Supervise – One Post Doctorial Research Associate  
- Committee member – Science Advisory Committee for the PINEREFSEQ Loblolly Pine Genome Project USDA/NIFA
Committee member - Science and Outreach Advisory Committee for the USDA/IFAS Grant: Allele Discovery for Economic Pine Traits I and II (ADEPT)
Invited Opponent – 2007 Ph.D. Disputation, SLU Umeå, Sweden
Member, Farm Services Advisory Committee.
Member, USDA-Forest Service Resistance Screening Center Steering Committee.
Served as reviewer for Forest Science, Canadian Journal of Forestry Research, Southern Journal of Applied Forestry, Tree Genetics and Genomes.

- Directs the activities of the Western Gulf Forest Tree Improvement Program - Pine. This program has 11 members operating in the states of Arkansas, Louisiana, Mississippi, Oklahoma and Texas. The major efforts are to coordinate activities among members and supply the technical guidance to conduct applied tree improvement programs.
- Responsible for the direction of the Western Gulf Forest Tree Improvement Program - Hardwood. This program has 5 members in the states of Arkansas, Louisiana, and Texas. Past efforts have been committed to preserving genetic material suitable for advance generation breeding, and producing interim seed supplies of improved strains of hardwood trees for reforestation efforts. Current efforts also involve projects to study natural regeneration problems and natural stand management in bottomland hardwoods.
- Responsible for the operation of the Texas A&M Forest Service Pine Tree Improvement Program. The tree improvement program and seed orchards produce three improved genetic varieties of loblolly pine, rust resistant slash pine, shortleaf pine, longleaf pine, and improved Virginia pine for Christmas tree production.
- Leads the Texas A&M Forest Service Urban Tree Improvement Program. This is a cooperative effort among the Texas A&M Forest Service, municipalities and commercial nurseries to develop and produce improved strains of trees for urban environments.
- Responsible for the Texas A&M Forest Service Hardwood Tree Improvement Program. This program produces genetically superior hardwood seedlings for regeneration efforts.

Total Publications - Authored or coauthored:

Peer reviewed, refereed journal articles: 17
Invited presentations at national and regional meetings: 21
Invited presentations at user groups: 9
Volunteer presentations at national meetings: 4
Volunteer presentations at regional meetings: 13
Book chapters: 1
Technical reports: 26

Recent Publications and presentations

Peer reviewed, refereed journal articles.


**Invited presentations.**


Volunteer presentations.


Luis Cisneros-Zevallos, Ph.D.
Associate Professor
Department of Horticultural Sciences
Food Science Graduate Program
Director-Plant Bioactives & Bioprocessing Research Laboratory
Texas A&M University
College Station, Texas 77843-2133
Phone: 979-8453244
Fax: 979 -8450627
E-mail: lcisnero@tamu.edu

Research Program
Research interest includes two major areas, a) drug discovery of bioactive compounds with health promoting properties against chronic diseases from commercial and native crops and, b) post-harvest biology of crops including the biosynthesis of secondary metabolites under stress conditions and the interaction between microorganisms and plant surfaces.

Academic Background
Department of Food Science and Technology
Department of Food Science and Technology
Engineer, and Bachelor of Science, Food Industries Engineering
National Agrarian University - La Molina, Lima, Peru, 1988
Department of Food Industries Engineering

Professional Experience
2004-present Department of Horticultural Sciences, Texas A&M University, College Station. Associate Professor.
1998-2004 Department of Horticultural Sciences, Texas A&M University, College Station. Assistant Professor.
1992-1998 Department of Food Science and Technology, University of California, Davis. Research Assistant.

Relevant Refereed Publications since 2009


NAME: J. Tom Cothren

CURRENT TITLE: Professor of Agronomy
Department of Soil and Crop Sciences
Texas A&M University, College Station, Texas 77843-2474
(979) 845-0360, FAX (979) 845-0456

EDUCATION: B.S. (Chemistry), East Central University, Ada, OK 1966
M.S. (Natural Sciences), Oklahoma State University, Stillwater, OK 1970
Ph.D. (Plant Physiology), Oklahoma State University, Stillwater, OK 1970

PROFESSIONAL AND ACADEMIC APPOINTMENTS:

Graduate Assistant, Oklahoma State University, 1966-1967
NDEA Fellow, Oklahoma State University, 1967-1970
Postdoctoral Research Associate, University of Arkansas, 1970-1976
Assistant/Associate Professor of Agronomy, University of Arkansas, 1976-1982
Associate Professor/Professor of Agronomy, Texas A&M University, 1982-Present

PROFESSIONAL ACTIVITIES AND RECOGNITION:

NDEA Doctoral Fellowship, Oklahoma State University, Stillwater (1967-1970)
American Society of Agronomy, Membership Committee Chair, Arkansas (1977-1982)
Plant Growth Regulator Society of America, Vice President (1981-1982)
Plant Growth Regulator Society of America, President (1982-1983)
Plant Growth Regulator Society of America, Steering Committee, (1981-1984)
Executive Committee, Plant Physiology Faculty, TAMU (1986-1988)
Award in Excellence Program, Team Research, TAES (1989)
Chair of the C-3 Division (Crop Production) of American Society of Agronomy (1990)
Fellow of American Society of Agronomy (1996)
Fellow of Crop Science Society of America (1997)
Special Achievement Award for Teaching, TAMU (1997)
Outstanding Research Award in Cotton Physiology, Beltwide Cotton Physiology Conf. (2000)

PROFESSIONAL ORGANIZATIONS:

American Society of Plant Biologists
American Society of Agronomy
Crop Science Society of America
Plant Growth Regulation Society of America
Sigma Xi

PROFESSIONAL SOCIETY OFFICES HELD, SOCIETY COMMITTEES

a. American Society of Agronomy
INTERNATIONAL INVOLVEMENT:

Invited to submit article on "Future of growth regulation of cotton" by the British Plant Growth Regulator Group for publication in the British PGR Bulletin. 1980.
Invited presentation on “PGR Use in Cotton” to plenary session of the 1st World Cotton Research Conference. Brisbane, Australia 1995.

SELECTED PUBLICATIONS:

Books:

Book Chapters:


Recent Refereed Publications:


Name: Harry T. Cralle
Rank: Associate Professor
Unit: Department of Soil and Crop Sciences
Appointment: 100% teaching, College of Agriculture
Date of appointment: July 15, 1983

Education
1983 Ph.D. Dept. of Agronomy and Plant Genetics
Agronomy University of Minnesota
1979 M.S. Dept. of Agronomy and Plant Genetics
Agronomy University of Minnesota
1977 B.S. (High Honors) Department of Agriculture
Plant and Soil Science Illinois State University
1972-4 Graduate Studies Department of Philosophy
Philosophy De Paul University
1972 B.A. (Magna Cum Laude) Department of Philosophy
Philosophy Loyola University (Chicago)

Teaching

SCSC 105: World Food and Fiber Crops (3 credit hours)
Fall and Spring Semester
Enrollment of about 130 students per semester
Two lecture sections each with two lectures/week and ten total labs per semester
Supervision of five lab instructors per semester
Approved to satisfy three credit hours of the Science Credit requirement of the TAMU Core Curriculum

SCSC 201: Great Plains Settlement & Farming (3 credit hours)
Fall Semester
Enrollment of about 70 students per semester

SCSC 330: Social and Ethical Aspects of International Cropping Systems (3 credit hours)
Spring Semester
Enrollment of about 60 students per semester

SCSC 613: Ethical Aspects of International Cropping Systems (3 credit hours)
Online only
Summer Semester
Enrollment of five or more students

Publications

Refereed journal articles published:


Bovey, R. W., P. F. Pace, and H. T. Cralle. 1998. Effect of hand defoliation on herbicide efficacy in honey mesquite. J. Range Manage. 51:432-435


harvest and during regrowth. Crop Science 28:948-953.


Books:


Book Chapters:


Heichel, G. H., R. H. Delaney, and H. T. Cralle. 1988. Carbon assimilation, partitioning,
Dr. Fred T. Davies

Fred Davies is a Regents Professor, Dept. of Horticultural Sciences, faculty of Molecular and Environmental Plant Sciences, and AgriLife Research Faculty Fellow at Texas A&M University. He received a B.A. and M.S. from Rutgers University, and a PhD in Horticultural Sciences and Plant Physiology from the University of Florida. He has been a Visiting Scientist at the USDA Horticultural Crops Laboratory (Oregon), CINVESTAV Plant Biology Institute (Mexico) and International Potato Center (Peru). He has also been a Visiting Professor at Oregon State University, Monterrey Tech. Univ. (Mexico), National Agrarian University of Peru, and Bogor Agricultural University [IPB (Indonesia)]. He has taught courses in plant propagation, and nursery production and management since 1979. He chaired the graduate seminar program for 23 years. He has co-authored some 13 teaching manuals, publications and books — including the last 4 editions of Hartmann and Kester’s Plant Propagation-Principles and Practices, which is the world-wide standard for propagation texts. He has co-authored over 150 research and technical publications.

He is currently on a one-year assignment (funded by U.S. Dept of State and TAMU) in Washington, D.C., as a Senior Science Advisor (Jefferson Science Fellow – National Academy of Sciences) at USAID, Bureau of Food Security / Office of Agricultural Research & Policy. He was a J.S Guggenheim Fellow, Fulbright Senior Fellow to Mexico, Peru and Indonesia, and Fellow of the International Plant Propagators’ Society. He is a Fellow of the American Society of Horticultural Sciences, ASHS. He received the Distinguished Achievement Award for Nursery Crops from the ASHS, L.M. Ware Distinguished Research Award-ASHS-SR and S.B. Meadows Award of Merit-International Plant Propagators Society-SR. He is a recipient of the Association of Former Students Distinguished Achievement Award for Teaching -TAMU, Chancellor of Agriculture’s Award in Excellence in Undergraduate Teaching –TAMU, L.M. Ware Distinguished Teaching Award, ASHS-SR, L.C. Chadwick Educator’s Award, American Nursery and Landscape Association and Norman Jay Coleman Research Award, ANLA. He was the International Division Vice-President of the ASHS. He was President and is currently Editor of the IPPS-SR. He was ASHS President and Chair of the ASHS Board of Directors.

His research has centered on: 1) plant stress (water, nutrition), 2) mycorrhizal effects on host plant physiology, 3) low-pressure controlled crop production systems for NASA, 4) developmental aspects of adventitious root formation — including tissue culture systems and plant acclimation and 5) ornamental crop production systems.

http://aggie-horticulture.tamu.edu/faculty/davies/index.html
BIOGRAPHICAL SKETCH

NAME Paul de Figueiredo

POSITION TITLE
Associate Professor

eRA COMMONS USER NAME (credential, e.g., agency login)
PDEFIGUEIREDO

EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)

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<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
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<tr>
<td>Rice University, Houston TX</td>
<td>B.A.</td>
<td>1986</td>
<td>Mathematics &amp; Political Science</td>
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<tr>
<td>Stanford, Palo Alto CA</td>
<td>M.A.</td>
<td>1989</td>
<td>Religious Studies</td>
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<tr>
<td>Cornell, Ithaca NY</td>
<td>Ph.D.</td>
<td>1997</td>
<td>Biochemistry, Molecular &amp; Cell Biology</td>
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<tr>
<td>MIT, Cambridge MA</td>
<td>Postdoc</td>
<td>1998-1999</td>
<td>Vertebrate genetics</td>
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<tr>
<td>U. Washington, Seattle WA</td>
<td>Postdoc</td>
<td>2000-2005</td>
<td>Microbiology</td>
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A. POSITIONS AND HONORS

PROFESSIONAL EXPERIENCE

1989-1991 Biologist, Clinical Hematology, NHLBI NIH
2005 Asst. Professor, Department of Plant Pathology and Microbiology, Texas A&M University
2006 Member, Faculty of Genetics, Texas A&M University
2006 Member, Program in Biotechnology, Texas A&M University
2006 Member, Faculty of Molecular and Environmental Plant Sciences, Texas A&M University
2007 Member, Center for Microencapsulation and Drug Delivery, Texas A&M System
2007 Member, Program in the Biology of Filamentous Fungi, Texas A&M University
2007 Adjunct faculty, Department of Veterinary Pathobiology, Texas A&M University
2010 Investigator, Borlaug Center, Texas A&M University
2011 Assoc. Professor, Dept. of Plant Pathology and Microbiology, Texas A&M University
2011 Joint faculty, Dept of Microbial and Molecular Pathogenesis, Texas A&M Health Science Center
2013 Member, Faculty of Evolutionary and Ecology, Texas A&M University
2013 Assoc. Professor, Dept. of Microbial Pathogenesis and Immunology, Texas A&M Health Science Center

OTHER EXPERIENCE AND PROFESSIONAL ACTIVITIES

2004 Founder, AvanViva, Inc., a biotechnology company
2008, 2010 Panel Member, NSF Integrated and Organismal systems (IOS)
2008-2012 Panel Member, NIH Special Emphasis Panel/Scientific Review Group ZRG1 IDM-A, Intracellular bacterial pathogenesis
2009-2012 Panel Member, NSF Chemical, Bioengineering, Environmental, and Transport Systems (CBET)
2011 Panel Member, CDC-NIH Family History and Diamond Blackfan Anemia
2005-present Member, American Association for the Advancement of Science
2010-present Associate Editor, Frontiers in Cellular and Infection Microbiology
2011-present Member, American Society for Microbiology (ASM)
2011-present Member, American Society for Cell Biology (ASCB)
2011-present Member, American Chemical Society (ACS)
2013-present Associate Editor, Frontiers in Cell and Developmental Biology

SELECTED HONORS

National Merit Scholar, Graduate Research Assistantship (Stanford), NIH Graduate Research Training Grant recipient (Cornell), Du Pont Teaching Prize (Cornell), Fuertes Writing Prize (Cornell), Biochemistry Teaching Prize (Cornell), The American Society for Cell Biology/Hybridon Predoctoral Travel Award (Cornell), Harvard
Biotechnology Business Plan Competition, Runner Up (Harvard Business School), MIT 50K Business Plan Competition. Semifinalist (MIT), Mexican American and Latino Research Center Fellow (Texas A&M), Alfred P. Sloan Foundation Minority Program Mentor (Texas A&M), Hispanic Leadership Program Mentor (Texas A&M), Oak Ridge Associated University Junior Faculty Award

B. SERVICE

**Texas A&M University**

2006-2013 Co-Director, Research Experience for Undergraduates, Texas A&M Agrilife Research
2008-present Faculty mentor, University Scholars Program
2009-2010 Chair, Seminar Committee, Plant Pathology and Microbiology
2009 Member, Biosafety Evaluation Sub-Committee, Council of Principal Investigators
2009-2012 Faculty Mentor, "Invisible Jungle", a weekly National Public Radio broadcast
2009-2012 Member, Graduate Student Recruiting Committee, Faculty of Genetics
2009-2012 Chair, Seminar Committee, Plant Pathology and Microbiology
2009-2012 Member, Curriculum Committee, Biotechnology Program
2009-2012 Member, Graduate Admissions Committee, Molecular and Environmental Plant Sciences
2009-2012 Faculty Mentor, "Invisible Jungle", a weekly National Public Radio broadcast
2010-2012 Member, Graduate Student Recruiting Committee, Faculty of Genetics
2010-2012 Chair, Seminar Committee, Plant Pathology and Microbiology
2010-2012 Member, Curriculum Committee, Biotechnology Program
2010-2012 Member, Graduate Admissions Committee, Molecular and Environmental Plant Sciences
2010-2012 Member, Internal Advisory Board, Norman Borlaug Center
2012 Chair, Graduate Program Committee, Department of Plant Pathology and Microbiology
2012 Member, Institutional Biosafety Committee
2012 Graduate Advisor, Department of Plant Pathology and Microbiology
2012 Chair, Graduate Program Committee, Department of Plant Pathology and Microbiology

C. PUBLICATIONS (30 total, 1 in press, 1 in review)

**Selected Recent Publications**


**D. RESEARCH SUPPORT**

**Current support**


4. Defense Threat Reduction Agency *(PI: Han; co-PI: de Figueiredo)*, Microfluidics Based High Throughput Analysis of Polymicrobial Interactions, 6/11-10/13

5. Texas A&M Genomics and Bioinformatics Seed Grant Program *(PI: Ficht; co-PI: de Figueiredo)*, Subcellular pathogenomics, 7/2012-7/2013

6. Qatar National Research Fund (QNRF) *(PI: Sadr; co-PI: Han; co-PI: de Figueiredo)*, Microfluidic Platforms for High-Throughput Screening of Microbes Utilizing Wastewater, 9/11/2012-9/10/2015


**Prior support (last 3 years)**


10. Leaf Energy, Inc. *(PI: Dickman; co-PI: de Figueiredo)*, Microdiesel—a next generation biofuel platform, 6/2012-6/2013


15. Department of Defense Army Research Office *(PI: de Figueiredo; co-PIs— Samuel, Ficht, Rice-Ficht, Adams)*, Confocal microscopy instrumentation for biodefense research

17. NIH NIAID (PI: de Figueiredo), Microscopy for infectious disease research, 1/2010

18. NIH NIDDK (PI: de Figueiredo), Supplement for undergraduate research, 6/2009-8/2010

19. NIH MLPCN (PI: de Figueiredo), Drug discovery for bone marrow failure diseases, 6/2009-6/2011, No monies, resources only

20. NIH NIAID, (PI: de Figueiredo; co-PI: Ficht), Identification and analysis of host factors that support *Brucella* infection, 2/08-1/2010

21. NSF IOS (PI: de Figueiredo; co-PI: Ficht), Molecular analysis of *Brucella* host factors, 8/2008-8/2011
Timothy P. Devarenne

Present Position:
Associate Professor, Department of Biochemistry & Biophysics, Molecular and Environmental Plant Sciences program, Texas A&M University
Fields: - Signal transduction and regulation of protein kinases involved in the control of plant cell death and plant-pathogen interactions.
- Molecular biology of algal hydrocarbon biosynthesis and algal cell biology.

Education
2001-2006 Postdoctoral Fellow, Boyce Thompson Institute for Plant Research, Cornell University, Ithaca, NY, Field: Molecular Plant-Pathogen interactions, Advisor: Gregory B. Martin
1995-2000 Ph.D., University of Kentucky, Lexington, KY, Field: Plant Physiology/Molecular Biology/Biochemistry, Advisor: Joe Chappell
1987-1991 B.S., Michigan Technological University, Houghton, MI, Field: General Biology, Advisor: John H. Adler

Professional Experience:
2012-present Associate Professor, Department of Biochemistry and Biophysics, Molecular and Environmental Plant Sciences program, Texas A&M University
2011 - 2012 Assistant Professor, TAMU Molecular and Environmental Plant Sciences program
May 2009 Research Fellow, Japan Society for the Promotion of Science, Laboratory of Aquatic Natural Products Chemistry, Graduate School of Agricultural and Life Sciences, The University of Tokyo
May 2007 Visiting Scientist, Laboratory of Marine Biochemistry, Graduate School of Agricultural and Life Sciences, The University of Tokyo
2006 - 2012 Assistant Professor, Department of Biochemistry and Biophysics, Texas A&M University
2001 – 2006 Postdoctoral Fellow, Boyce Thompson Institute for Plant Research
2000 Visiting Scientist, Laboratory of Marine Biochemistry, Graduate School of Agricultural and Life Sciences, The University of Tokyo
1995 – 2000 Graduate Research Assistant, Agronomy Department, University of Kentucky
1994 – 1995 Research Technician, Biology Department, DePaul University
1993 – 1994 Research Technician, Biology Department, Michigan Technological University
1991 – 1993 Graduate Research Assistant, Biology Department, Michigan Technological University
1991 Summer Research Internship, CIBA-GEIGY (now Syngenta), Research Triangle Park, North Carolina
1990 Summer Research Internship, CIBA-GEIGY (now Syngenta), Research Triangle Park, North Carolina
1988 – 1991 Undergraduate Student Researcher, Biology Department, Michigan Technological University

Current Research Funding:
- Regulation of tomato cell death by the protein kinase Adi3 during resistance to Pseudomonas syringae. USDA-NIFA-AFRI, Understanding Plant-Associated Microorganisms


- Microalgae lab-on-chip photobioreactor platform for genetic screening and metabolic analysis leading to scalable biofuel production. NSF-EFRI-PSBR #1240478. This is a group of 5 PIs. Role: Co-PI. Funding period: 08.15.2012-08.14.2016. Total funding: $2,000,000; Devarenne total funding: $540,000.

- Synthetic crops for direct drop-in biofuel production through rerouting photosynthetic intermediates and engineering terpenoid pathways. DOE-ARPA-E-PETRO. #DE-AR0000203. This is a group of 8 PIs. Role: Co-PI. Funding period: 02.15.2012-02.14.2015. Total funding: $1,800,000; Devarenne total funding: $204,832.

**Professional Development/Involvement:**

Chair, Phosphoregulation Minisymposium, ASPB annual meeting 2010. Montréal, Canada.
Sabbatical host for Dr. Robb VanPutte, McKendree University, October-November, 2009.
Sabbatical host for Dr. Edmundo Lozoya-Gloria, CINVESTAV Unidad Irapuato, México, planned for 2014.
Grant review panel member for USDA-NIFA-AFRI, NSF-IOS.


Grant Proposal Reviewer for: Hungarian Scientific Research Fund ('12), Kentucky Science & Engineering Foundation ('10), Natural Sciences and Engineering Research Council of Canada ('07), National Science Foundation ('04, '06, '12, '13), Netherlands Organization for Scientific Research ('07), Polish National Science Center ('13), United States-Israel Binational Science Foundation ('04), USDA-CSREES-NRI ('03, '04), USDA-NIFA-AFRI ('10).

Member of American Society of Plant Biologists (ASPB) since 1991.
Member of the Japan Society for the Promotion of Science USA Alumni Association since 2011.

Executive Committee member, Japan Society for the Promotion of Science USA Alumni Association, 2013.

**Departmental Activities:**

Department of Biochemistry and Biophysics Seminar Chairman, 2007-present.
Faculty advisor, Biochemistry Graduate Association, 2007-2009.
Graduate Program Committee member, 2008-present.
Faculty search committee, Center for Phage Technology Assistant Professor Positions, Fall 2012.
Chair, Departmental Awards Committee, 2013-present.

**Teaching at TAMU:**
BICH 671, Molecular Biophysics journal club, Spring 2008, Fall 2008; 1 credit
BICH 675, Plant Biochemistry and Genomics journal club, every semester, Spring 2008 - present; 1 credit

**Publications** (*Devarenne as corresponding author; †postdoctoral researcher, ‡graduate student, §undergraduate, or ¶research technician in Devarenne lab) out of 32 total:
CURRICULUM VITAE

Dr. Martin B. Dickman
Director, Institute for Plant Genomics and Biotechnology
Professor, Department of Plant Pathology & Microbiology
Center for Cell Death and Differentiation
Texas A&M University
2123 TAMU, College Station, TX 77843-2123

Education
1979 B.S. in Horticulture, University of Hawaii, Hilo
1982 M.S. in Plant Pathology, University of Hawaii
1986 Ph.D. University of Hawaii, Plant Pathology

Research and/or Professional Experience
2006-pres. Director, Institute for Plant Genomics and Biotechnology, Texas A&M University
2006-pres. Professor, Department of Plant Pathology and Microbiology, Texas A&M University
2006-pres. Christine Richardson Professor of Agriculture, Texas A&M University
2003-2004 Charles Bessey Professor of Plant Pathology, University of Nebraska
1997-2003 Professor, Plant Pathology, University of Nebraska
1993-1997 Associate Professor, Plant Pathology, University of Nebraska
1987-1993 Assistant Professor, Plant Pathology, University of Nebraska

Consulting Positions
1998-2005 Consultant, IDUN Pharmaceuticals, San Diego (Programmed Cell Death)
2012- Scientific Director, VG Energy

Honors and Awards Received
1991 Junior Faculty Recognition for Excellence in Research Award University of Nebraska
2002 Distinguished Alumni Award- University of Hawaii-Hilo
2003-2005 Charles Bessey Professor of Plant Pathology- University of Nebraska
2003 Fellow, American Phytopathological Society
2006 Christine Richardson Professor of Agriculture-Texas A&M University
2011 E.C. Stakman Award for Research Excellence in Plant Pathology
2011 Fellow-American Association for the Advancement of Science (AAAS)

Editor/Editorial Boards
1991-2000 Associate Editor, Applied and Environmental Microbiology
1996-2000 Associate Editor, Mycologia
1997-2013 Senior Editor, Physiological and Molecular Plant Pathology
1996-1999 Senior Editor, Archives of Microbiology
2001-2005 American Phytopathological Society-Senior Editor-APS Press
2009- Senior Editor-GM Crops
2010- Review Editor-Frontiers in Cellular and Infection Microbiology
2010- Review Editor-Frontiers in Plant Biotechnology
2012- Editor-in-Chief Molecular Plant Pathology
2013- Academic Editor -Microbial Cell
Membership in Professional Societies
American Association for the Advancement of Science
American Phytopathological Society
Genetics Society of America
American Society for Microbiology
British Society for Plant Pathology

Professional Activities
1990-2001  Chairman and Founder, Genetic Basis for Pathogenicity in the Genus *Colletotrichum*
            Regional Research Group, NCR-173
1990       US-AID International Development Grant Program Grant Review Committee
1996       USDA-CSRS Competitive Grants - Panel Member Plant Pathology
1997-1999  USDA-CSRS Competitive Grants - Panel Member - Special Grants
2001-2002  BARD –PANEL MANAGER -Crop protection
2003       National Science Foundation-Microbial Genome and Sequencing Panel
2005-2007  American Phytopathological Society-Honors and Awards Committee
2005       USDA-CSRS Comp Grants-PROGRAM MANAGER-Biology of Plant Assoc Micro
2006       Department of Energy- Energy Biosciences Panel Member
2009-2011  USDA- OSQR Program Review Panel Member, NPR 303-Plant Disease Resistance
            Hosted (along with Julie Borlaug) Texas Youth Institute-World Food Prize
2007-2008  Oklahoma Center for the Advancement of Science and Technology (OCAST) Panel
            Member
2009       OCAST- Program Manager
2007-2009  National Institute of Health (NIH) Development- Panel Member
2007       National Science Foundation (NSF) Symbiosis, Defense and Self-Recognition Panel
            Member
2009-2012  American Phytopathological Society-Scientific Program Board
2011-      International Atomic Energy Agency IAEA-Panel Member-Mutation Breeding Program
2011-      IITA Banana Improvement Program –Africa
2012-2014  Technical Advisory Committee (TAC) Binational Agriculture Research and
            Development Fund (BARD) –Israel/United States
2012- 2014  Wolf Foundation Award-Panel

Synergistic Activities: Along with Drs. Jan Leach and Thomas Wolpert, the first ever Internet 2
course was developed and delivered by myself and Drs. Leach and Wolpert. This course,
Molecular Plant Pathology, has been the focus of a lead article in the Chronicle of Higher
Education.

Selected Peer Reviewed Publications (105 total)

Abrogation of disease development in plants expressing animal anti-apoptotic genes.


Williams, B., Kabbage, M., Kim, H-J., Britt, R. and Dickman. M.B. 2011. Tipping the balance: *Sclerotinia sclerotiorum* secreted oxalic acid suppresses host defenses by manipulating the host


Curriculum vitae

Scott A. Finlayson
Associate Professor
Dept. of Soil and Crop Sciences, Texas A&M University
9798479287
sfinlayson@tamu.edu

A. PROFESSIONAL PREPARATION

<table>
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<tr>
<th>College/University</th>
<th>Major</th>
<th>Degree &amp; Year</th>
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<tr>
<td>Simon Fraser University</td>
<td>Biology</td>
<td>BSc, 1986</td>
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<tr>
<td>The University of Calgary</td>
<td>Botany</td>
<td>PhD, 1994</td>
</tr>
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</table>

B. ACADEMIC/PROFESSIONAL APPOINTMENTS

2009-Present  Associate Professor, Soil and Crop Sciences, Texas A&M University
2002-2009  Assistant Professor, Soil and Crop Sciences, Texas A&M University
2002-present  Faculty member Molecular and Environmental Plant Sciences

C. RESEARCH INTERESTS

The main focus of my research program is investigating the roles of environmental signals as conditioners of plant growth and development, and discovering the mechanisms through which they work. My lab also has a longstanding interest in hormone homeostasis and signaling that supports our main focus and provides many collaborative opportunities.

D. TEACHING

I teach SCSC307 “Crop Biology and Physiology”, a combined lecture/lab course for undergraduate students. I also offer two graduate level courses: MEPS/SCSC671 “Plant Development”, and occasionally teach a lab course in plant hormone and small metabolite analysis.

E. SELECTED PUBLICATIONS


**F. OTHER ACTIVITIES**

Member of the editorial board of “Advances in Botany”.


*Ad hoc* reviewer for the following granting programs: NSF, USDA-NRICGP, US-Israel Binational Agriculture Research and Development Fund (BARD), Netherlands Organization for Scientific Research, Singapore National Research Foundation, Austrian Science Fund and U.S. Army Corps of Engineers Engineer Research and Development Center (ERDC).
CURRICULUM VITAE
December 12, 2013

I. PERSONAL INFORMATION
   Name: Terry Joe Gentry
   Title: Associate Professor
   Address: 550A Heep Center
            2474 TAMU
            College Station, TX  77843
   Department: Soil and Crop Sciences
   Date of initial appointment: January 1, 2006

II. EDUCATION
   2003-2005  Postdoctoral Research Associate, Oak Ridge National Laboratory
   1999-2003  Doctor of Philosophy (Microbiology & Immunology), University of Arizona
   1995-1998  Master of Science (Agronomy), University of Arkansas
   1988-1993  Bachelor of Science (Agronomy), University of Arkansas

III. EXPERIENCE
   2006-Present  Assistant/Associate Professor, Department of Soil and Crop Sciences, Texas
                  A&M University
   2003-2005  Postdoctoral Research Associate, Environmental Sciences Division, Oak
               Ridge National Laboratory
   1999-2003  Graduate Research/Teaching Associate, Department of Soil, Water, and
               Environmental Science, University of Arizona
   1995-1999  Research Specialist/Graduate Assistant, Department of Crop, Soil, and
               Environmental Sciences, University of Arkansas
   1993-1995  Research Analyst, Agronomy, Agricultural Experiment Station, University
               of the Virgin Islands

Undergraduate Courses Taught
SCSC 405 – Soil and Water Microbiology, 4 credit hour course offered in fall and spring
semesters. Discussion of the roles of soil and water microorganisms in the sustainability and
productivity of various ecosystems with specific emphasis on plant-microbial interactions,
nutrient cycling, degradation of pesticides and other xenobiotics, generation of trace gases, and
soil and water quality. The laboratory portion of the course reinforces these concepts and
provides hands-on experience with current techniques in soil and water microbiology.

SCSC 425 (489) - Biofuels and the Environment, 2 credit hour course offered in fall semester of
even-numbered years. Stacked with SCSC 625. Discussion of different biofuel crops, production
systems, and conversion technologies. Impacts of biofuel cropping systems on sustainability of
yields and various aspects of soil and water quality. Environmental issues related to use/disposal
of biofuel by-products. Economics and net C and energy budgets for various biofuel production
systems.
SCSC 455 – Environmental Soil Science, 3 credit hour course offered every spring semester. Stacked with SCSC 657. Environmental aspects of soil receiving organic and inorganic materials involved with crop production and from wastes associated with agriculture, industry and municipalities; soil properties largely determine environmentally sound practices of applying these materials and the quantities that may be added without polluting air, soil and water resources.

**Graduate Courses Taught**

SCSC 625 (689) - Biofuels and the Environment, 2 credit hour course offered in fall semester of even-numbered years. Stacked with SCSC 425. Discussion of different biofuel crops, production systems, and conversion technologies. Impacts of biofuel cropping systems on sustainability of yields and various aspects of soil and water quality. Environmental issues related to use/disposal of biofuel by-products. Economics and net C and energy budgets for various biofuel production systems.

SCSC 637 (689) - Environmental Microbiology, 3 credit hour course offered in fall semester of odd-numbered years. Microbial diversity and interactions in various environments with emphasis on soil and freshwater systems. Molecular methods for detection and characterization of indigenous and introduced microorganisms. Environmental sources and fate of pathogens. Biotechnological applications of environmental microorganisms.

SCSC 657 (689) – Environmental Soil Science, 3 credit hour course offered every spring semester. Stacked with SCSC 455. Environmental aspects of soil receiving organic and inorganic materials involved with crop production and from wastes associated with agriculture, industry and municipalities; soil properties largely determine environmentally sound practices of applying these materials and the quantities that may be added without polluting air, soil and water resources.

**Peer-Reviewed Journal Articles (publications since 2011; out of 55 total articles)**


CURRICULUM VITAE

Name: Dirk Boudreaux Hays
Title: Associate Professor and Chair
Molecular & Environmental Plant Sciences
Address: Department of Soil & Crop Sciences, Texas A&M University

A. Education/Training

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
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<tr>
<td>Texas A&amp;M University</td>
<td>B.S.</td>
<td>1986-91</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>University of Calgary</td>
<td>Ph.D.</td>
<td>1992-96</td>
<td>Plant Physiology</td>
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B. Positions and Employment

Chair Molecular and Environmental Plant Sciences and Associate Professor, 8/2009 - Present- Texas AgriLife Research, Department of Soil and Crop Sciences, Texas A&M University, Plant Physiological Geneticist.
Assistant Professor, 1/2002- 8/2009 Texas AgriLife Research, Department of Soil and Crop Sciences, Texas A&M University, Cereal Grain Development and Quality Genetics

C. Awards and Honors

1. US Fulbright Fellow 2012-South Central Asia to Bangladesh, India.
2. Col. of Agric. and Life Sci., Texas AgriLIFE, Vice Chancellors Award in Excell.: Team Collaboration (2013).
3. Texas AgriLIFE Advanced Leadership Program (2010-present).
4. Col. of Agric. and Life Sci., Texas AgriLIFE, Vice Chancellors Award in Excell.: Diversity (2010).

D. Professional Experience

| USDA, ARS, PSWCRL (Stillwater, OK) | 1997-98 | Res. Plant Physiologist |
| USDA, ARS, GMPRC, PSERU (Manhattan, KS) | 1999-01 | Res. Geneticist |

E. Teaching Duties

1. The Physiology of Plant, Molecular and Environmental Plant Sciences (MEPS)-601- Yearly.
2. Crop Stress Management, Soil and Crop Sciences (SCSC)-402, Yearly.

F. Synergetic Activities

1. Chair to the Molecular and Environmental Plant Sci. Intercollegiate Faculty, Texas A&M Univ. (2010 – Pres.).
2. Awarded grant and fellowships totaling $20,839,981 total over 11 years at TAMU of which $5,081,909 was to Hays for an average of $461,992 per year in funds to Hays. Awarded external funding of $13,486,938 total $2,669,063 to Hays since hired in 2002.
3. Obtained awards or $1,625,450 in graduate student fellowships for recruitment of students and Environmental Plant Sciences, Agronomy, and Soil Sciences Program.

G. Graduate Student Supervised (Current position). 7M.S.; 20 Ph.D.

1. Current: 15 Ph.D (6 female, 9 male); 2 M.S. (1 male, 1 female)
Ph.D.: Brijesh Angira, Henry Awika, Fatima Caramillo, Chris Chick, Ahmed Elsayed, Xiangkun Gu, Trevis Huggins, Laura Masor, Suheb Mohammed, Arlene Pacheco, Julie Rothe, Padma Sengadon, Sean Thompson, Homa Zargami
M.S.: Wail Faris, Yalin Lin

Dirk B. Hays
2. **Graduated:** 5 Ph.D. (3 female, 2 male); 5 M.S. (3 female, 2 male)
   
   **Ph.D.:** Jung Hwa Do (Ricetech, US), Suchismita Mondal (breeder CIMMYT, Mex), Francis Beecher (breeder, Monsanto, US), Richard E. Mason (Assist. Prof. U. Ark), Babitha Jampala (Post Doc., Univ. Maryland);
   **M.S.:** Ostillo Portillo (Ph.D. TAMU), Jennifer Winn (Ph.D. UT Southwestern), Ashima Poudel (CIMMYT), Suchismita Mondal (breeder CIMMYT, Mex), Francis Beecher (breeder, Monsanto, US)
   
   3. **Postdoctoral Fellow Supervised:** 3
      Advised: Zhuping Yang (breeder, Pioneer Hybrid), Tesfamichael Kabroom (Texas AgiLife Research), Arun Sharma (breeder, Sakata Seed).

**LIST OF RECENT PUBLICATIONS:** note **bold** denotes advised students


**Book Chapters:**

Dirk B. Hays
CURRICULUM VITA

NAME AND TITLE: James L. Heilman, Professor of Environmental Physics
Department of Soil and Crop Sciences
Texas A&M University, College Station, TX 77843-2474
(979) 845-7169; FAX (979) 845-0456, email j-heilman@tamu.edu

EDUCATION: Ph.D. (Agronomy) Kansas State University, 1977
M.S., Agronomy, South Dakota State University, 1974
B.S., Engineering Physics, South Dakota State University, 1972

PROFESSIONAL AND ACADEMIC APPOINTMENTS:
Professor, Associate Professor, TAMU, 1980-present
Research Soil Physicist, Remote Sensing Institute, South Dakota State Univ., 1977-1980

HONORS AND AWARDS:
Fellow, American Society of Agronomy, 2003; Big 12 Faculty Fellowship, 2002; Award of Commendation for Outstanding Achievement in the field of Water Resources, National Association of Water Institute Directors and National Association of Land Grant Universities, 1989

TEACHING:
SCSC 307 – Crop Biology and Physiology
SCSC 309 – Water in Soil and Plants

RESEARCH:
Greenhouse gas emission, energy exchange, and water use in managed and unmanaged ecosystems, plant-environment interactions, plant-water relations

REFEREED PUBLICATIONS


Noborio, K., K. J. McInnes and J. L. Heilman. 1996. A 2-D finite element model for solution, heat and


Book Chapters/Refereed Symposia Proceedings:


Brief Curriculum Vitae
Kendal D. Hirschi, Ph.D.

Personal Statement
I work on the basic mechanisms of plant nutrient transport and creating rationale strategies for the nutritional enhancement of crops. My group has published work utilizing bacteria, yeast, plants, mice, zebrafish and humans as experimental tools to study molecular nutrition. We collaborate with faculty at the Children’s Nutrition Research and at the Vegetable and Fruit Improvement Center at Texas A&M University (where I am Associate Director). Obtaining help from nutritional scientists, we perform clinical trials addressing how changes in plant architecture alter nutrient bioavailability. My research focuses on bridging the chasm between plant biology and nutritional sciences. Generations of nutritional scientists have cataloged the nutrients in foods, while in the last decade plant genome projects have facilitated the development of genetic tools to manipulate nutrient content; however, few studies have assessed the impact that these genetic modifications have on nutrient bioavailability.

Education:
1981 – 1984  B.S.  Biochemistry, University of Arizona, Tucson, AZ
1986 – 1988  M.S.  Microbiology, Arizona State University, Tempe, AZ
1988 – 1993  Ph.D.  Plant Pathology, University of Arizona, Tucson, AZ
1993 – 1997  Fellow  Postdoctoral Fellowship, Whitehead Institute, MIT

Current Faculty Positions:
2008 – Present  Professor, Departments of Pediatrics & Human and Molecular Genetics, Baylor College of Medicine, Children's Nutrition Research Center, and Professor, Department of Horticulture, Texas A&M University
2006 – Present  Associate Director of Research, Vegetable and Fruit Improvement Center, Texas A&M University

Courtesy Faculty Appointment(s) at Other Institutions:
2003 – Present  Professor, Department of Biochemistry and Cell Biology, Rice University

Honors/Awards:
1993 – 1996  Helen Hay Whitney Postdoctoral Fellowship, Whitehead Institute, M.I.T., award for salary and expenses
1995  M.I.T. Course Instructor, chosen to teach advanced undergraduates a full semester course in plant genetics and molecular biology
2001  International Advisory Committee, Intracellular Signaling in Plant and Animal Systems, Kiev, Ukraine
2003  Organizing Committee, 1st Pan-American Plant Membrane Biology Meeting, Cuernavaca Mexico
2004  Organizing Committee, International Plant Membrane Biology, Montpellier, France
2004 – 2007  American Society of Plant Biologists, Charles Reid Barnes Life Award Committee
2006  Principal Organizer, 2nd Pan American Plant Membrane Biology Meeting, South Padre Island, Texas
2007  Organizing Committee International Plant Membrane Biology, Valencia, Spain
2007 – 2015  American Society of Plant Biologists, Dennis R. Hoagland Award Committee
2010  Organizing Committee, III Pan American Plant Membrane Biology Workshop, Puebla, Mexico
2010  Organizing Committee, International Plant Membrane Biology, Adelaide, Australia
2011  Innovation Award, Institute of Biosciences and Bioengineering, Rice University, Houston, Texas

Journal Editorial Boards

Review Panels:
1999 – Present  ad hoc Reviewer, National Science Foundation
1999 – Present  ad hoc Reviewer, U.S. Department of Agriculture
2003 – Present  Signal Transduction Panel, NSF
2004  Plants and Environmental Adaptation Panel, USDA
2006  Integrative Plant Biology Panel, NSF
2007 – 2010  Integrative Systems Proposal Review Panel,
Physiological and Structural Systems Cluster, NSF
2008  Integrative Organismal Systems Proposal Review Panel for
Physiological and Structural Systems Cluster, NSF

Professional Societies & Elected Positions:
1989 – Present  American Society of Plant Physiologists
2004 – Present  American Society for Biochemistry and Molecular Biology
2004 – 2007  American Society of Plant Biologists, Charles Reid Barnes Life Award Committee
2007 – 2015  American Society of Plant Biologists, Dennis R. Hoagland Award Committee

Selected Peer-Reviewed Publications (96 peer-reviewed; past 5 years; 2009-2013)


**Selected Book Chapters** (past 5 years; 2009-2013)


BIBLIOGRAPHICAL SKETCH: Amir M. Ibrahim, Ph.D.

EDUCATION:

- Ph.D. 1998 - Plant Breeding and Genetics, Colorado State University, Fort Collins, Colorado.
- M.S. 1994 - Crop Production, American University of Beirut, Beirut, Lebanon.

PROFESSIONAL EXPERIENCE:

- Professor of Soil and Crop Sciences and Small Grains Breeder/Geneticist (Small Grains Program Leader; 9/2012 – Present), Soil and Crop Sciences Department, Texas A&M University
- Associate Professor of Soil and Crop Sciences and Small Grains Breeder/Geneticist (Small Grains Program Leader; 9/2007 – 8/2012), Soil and Crop Sciences Department, Texas A&M University
- Assistant – Associate Professor of Plant Science and Winter Wheat Breeder/Geneticist (6/2000 – 6/2007), South Dakota State University
- Postdoctoral Research Associate, Wheat Breeding and Genetics, Department of Soil and Crop Sciences, Colorado State University (9/1998 - 6/2000)
- Graduate Research Assistant, Wheat Breeding and Genetics, Department of Soil and Crop Sciences, Colorado State University (8/1995 -9/1998)
- Visiting Scientist, International Maize and Wheat Improvement Center (CIMMYT), Mexico (1/1995-8/1995)
- Research Scientist, Wheat Breeding, Agricultural Research Corporation, Wad Medani, Sudan; and Adjunct Faculty, University of Gezira, Wad Medani, Sudan (7/1994-1/1995)

TEACHING: SCSC 660: Experimental designs in agriculture.

PRODUCT DEVELOPMENT: Released and co-released ten wheat cultivars.

GRANTS FUNDED: $36,357,969 funded total; $3,528,805 to Ibrahim since 2000.

Professional Affiliations:

American Society of Agronomy, Crop Science Society of America, Sigma Xi

Selected referred publications (2010 - present):

736. analysis of Adult plant Stripe and leaf rust resistance in spring wheat line Quaiu3. Plant Disease 97:728


CURRICULUM VITAE - 2013

NAME: Thomas Isakeit

ACADEMIC RANK: Professor and extension plant pathologist

ADDRESS: Department of Plant Pathology and Microbiology, Texas A & M University
2132 TAMU, College Station, TX 77843-2132
Phone: (979) 862-1340 (office); Fax: (979) 845-6483
E-mail: tisakeit@ag.tamu.edu

EDUCATION:
B.Sc. Agriculture, University of Alberta, Edmonton, May, 1980. (Majors: plant pathology and horticulture)

PROFESSIONAL EXPERIENCE:
September, 2005 - present: Professor and extension plant pathologist, Dept. Plant Pathology and Microbiology, Texas A&M University, College Station. (75% extension, 25% research)
September, 1999 - August, 2005. Associate professor and extension plant pathologist, Dept. Plant Pathology and Microbiology, Texas A&M University, College Station. (75% extension, 25% research)

PROFESSIONAL ASSOCIATIONS AND ACTIVITIES:
Member, American Phytopathological Society (1983 to present)
Member, Canadian Phytopathological Society (1985 to present)

TEACHING EXPERIENCE (GUEST LECTURER) – TEXAS A&M UNIVERSITY:
BESC 201 (Introduction to bioenvironmental sciences); HORT 325 (Vegetable crop production)
PLPA 301 (Introductory plant pathology); PLPA 611 (Advanced plant pathology)
PLPA 613 (Advanced plant pathology laboratory); PLPA 623 (Diseases of Field Crops)
PLPA 625 (Plant pathogenic fungi); PLPA 626 (Diagnosis of plant diseases); PLPA 690 (Theory of Research)
Advisor for Melanie Edwards, PLPA 685 (Directed studies in plant pathology, 1 credit)

GRADUATE ADVISING:
Committee Chair:
David Laughlin (Ph.D., PLPM); Brandon Hassett (M.Sc., 2012, PLPM)
Committee Co-Chair:
Noe Montes (Ph.D., 2004, PLPM) (with G. Odvody); Scott Fichtner (M.Sc., 2001, PLPM) (with T. Wheeler)
Committee Member:
Lauren Kalns (Ph.D., ENTO); Ivan Dario Barrero Farfán (Ph.D., 2013, CSS); José G. Franco (Ph.D., HORT); Ghada Radwan (Ph.D., 2013, PLPM); Curtis Cribben (M.Sc., 2013, BAEN); M. Cody McKee (M.Sc.,

Isakeit, C.V. 1
Characterization of genetic diversity and linkage disequilibrium of ZmLOX4 and ZmLOX5 loci in maize. PLOS ONE 8(1):e53973. doi: 10.1371/journal.pone.0053973


Isakeit, T., X. Gao, and M. Kolomiets. 2007. Increased resistance of a maize mutant lacking the 9-lipoxygenase Isakeit, C.V. 2


SHORT TECHNICAL PUBLICATIONS AND ABSTRACTS AT TEXAS A&M (REFEREED):

Isakeit, C.V. 3


www.plantmanagementnetwork.org/pub/trial/PDMR/reports/2008/FC040.pdf


www.plantmanagementnetwork.org/pub/trial/PDMR/reports/2008/FC042.pdf


www.plantmanagementnetwork.org/pub/trial/PDMR/reports/2008/FC003.pdf

BOOK CHAPTERS:


TEXAS A&M UNIVERSITY SYSTEM INTERNATIONAL SERVICE:


- Field training in plant disease diagnosis, to four technicians from Guatemala, on behalf of the Borlaug Institute for International Agriculture, Lower Rio Grande Valley, Texas. Apr. 13-17, 2009.

- Evaluation of the Laboratorio de Diagnóstico Fitosanitario, Sanidad Vegetal del MIDA, Tapia/Tocumen, Panama, through the Borlaug Institute, Nov. 17-21, 2008.

AWARDS:

2012 Texas A&M AgriLIFE Extension Team Award for Superior Service (Cotton Root Rot Team)

International IPM Award of Excellence (Soybean rust – pest information platform for extension and education (PIPE), 7th International IPM Symposium, Memphis, TN, Mar. 27-29, 2012 (team award)

2011 Texas Plant Protection Association Academic/Agency Award

2010 Texas AgriLIFE Extension Team Award for Superior Service (Pecan IPM Program Team)
Russell W. Jessup  
Assistant Professor of Perennial Grass Breeding  
Department of Soil and Crop Sciences  
370 Olsen Blvd.; 431B Heep Ctr.  
Texas A&M University  
College Station, TX 77843-2474  
Email: rjessup@tamu.edu  
Phone: 979-315-4242  
Fax: 979-845-0456  
http://soilcrop.tamu.edu/staff/jessup-russell-w/  

Education  
<table>
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<th>Degree</th>
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<tr>
<td>Ph.D.</td>
<td>Texas A&amp;M University</td>
<td>Plant Breeding</td>
<td>2005</td>
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<tr>
<td>M.S.</td>
<td>Texas A&amp;M University</td>
<td>Plant Breeding</td>
<td>1999</td>
</tr>
<tr>
<td>B.S.</td>
<td>Texas A&amp;M University</td>
<td>Plant &amp; Env. Soil Sci.</td>
<td>1997</td>
</tr>
</tbody>
</table>

Work Experience  
Assistant Professor of Perennial Grass Breeding, Texas AgriLife Research, Department of Soil and Crop Sciences, Texas A&M University. 2009 to present  
Plant Breeder: AL Bioenergy Farm Director, Mendel Biotechnology, Biofuel Feedstock Development. 2007 to 2009  
Research Associate, Forages, Dept. Soil & Crop Sci., Texas A&M University. 2002 to 2005

Research Impact Statement  
- Development of perennial grasses designed for multifunctional biomass biorefinery platforms.  
- Parallel breeding & product development pipelines of perennial grass feedstocks designed for biofuel, forage, turf, ornamental, and renewable bioproduct markets.  
- Perennial grass comparative genomics and cytogenetics lab development.  

Professional Activities (selected)  
Crop Science Society of America. 1997 to present  
National Association of Plant Breeders. 2012 to present  
Assistant Editor: 1) AgroCrop Science Journal, 2) Advances in Crop Science & Technology Journal, 3) Journal of Genetics Study

Current Grant Support  
- BP. Perennial Energy Grass Breeding & Evaluation.  
- USDA-ARS. Polyploid Genomics of Perennial Warm-Season Grasses for the Southern United States.  
Peer Reviewed Publications (Last 4 Years)


BIOGRAPHICAL SKETCH

Provide the following information for the Senior/key personnel and other significant contributors. Follow this format for each person. DO NOT EXCEED FOUR PAGES.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles D. Johnson</td>
<td>Director, Genomics &amp; Bioinformatics</td>
</tr>
<tr>
<td>eRA COMMONS USER NAME (credential, e.g., agenc-y login)</td>
<td></td>
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</tbody>
</table>

<table>
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<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
<th>YY</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas A&amp;M University</td>
<td>B.S.</td>
<td>1988</td>
<td>Agronomy</td>
</tr>
<tr>
<td>Clemson University</td>
<td>M.S.</td>
<td>1993</td>
<td>Plant Physiology</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>Ph.D.</td>
<td>2000</td>
<td>Plant Physiology</td>
</tr>
<tr>
<td>Texas A&amp;M University</td>
<td>Postdoc</td>
<td>2003</td>
<td>Computational Biology</td>
</tr>
<tr>
<td>University of Louisville</td>
<td>Postdoc</td>
<td>2004</td>
<td>Bioinformatics</td>
</tr>
</tbody>
</table>

Employment and Appointments

Associate member Texas A&M University graduate faculty 2013- present

Associate Director 8/2013-present
Center for Bioinformatics and Genomics System Engineering
Texas A&M System, College Station, TX

Director 6/2010-present
Genomics and Bioinformatics
Texas A&M AgriLife, College Station, TX

President 2007-2010
BioMath Solutions, LLC, Austin TX

Senior Manager: Statistics / Bioinformatics 2006 – 2007
Asuragen, Inc. Austin, TX

Manager of Expression Bioinformatics 2004 – 2006
Ambion, Inc. Austin TX

Publications


7. Charles R. Partridge, **Charles D. Johnson**, Kenneth S. Ramos *In vitro models to evaluate acute and chronic injury to the heart and vascular systems* *Toxicology in Vitro, Volume 19, Issue 5, August 2005, Pages 631-644*


14. Leming et al. (201 authors), The MAQC-II Project: A comprehensive study of common practices for the development and validation of microarray-based predictive models. 2010. Accepted for Publication, Nature Biotechnology.


20. N Ghaffari, MR Youse, **CD Johnson**, I Ivanov, ER Dougherty Modeling the Next Generation Sequencing sample processing pipeline for the purposes of classification *BMC bioinformatics* 14 (1), 307 2013

21. Leming, Shi et al. (200 authors), FDA SEQC RNASEQ Quality Control Study, submitted Nature Biotechnology, 2013
Plant Science


Book Chapter


Patents (US and EU)


17. Bader, A.G.; Byrom, M.W.; Patrawala, L.; Johnson, C.D.; Brown, D.; miR-15, miR-26, miR-31, miR-145, miR-147, miR-188, miR-215, miR-216, miR-331, mmu-miR-292-3P REGULATED GENES AND PATHWAYS AS TARGETS FOR THERAPEUTIC INTERVENTION 2008 US Patents 20090131356

Scientific Software
1. mirInform: Led the development of miRInform® an automated data packaging and interactive exploration software tool that was launched as part of the DiscovArray product. Project manager, responsible for planning, design, implementation management, and marketing. Has been used over the last five years at Asuragen Inc. to process and deliver the majority of their service projects.
2. miRNA –QC Tool: Distributed by Affymetrix for three years as their primary signal process and analysis tool for their miRNA array product line. http://goo.gl/Of7Ox Used throughout the miRNA field and part of hundreds of papers. The software was produced by BioMath Solutions LLC, under contract to Affymetrix.
3. FlexmiR – Data Analysis Software: Distributed by Luminex Inc. the software conducts signal process and basic statistical analysis and provides the user with basic plate QC information, both in figure and table form. The software has an intuitive and easy to use graphical user interface (GUI) and require no programming skills to operate. The software a key part of their miRNA product line. The software was produced by BioMath Solutions LLC, under contract to Luminex.

Microarray Design
1. Led bioinformatics team at Asuragen that developed the first custom Affymetrix miRNA array - DiscovArray®, Served as consultant to Affymetrix on their commercial miRNA array development and developed the analysis method and designed the analysis software used by Affymetrix (see miRNA-QC Tool)

Ambion TechNotes
1) Robert Setterquist, Mike Wilson, Charles Johnson, Shika Agarwal, Sharmili Moturi. Synthesize High Yields of Biotinylated aRNA. Ambion TechNote 12(3) page17-18
3) Charlie Johnson, Robert Setterquist, Sharmili Moturi, Charmaine San Jose, Penn Whitley. Increase Signal and Detect More Genes on Affymetrix® Arrays Ambion, Inc. TechNote 12(4) page 28-29

Synergistic Activities
As director of the Texas A&M AgriLife Genomics and Bioinformatics Service, I am responsible for promoting and facilitating genomics research across the Texas A&M system by providing individualized consulting services, access to instrumentation through a professional lab service group and bioinformatics analysis team. Worked with >500 of researchers over the last 3 years and assisted in the submission of over 250 genomics related grant applications.
Biographical Sketch

Patricia E. Klein, Associate Professor

Education and Training:
Texas A & M University  Horticulture  B.S., 1982
Texas Tech University  Crop Science  M.S., 1984
Texas A & M University  Biochemistry  Ph.D., 1989
University of Kentucky  Plant Pathology Post-doc.  1989-1991
University of Kentucky  Plant Pathology NSF Post-doc.  1991-1993

Research and Professional Experience:
Associate Head for Graduate Programs, Dept. of Horticultural Sciences, Texas A & M University, October 2013 - present
Associate Professor, Dept. of Horticultural Sciences, Texas A & M University, 2002-present
Assistant Professor, Dept. of Horticultural Sciences, Texas A & M University, 2002
Assistant Professor, Dept. Biochem. & Biophys., Texas A & M University, 1997-2002
Research Associate, USDA-ARS, Eastern Regional Research Center, 1995-1997
Assistant Professor, Dept. of Horticulture and Landscape Architecture, University of Kentucky, 1993-1995

Synergistic Activities:
Panel member for USDA-NRI, 2005; USDA-NIFA, 2011; 2013
Member of the Interdisciplinary Molecular and Environmental Plant Sciences Program - TAMU, 1999-present
Member of the American Society of Plant Biologists, 2002-present
Member of the American Society for Horticultural Scientists, 2012-present
Associate Editor - The Plant Genome, 2005-present
Member of the Gramene Scientific Advisory Board, 2005-present, Kansas State University Sorghum Translational Genomics Program Scientific Advisory Board, 2007-2010
Ad-hoc Reviewer – Theoretical and Applied Genetics, PLoS One, Plant Physiology, Crop Science, BMC Genomics

Patents Awarded or Submitted:
The Sorghum Aluminum Tolerance Gene, SbMate - United States Patent 7582809 awarded 9/1/2009
Discovery and Utilization of Sorghum Genes (Ma5/Ma6) - Patent application number: 20100024065

Courses Taught:
HORT201H – Honors section of Horticultural Sciences and Practices
HORT301 – Garden Science
HORT691 – Research
MEPS691 – Research

Grant Funding:
PI or Co-PI on 14 external grants since 2000 totaling ~$13.8M of which ~$3.8M has directly supported the P. E. Klein research program.
Collaborators and Other Affiliations:

(i) Collaborators/Co-authors
Gary Adams, Texas A & M University
Andrew Borrell, DEEDI, Queensland, Australia
John Burke, USDA-ARS, Lubbock
Gloria Burow, USDA-ARS, Lubbock
Byron Burson, USDA-ARS, College Station
Cleve Franks, Pioneer Hi-Bred
Tom Ficht, Texas A & M University
Allison Rice-Ficht, Texas A & M University
David Jordan, DEEDI, Queensland, Australia
Robert Klein, USDA-ARS, College Station
Leon Kochian, USDA-ARS, Ithaca
Stephen Kresovich, University of South Carolina
Emma Mace, DEEDI, Queensland, Australia
Monica Menz, Syngenta
Fred Miller, MMR Genetics
John Mullet, Texas A & M University
Seth Murray, Texas A & M University
Gary Pederson, Texas AgriLife Research
William Rooney, Texas A & M University
Alan Rousell, Texas A & M University
David Stelly, Texas A & M University
Wilfred Vermerris, University of Florida
Yi-Hong Wang, University of Louisiana-Lafayette
Doreen Ware, USDA-ARS, Cold Spring Harbor
Z. Xin, USDA-ARS, Lubbock

(ii) Graduate and Post-Graduate Advisors:
Dr. John Burke, USDA-ARS, Lubbock, Texas
Dr. John Mullet, Texas A & M University
Dr. John Shaw, University of Kentucky


(iv) Postgraduate-Scholar Sponsor: (Total = 8) Current: Millie Burrell; Former: Diana Toups-Dugas – Postdoctoral Associate, USDA-ARS, College Station, TX; Arun Sharma – Breeder, Sakata Seeds; Jaehee Jung – Computer Scientist, Samsung; Elizabeth Summers – Research Scientist, Texas A&M; Christina Buchanan – Scientist, Signature Science; Ron Salzman – Scientist, Stoler Co.; Jeong-soon Kim – Research Scientist, USDA-ARS, Winter Park, FL.

Publications within past 4 years:


Vitae Summary

Hisashi Koiwa, PhD

Current Position
Associate Professor
Sep, 2008-present
Dept. Horticultural Sciences

Education:
B.S. (Agricultural Chemistry) - 1991, Kyoto University, Kyoto, Japan.
M.S. (Agricultural Chemistry) - 1993, Kyoto University, Kyoto, Japan.
Ph.D. (Agricultural Chemistry) - 1996, Kyoto University, Kyoto, Japan.

Professional Experience:
1996-1999 Post Doctoral Research Associate (Plant stress response) -
Dept. Hort., Purdue University

Appointment:
1999-Aug, 2002 Research Plant Biologist, Dept of Hort. & LA, Purdue University
Aug, 2002-Aug 2008 Assistant Professor, Dept of Hort. Sci., Texas A&M University
Sep, 2008-present Associate Professor, Dept of Hort. Sci., Texas A&M University

Research Interests.
It is estimated that 65 to 87% of the potential yield of annual crops is lost due to abiotic or biotic stress, i.e. salinity, drought, extremes of temperature, flooding, nutrient deficiency and infestations. Many of these stresses impose ion/osmotic imbalance to the plant cells that leads to lower growth rate and eventually, crop failures.

Stress adaptation responses of plants include dynamic transcriptome changes that coordinate the protection of plant cells from environmental extremes and facilitate re-establishment of cellular and organismal homeostasis. My research focus is to identify abiotic stress responsive determinants using model plant genetic systems, such as *Arabidopsis thaliana*, and to apply the knowledge and technology to improve stress tolerance of crop plants.

Courses Taught
- MEPS605 Plant Biochemistry (3 credits)
- MEPS610/HORT610 Physiol. Molec. Basis Plant Stress Responses (taught with Dr. Lombardini, total 3 credits)
- Additional participations in different classes (see below)

List of current research project.

Hatch

**TEX08842** Molecular basis for plant osmotic stress tolerance
Duration: 5 years (6/08/2009-6/07-2014)
Personnel: 0

Grants and contracts

**NSF** Role of Arabidopsis CTD-phosphatase-like 1 in gene silencing pathway
Duration: 4 years (3/01/2010-2/28/2014)
Personnel: 1 postdoc
2 graduate students
1 visiting scholar
Publications:
Refereed Research Papers: (20 most recent, total 60)


Reviews:


Conference Proceeding:

Book Chapters:


C. Service (5% Effort)

1. Current Activities

   **Coordinator:** Exchange program between Molecular and Environmental Plant Science program and Gyongsang National University in Korea

   **Committees**
   - MEPS program committee, Spring 2010-present
   - MEPS executive committee, Fall 2011-present
     - Seminar host for Dr. Paul M. Hasegawa (MEPS symposium 2005)
     - Seminar host for Dr. Eduardo Blumwald (MEPS symposium 2006)
     - Seminar host for Dr. Jian-Kang Zhu (MEPS symposium 2008)
     - Seminar host for Dr. Robert Last (MEPS symposium 2009)

   **Other**
   - Borlaug Center External Advisory Committee (2006-present)

2. Administrative duties:
   - N/A

3. Professional, scientific activities

   **Review panels for grants and journals**
   - Editorial Board Member
     - The Journal of Biological Chemistry
     - The Open Plant Science Journal

   **Professional association involvement**
   - **Affiliation**
     - American Society of Plant Biologists
     - American Society of Biochemistry and Molecular Biology
     - Japanese Society of Plant Physiologist
     - Japan Society for Bioscience, Biotechnology, and Agrochemistry
     - Sigma Xi
CURRICULUM VITAE

Mikhailo (Michael) V. Kolomiets
Department of Plant Pathology & Microbiology (PLPM)
Molecular and Environmental Plant Sciences Interdepartmental Program (MEPS)
Whole Systems Genomics for Improved Human, Animal, and Environmental Wellbeing
Program of Biology of Filamentous Fungi (PBOFF)
Texas A&M University
College Station, TX 77843-2132

CONTACT INFORMATION
Business Address:
Texas A&M University
Department of Plant Pathology and Microbiology
2132 TAMU
College Station, TX, 77843-2132
Phone: (979)-458-4624
e-mail: kolomiets@tamu.edu
Web Page: http://plantpathology.tamu.edu/people/faculty/dr-michael-v-kolomiets/

I. EDUCATION AND PROFESSIONAL APPOINTMENTS

Professional Preparation
Kiev State University, Kiev, Ukraine
Genetics
B.S. and MS, 1986

Institute of Plant Sciences, St. Petersburg, Russia
Biochemistry
Ph.D. equivalent, 1991
Major Advisor: G. Samorodova-Bianki

Iowa State University, Ames, IA
Horticulture
Ph.D., 1998
Co-advisors: D. H. Hannapel and R. Gladon

University of Missouri-Columbia
Molecular Genetics of Maize
1998-1999
Advisor: G. Johal
(Post-doctoral Fellow)

Pioneer Hi-Bred/DuPont, USA
Disease Resistance Group
1999-2002
Advisors: G. Johal and N. Yalpani
(Post-doctoral Fellow)

Appointments
2008-present
Associate Professor, Department of Plant Pathology & Microbiology, Texas A&M University, College Station, TX.

2011 (03-09)
Visiting Professor, Institute of Plant Biochemistry, University of Goettingen, Goettingen, Germany.

2002-2008
Assistant Professor, Department of Plant Pathology & Microbiology, Texas A&M University, College Station, TX.

1999-2002
Post-doctoral Research Associate, Disease Resistance Group, Pioneer Hi-Bred International – a DuPont company, Johnston, IA.

1998-1999
Post-doctoral Research Fellow, Department of Agronomy, University of Missouri-Columbia, Columbia, MO.

1993-1998
Graduate Research Assistant, Department of Horticulture, Iowa State University, Ames

1988-1993
Senior Research Fellow and Chair, Biotechnology Laboratory, Institute of Horticulture, Kiev, Ukraine.

1986-1988
Senior Agronomist, Institute of Horticulture, Kiev, Ukraine.

II. SERVICE

Society Memberships
American Phytopathological Society
American Society for Plant Biologists
FacultyRow, America's Top Faculty™, selected as a member in 2013

**Membership on Committees, Boards, and Panels**

<table>
<thead>
<tr>
<th>Role</th>
<th>Committee/Program/Committee, Institution</th>
<th>Years</th>
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</thead>
<tbody>
<tr>
<td>Chair</td>
<td>Graduate Program Committee, PLPA, Texas A&amp;M University</td>
<td>2013-2014</td>
</tr>
<tr>
<td>Graduate Adviser</td>
<td>PLPA, Texas A&amp;M University</td>
<td>2013-2014</td>
</tr>
<tr>
<td>Member</td>
<td>Assessment Committee, PLPA, Texas A&amp;M University</td>
<td>2013-2014</td>
</tr>
<tr>
<td>Chair</td>
<td>Assessment Committee, PLPA, Texas A&amp;M University</td>
<td>2012-2013</td>
</tr>
<tr>
<td>Member</td>
<td>Science Advisory Board, Washington D.C.</td>
<td>2010-present</td>
</tr>
<tr>
<td>Member</td>
<td>Council of Principal Investigators, Texas A&amp;M University</td>
<td>2009-2012</td>
</tr>
<tr>
<td>Member</td>
<td>Advisory Committee for the Institute of Plant Genomics and Biotechnology, Texas A&amp;M University</td>
<td>2008-2010</td>
</tr>
<tr>
<td>Member</td>
<td>New Faculty Search Committee -- four positions in Plant Biology Programs, Institute for Plant Genomics and Biotechnology</td>
<td>2007-2008</td>
</tr>
<tr>
<td>Member</td>
<td>Mycotoxin Task Force, COALS</td>
<td>2003-current</td>
</tr>
<tr>
<td>Member</td>
<td>NSF Grant Panel</td>
<td>2010, 2011, 2012</td>
</tr>
<tr>
<td>Member</td>
<td>Molecular and Environmental Plant Sciences Interdepartmental Program (MEPS) Executive Committee, Texas A&amp;M University</td>
<td>2009-2012</td>
</tr>
<tr>
<td>Member</td>
<td>Editorial Board for MaizeGDB</td>
<td>2008</td>
</tr>
<tr>
<td>Member</td>
<td>MEPS Symposium Committee, Texas A&amp;M University</td>
<td>2004-2010</td>
</tr>
<tr>
<td>Co-Chair</td>
<td>Facilities and Equipment Committee</td>
<td>2005-2006</td>
</tr>
<tr>
<td>Member</td>
<td>Graduate Program Committee, Department of Plant Pathology and Microbiology</td>
<td>2005-2007</td>
</tr>
<tr>
<td>Member</td>
<td>Undergraduate Program Committee, Department of Plant Pathology and Microbiology</td>
<td>2006-2007</td>
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<td>Member</td>
<td>Facilities and Equipment Committee, Department of Plant Pathology</td>
<td>2002-2003</td>
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<tr>
<td>Member</td>
<td>Seminar Committee, Department of Plant Pathology and Microbiology</td>
<td>2004-2005</td>
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<tr>
<td>Chair</td>
<td>Seminar Comm., Department of Plant Pathology, Texas A&amp;M University</td>
<td>2003</td>
</tr>
<tr>
<td>Member</td>
<td>New Faculty Search Committee</td>
<td>2002</td>
</tr>
<tr>
<td>Faculty Member</td>
<td>MEPS Program, Texas A&amp;M University</td>
<td>2002-2012</td>
</tr>
<tr>
<td>Faculty Member</td>
<td>Whole Systems Genomics Interdepartmental Program, Texas A&amp;M University</td>
<td>2010-2012</td>
</tr>
</tbody>
</table>

**Committee Activities in Professional Societies**

Member, Mycotoxicology Committee, American Phytopathological Society, 2004-current
Member, Molecular Biology and Biochemistry Committee, American Phytopathological Society, 2005-2007

**Reviewer for Journals**


**Ad-hoc Reviewer for Funding Agencies**

- NSF (several programs from Biological Directorate, e.g. IOS, Plant Genome Program, IOB)
- USDA NIFA (several programs)
- BARD (Bi-National Research Program funding collaborative research between US and Israel scientists)
- Texas A&M University programs including CONACYT (collaboration between Texas A&M and Mexico)
III. TEACHING AND SUPERVISORY ACTIVITIES

**COURSE DESCRIPTIONS**

**PLPA 617: MOLECULAR PLANT-PATHOGEN INTERACTIONS.**
Taught: Spring '03, '05, '07, Fall '09, Spring '11, '13.

**PLPA 301/601: PLANT PATHOLOGY.**
Taught: Spring 03, '04, '06, Fall '07, '08, '10, '11, '12, '13

**PLPA 484 W. FIELD EXPERIENCE.**
Writing Intensive, 3 credits, taught every semester including Summer sessions, 2010-2013.

**Invited Short Courses Taught Abroad**
- July 19-29, 2011, Summer Graduate Short Course (10 days, 120 graduate students attended lectures), Molecular Plant-Pathogen Interactions, Huandzhou Agricultural University, Wuhan, China.
- April 27-May 8, 2012, Eurasian Gumilev University, Astana, Kazakhstan, Biochemistry and Molecular Plant Responses to Pathogen Infections, 16 graduate students attended the lectures.

**Supervision of Research Projects (internships) for Undergraduate Students:**

*Regular internships:* Since 2002, I have trained and supervised research projects of 55 undergraduate students either as a paid student-workers or PLPA 485 or PLPA 484 W Internship course students.

Trained five NSF-funded Research for Undergraduate Students, two Louis Stokes Alliance for Minority Participation (LSAMP), two University Undergraduate Research Scholars (2):

**Thesis Advisor & Postdoctoral Sponsor**
Served as a Major Advisor or co-Advisor for 11 Ph.D. (two of them will join the lab in Fall 2013) and two M.S. graduate students, supervised five post-doctoral scientists, served on 15 Ph.D. and six M.S. Graduate Student Committees.

**Graduate Student Committees**

<table>
<thead>
<tr>
<th>Degree</th>
<th>Chair or Co-chair</th>
<th>Member</th>
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<tbody>
<tr>
<td>Master of Agriculture</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Master of Science</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>9</td>
<td>15</td>
</tr>
</tbody>
</table>

**Visiting Scholars, Graduate Students and Faculty**
Hosted three visiting professors, trained four visiting graduate students, trained two visiting Postdoctoral Research Fellows

**IV. Research**

**Areas of Research Interest**
- Molecular plant pathogen/insect/nematode/beneficial microorganisms’ interactions.
- Maize genetics, molecular biology and biochemistry.
- Maize lipid signaling in the regulation of mycotoxin biosynthesis by seed-infecting fungi.
- Maize interaction with rhizosphere microbiome and allelopathy (root-mediated chemical signaling between plants).
- Major focus: establish physiological functions of oxidized non-volatile and volatile lipids (oxylipins) in molecular signaling in defense against diverse pathogens, insect herbivores, and abiotic stresses including drought and salt tolerance and maize growth and reproductive development.

**V. Professional Honors and Awards**
VI. Publications and Profession Output

A. PEER-REVIEWED/REFEREED PUBLICATIONS (most recent first):


Ivan D. Barrero Farfan, Gerald De La Fuente, Seth C. Murray, Thomas Isakeit, Pei-Cheng Huang, Marilyn Warburton, Paul Williams, Gary L. Windham, Michael Kolomiets. (2013) Whole genome association study for drought, aflatoxin resistance, and important agronomic traits in maize in a subtropical environment. *PLOS ONE*: (submitted)

PUBLISHED:
Papers 1-21 were published during my work at TAMU.


Biology:


16. Gao X, Shim WB, Göbel C, Kunze S, Feussner I, Meeley R, Balint-Kurti P, Kolomiets M (2007). Disruption of a maize 9-lipoxygenase results in increased resistance to fungal pathogens and reduced levels of contamination with the mycotoxin fumonisin. Molecular Plant Microbe Interact. 20: 922-933. The article was chosen as the EDITOR’S PICK of the August issue of MPMI.


**BOOK CHAPTERS:**


**VIII. Grant Support**

A. **Current Hatch Project:**
TEX09496: Functions of maize oxidized lipids in stress and development. Duration 5 years; 12/20/2011 - 12/19/2016.

B. **Current Grant Support:**

**Grants and Contracts**

<table>
<thead>
<tr>
<th>Type and Role</th>
<th>Total $’s to all PIs</th>
<th>$’s allocated to my program</th>
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</thead>
<tbody>
<tr>
<td>External Competitive</td>
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<tr>
<td>PI</td>
<td>$1,548,362.00</td>
<td>$1,363,599</td>
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<tr>
<td>Co-PI</td>
<td>$638,999.00</td>
<td>$224,644.00</td>
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<tr>
<td>Total (PI + CO-PI)</td>
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<td>$1,558,243</td>
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<tr>
<td>Internal</td>
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<tr>
<td>PI</td>
<td>$350,000.00</td>
<td>$330,000.00</td>
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<tr>
<td>Co-PI</td>
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<tr>
<td>Total (PI + CO-PI)</td>
<td>$350,000.00</td>
<td>$330,000.00</td>
</tr>
</tbody>
</table>

**Other**

| Commodity Funding | $34,500 | $34,500 |

**TOTAL**

| $2,581,861.00 | $1,952,743.00 |

**ACQUISITION OF RESEARCH FUNDS**

**External funding**

**Current**

**Title:** Collaborative Research: Signal Perception and Cellular Mechanisms Governing Oxylipin Mediated Maize - Fungal Crosstalk  
**Agency:** National Science Foundation, IOS-0951272  
**Amount:** $485,863  
**Duration:** 2/15/11 - 2/14/15  
**PI:** Kolomiets

**Title:** Signals, Genes and Metabolites in Defense Priming Mediated by 12-oxo-phytodienoate Reductases in Maize  
**Agency:** National Science Foundation, IOS-0925561  
**Amount:** $469,676  
**Duration:** 09/01/09 - 8/31/13  
**PI:** Kolomiets

**Title:** Improving Drought Tolerance and Aflatoxin Resistance In Maize; Education, Extension, and Translational Breeding Via Altered Lipid Metabolism  
**Agency:** USDA AFRI  
**Amount:** $499,999  
**Duration:** 01/15/10 - 01/15/14  
**PIs:** Murray/Kolomiets/Isakeit

**Internal funding**

**Current**

**Title:** “Validating five candidate genes for improving maize yield and drought tolerance in Texas A&M AgriLife germplasm”  
**Agency:** Texas A&M AgriLife Research, Monocot Improvement Program  
**Amount:** $80,000  
**Duration:** 09/01/13 – 31/08/15  
**PI:** Kolomiets  
**Co-PI:** Seth Murray (Department of Crops and Soil Sciences

**Title:** Catalyst Grant, “Elucidating Below-ground Genes and Regulatory Networks that Modulate Above-ground Systemic Defense Against Herbivory”  
**Agency:** Whole Systems Genomics for Improved Human, Animal, and Environmental Wellbeing, Texas A&M Initial University Multidisciplinary Research Initiative  
**Amount:** $10,000  
**Duration:** 09/01/12 – 12/23/13  
**PI:** Kolomiets  
**Co-PI:** Ivan Ivanov
Curriculum Vitae

Konstantin V. Krutovskiy

Department of Forest Genetics and Forest Tree Breeding

Büsgen-Institute

Georg-August-University Göttingen
Büsgenweg 2, D-37077 Göttingen
Germany

E-mail: kkrutov@gwdg.de
Phone: +49-(0551)-393-35-37 (off.)

RESEARCH INTERESTS

- Evolutionary, population, conservation and ecological genetics
- Environmental stress and adaptive genes
- Comparative and population genomics
- Complete pine genome sequencing
- Genome, QTL, comparative, candidate gene and association mapping
- Genome breeding
- Plant molecular systematics and phylogeny
- Introgressive hybridization, gene flow and mating system
- Molecular genetic marker development

EDUCATION

Ph.D. 1984  Population Genetics, Laboratory of Population Genetics, N. I. Vavilov Institute of General Genetics, Russian Academy of Sciences, Moscow, Russia

M.Sc. 1979  Genetics, Laboratory of Evolutionary Genetics, Institute of Cytology and Genetics, Russian Academy of Sciences and Department of Life Sciences, Novosibirsk State University, Novosibirsk, Russia

B.Sc. 1978  Genetics, Department of Genetics and Embryology, Samara State University, Samara, Russia

Diploma 1985 Computer application in information and communication systems, Central Institute of Information Systems and Communication, Moscow, Russia

PROFESSIONAL EXPERIENCE

7/12 – present Professor, Department of Forest Genetics and Forest Tree Breeding, Büsgen-Institute, Georg-August-University Göttingen, Göttingen, Germany

9/12 – present Adjunct Professor, Department of Ecosystem Science & Management, Texas A&M University, College Station, TX, USA

3/12 – present Scientific director, Genome Research and Education Center, Siberian Federal University, Krasnoyarsk, Russia

9/13 – present Leading Research Scientist, Department of Computational Biology, Laboratory of System Biology and Computational Genetics, N.I. Vavilov Institute of General Genetics, Russian Academy of Sciences, Moscow, Russia

7/05 – 9/12 Associate Professor, Department of Ecosystem Science & Management, Texas A&M University, College Station, TX, USA
**PROFESSIONAL SERVICE AND ASSOCIATION**

1981 - present *Member*, N. I. Vavilov Society of Genetics and Selection, Moscow, Russia

1994 - present *Member*, Western Forest Genetics Association (WFGA), USA

1996 - present *Member*, American Association for the Advancement of Science, Washington, USA

1989 - 1994 *Member*, Scientific Council on Forest Genetics, Breeding, Seed Production and Introduction of the Institute of Forest Genetics and Breeding, Voronezh, Russia

1989 - 1991 *Chairman*, Scientific Council of Young Scientists of the Institute of General Genetics, USSR Academy of Sciences, Moscow, Russia

1988 - 1991 *Member*, Scientific Council of the Institute of General Genetics, USSR Academy of Sciences, Moscow, Russia


2012 - present *Member*, The International Climate-Resilient Crop Genomics Consortium (ICRCGC) ([http://climatechangegenomics.org/members.php](http://climatechangegenomics.org/members.php))

2005 - 2012 *Chair*, Graduate Curriculum Committee, Genetics (GENE) Program, Texas A&M University
2006 - 2012  *Chair*, Graduate Admissions Committee, Molecular and Environmental Plant Sciences (MEPS) Program, Texas A&M University

2012 - present *Scientific Director and Program Advisor*, Genome Center, Siberian Federal University, Krasnoyarsk, Russia

2006 - present *Scientific Advisor*, N. I. Vavilov Institute of General Genetics, Russian Academy of Sciences, Moscow, Russia

2007 - present *Member*, Editorial Board, Conifers of Boreal Forest (peer-reviewed theoretical and applied research international journal)

2011 - present *Associate Editor*, BMC Genomics (an Open Access, peer-reviewed theoretical and applied research international journal that considers articles on all aspects of genome-scale analysis, functional genomics, and proteomics; [http://www.biomedcentral.com/bmcgenomics/edboard](http://www.biomedcentral.com/bmcgenomics/edboard))

2013 - present *Member*, Editorial Board, Siberian Journal of Forest Science (peer-reviewed theoretical and applied research international journal)


2001, 2006, 2007 *Instructor and Lecturer*, Training Courses and Workshops on Forest Biodiversity, Conservation and Forest Genetic Resources organized by Bioversity International (Rome, Italy) and BFW (Federal Research and Training Centre for Forests, Natural Hazards and Landscape, Austria)

2008 *Instructor and Lecturer*, Workshop on Spatial and temporal variation of genetic structures in tree populations organized by Büsgen Institute, Department of Forest Genetics and Forest Tree Breeding, University of Göttingen and funded by EvolTree (Evolution of Trees as Drivers of Terrestrial Biodiversity, EU-funded Network of Excellence, [http://www.evoltree.eu](http://www.evoltree.eu)), December 15-19, 2008, Göttingen, Germany

2012 *Chair, Instructor and Lecturer*, Workshop on Population genetic and genomic approaches to mitigate global climate change impacts on forest genetic resources and to breed more resilient trees organized by Büsgen Institute, Department of Forest Genetics and Forest Tree Breeding, University of Göttingen and funded by EvolTree (Evolution of Trees as Drivers of Terrestrial Biodiversity, EU-funded Network of Excellence, [http://www.uni-goettingen.de/en/evoltree-summer-school-in-goettingen/361359.html](http://www.uni-goettingen.de/en/evoltree-summer-school-in-goettingen/361359.html) and [http://www.evoltree.eu/index.php/component/jevents/icalrepeat.detail/2012/09/24/202/]-), September 24-28, 2012, Göttingen, Germany

2013 *Instructor and Lecturer*, The School of Young Scientists "Genome Sequencing and Data Analysis", organized by the Institute of Chemical Biology and Fundamental Medicine SB RAS, July 19-21, 2013, Novosibirsk, Russia; [http://conf.nsc.ru/seq2013/en](http://conf.nsc.ru/seq2013/en)
2008, 2009, 2011  Advisor to international visiting scientists – Dr. Ivan Marin, Nicaragua (fall 2008) and Dr. Modhumita Dasgupta, India (fall 2011 – spring 2012), and hosting Prof. Reiner Finkeldey, Germany during his sabbatical (fall 2009)


2013 – present Scientific coordinator, Bachelor program Molecular Ecosystem Sciences (BMES-792), Georg-August-University of Göttingen


2009 Keynote speaker at the Forest Genetics Workshop “Opportunities, challenges and limitations of genomics-based technologies in forest tree breeding and forest genetics”, organized by Forest Research Institute (FVA), European Forest Institute Central European Regional Office (EFICENT), and Institute of Tree Physiology, University of Freiburg, October 7-9, 2009, Freiburg, Germany (http://www.efi.int/portal/news___events/events/extra/2009/workshop_forest_genetics/)

2012 Keynote speaker at the AdapCAR and IUFRO (WP 2.02.00) meeting October 3-5, 2012 in Riga, Latvia: Genetic aspects of adaptation and Mitigation: forest health, wood quality and biomass production (http://www.nordicforestresearch.org/adapcar/files/2012/10/Program-AdapCAR-IUFRO-Meeting.pdf)


ad hoc reviewer: American Journal of Botany, Annales Botanici Fennici, Applied Microbiology & Biotechnology, BMC Evolutionary Biology, BMC Genetics, BMC Genomics, Canadian Journal of Forest Research, Conifers of the Boreal Area, Environmental Pollution, European Journal of Forest Research, Journal of Evolutionary Biology, Journal of Heredity, Forest Ecology & Management, Forest Genetics, Forestry Ideas, Genetics, Molecular Biology, Molecular Breeding, Molecular Ecology, Phytopathology, Plant Species Biology, Proceedings of the National Academy of Sciences of the USA, Theoretical & Applied Genetics, Tree Genetics & Genomes; European Commission Research; USDA NRI and NSF Plant Genome Programs; NSF Population and Evolutionary Processes Program; Kansas State University Integrated Genomics Facility Competitive Seed Grants Program; Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning Program (Formas); Qatar National Research Fund (QNRF) - Qatar Foundation - The National Priorities Research Program (NPRP); Rothamsted International African Fellows Program (AFP).
HONORS AND PROFESSIONAL RECOGNITION

2011 U.S. Department of Agriculture (USDA) Secretary's Honor Award to the members of the Conifer Translational Genomics Network (CTGN) Coordinated Agricultural Project in the category of *Helping American promote sustainable agricultural production and biotechnology exports as America works to increase food security*. This award is the most prestigious Departmental award presented by the Secretary of Agriculture and recognizes exceptional leadership, contributions, or public service by individuals or groups who support the mission/goals of USDA (http://essm.tamu.edu/awards/2011/most-prestigious-departmental-award/#.UZuBbsq_jQ4).

Bioversity International certificate for the contribution in the forest biodiversity education and training, Rome, Italy, 2007


Institute of General Genetics Outstanding Young Scientists Award, Moscow, 1983, 1986, 1988, 1990

Medal of All-Union Exhibition of People Achievements: Forest Genetics, Tree Improvement and Management, Moscow, USSR, 1987

TEACHING

- Genetics and Ecosystem Science and Management RLEM-681 / TAMU (2008)

RESEARCH GRANTS AWARDED

Niedersachsen Ministerium für Wissenschaft und Kultur, joint project by the University of Oldenburg and the Georg-August University of Göttingen, PI: Ulrich Brose, CoPIs: Konstantin Krutovsky et al.: http://www.uni-goettingen.de/de/principal-investigators/472907.html, 3 years, 2014-2016, 3,100,000 euro, “Biodiversity - Ecosystem Functioning across marine and terrestrial ecosystems (BEFmate)".

Texas A&M University Whole Systems Genome Initiative (WSGI) Graduate Traineeship Grant for a PhD student Mr. Jeremy S. Johnson, PI: David Cairns, CoPIs: Konstantin Krutovsky, Clint Magill, Seth Murray, 1 year, 9/1/2013-8/31/2014, $24,500; "A genomics approach to seed dispersal at the alpine treeline ecotone and its implications for a changing climate". 
European Union, 7th framework program (FP7), Marie Curie Actions—International Research Staff Exchange Scheme (FP7-PEOPLE-2013-IRSES), # 612587, PI John Doonan, CoPIs: K. V. Krutovsky and others, 4 years, 11/01/2013-10/31/2017, 285,000 euro, “Plant adaptation to heavy metal and radioactive pollution”.

European Union, 6th framework program (FP6), EvolTree (EVOLution of TREES as drivers of terrestrial biodiversity; http://www.evoltree.eu) - a network of excellence that was launched and financially supported since April 2006. The network has been extended under the umbrella of the European Forest Institute (EFI) network. The new consortium is now made up of 23 research groups in 13 European countries. Coordinator from Georg-August-University of Göttingen, Germany – K. V. Krutovsky.

European Commission, Life Sciences, Biotechnology and Biochemistry for Sustainable Non-Food Products and Processes Program, 4 years, 2008-2012, NovelTree – research consortium (http://www.noveltree.eu), composed of 15 public and private European partners coordinated by Dr. Catherine Bastien (INRA-Orléans, France) and is designed to enable significant genetic improvement of the composition and characteristics of forest products to satisfy the needs (quality, quantity, sustainability, vulnerability) of consumers and the forest-based sector. NovelTree has received 4.1 million euros. Coordinator from Georg-August-University of Göttingen, Germany – K. V. Krutovsky.

Transnational PLant Alliance for Novel Technologies – towards implementing the Knowledge-Based Bio-Economy in Europe (PLANT-KBBE) 2009 Program, a funding initiative in collaboration with the German Federal Ministry of Education and Research (BMBF) and represents the continuation of a common international funding initiative between France, Spain and Germany. Scientific and Technological Cooperation in Plant Genome Research as basis of the ‘Knowledge Based Bio-Economy, SustainPine – research consortium “Genomic tools in maritime PINE for enhanced biomass production and SUSTAINable forest management” (http://www.scbi.uma.es/sustainpine), composed of 6 working parties and 11 public and private European partners coordinated by Dr. Francisco M. Cánovas (Universidad de Málaga, BMB, Spain). Coordinator from Georg-August-University of Göttingen, Germany – K. V. Krutovsky.


United States Department of Agriculture (USDA) Cooperative State Research, Education, and Extension Service (CSREES) Current Research Information System (CRIS), Texas Agricultural Experiment Station (TAES) McIntire-Stennis Project, TEX09122-0210381, PI: K. V. Krutovsky, 05/01/2007 - 04/30/2012, $349,200, “Comparative population genomics of drought resistance-related candidate genes in Southern pines”.


USDA NRCGP, Plant Genome, # 1999-01417, PI: S. H. Strauss, CoPIs: K. V. Krutovskii, R. Mohamed, and J. S. Skinner, 2 years, September 1, 1999 - August 31, 2001, $ 200,000, "Genomic diversity of sequences homologous to disease resistance genes in Populus".

USDA NRCGP, Entomology, # 1997-35302-4327, PI: R. R. James, CoPIs: K. V. Krutovskii and S. H. Strauss, 1 Year (August 1, 1997 - July 31, 1998), $ 110,000, "Genetic analysis of resistance to Bacillus thuringiensis in the cottonwood leaf beetle”.

American Philosophical Society, Michaux Fund Committee, # 231353269, PI: K. V. Krutovskii, 1 year, May 1, 1996 - April 30, 1997, $ 4,500, "Bulked segregant analysis of major genes affecting stem defect in Douglas-fir”.

Ministry of Science and Education of Russian Federation, Russian Fund of Fundamental Investigations (RFFI), # 96-04-49465, D. V. Politov and K. V. Krutovskii, 2 years (1996 - 1997), 1996 – 9,500,000 rubles, 1997 – 6,600,000 rubles, "Genetic differentiation, evolution, and hybridization of white pines (Genus Pinus, Section Strobus)".

G. Soros International Science Foundation, Research Grants, JEB100, D. V. Politov and K. V. Krutovskii, 1 year (January 1, 1995 - December 31, 1995), $ 6,500, "Mechanisms of genetic diversity maintenance in populations of conifers”.

Ministry of Science and Technological Policy of Russian Federation (Russia) and DAAD (Germany), International scientific projects, "EURASIA", D. V. Politov, F. Bergmann and K.
V. Krutovskii, 1993-1995, $5,100,000 rubles, 1994 – 6,000,000 rubles, 1995 – 8,000,000 rubles, "Population genetic structure of Eurasian forest trees".


University of Kentucky College of Agriculture, Vice-President of Research and Graduate Studies, and Associate Dean for Research, D. B. Wagner, R. N. Muller and K. V. Krutovskii, 1 year, May - December 1991, $4,500, "Phylogenetic relationships among stone pine species (subsection *Cembrae*, section *Strobus*, subgenus *Strobus*)".


**GRADUATE STUDENTS TRAINED**

**Total:** 9 as a chairperson, and 11 as a committee member.

**TAMU since 2005:**

Chhatre, Vikram – chair (graduated 2013)
Islam, Habibul – chair (present)
Koralewski, Tomasz – chair (graduated 2010)
Lu, Mengmeng – chair (present)
Choi, Jungwoo – committee member (graduated 2009)
Deitz, Kevin – committee member (graduated 2011)
Hawkins, Angela – committee member (present)
Johnson, Jeremy – committee member (present)
Palle, Sreenath – committee member (graduated 2010)
Peteru, Swetha – committee member (present)
Seeve, Candace – committee member (graduated 2010)
Young, Carla – committee member (present)
Venkatraman, Anand – committee member (graduated 2008)

**University of Göttingen since 2012:**

Abdulai, Issaka – chair (graduated 2013)
Porras, David – chair (graduated 2013)
Cuervo; Laura – committee member (present)
Euring, Dejuan – committee member (present)
Ngoc Quynh, Nguyen – committee member (present)

**PUBLICATIONS IN THE LAST 7 YEARS**

(Total number of publication is 215, including 60 in peer-reviewed refereed journals. Total number of citations is 1778 for 91 publications based on [http://isiknowledge.com](http://isiknowledge.com) (the Thomson ISI Web of Science database), Google Scholar and «Publish or Perish» (http://www.harzing.com/pop.htm). The impact factor (the average number of citations per paper) is 20. The *h*-index equals 25. Due to different name spellings in early publications the
search for the papers should be done using the following name spellings: “Krutovsky” or “Krutovskii” or “Крутовский”.)

Refereed


**Proceedings**


Environmental Plant Sciences (MEPS) symposium “Plant signaling systems – from cells to environment”, May 15-16, 2013, Texas A&M University, College Station, TX; 2013 MEPS Symposium Abstracts, p. 14


40. Vornam, B., K. Krutovsky, and R. Finkeldey, 2013. WP 5: Natural variability in maritime pine. Final Report at the the SUSTAINPINE final meeting, 17-19 April 2013, INRA-FCBA Campus, Cestas-Pierroton, France


45. Krutovsky, K.V. 2012. Forest Genomics for Mitigating Climate Change and Breeding Resilient Trees. Keynote presentation at the AdapCAR and IUFRO (WP 2.02.00) meeting 3-5 October 2012 in Riga, Latvia: Genetic aspects of adaptation and Mitigation: forest health, wood quality and biomass production

46. Krutovsky, K.V., V. Chhatre, and T. Byram, 2012 How genomics can help restore the Lost Pines. Western Gulf Forest Tree Improvement Program (WGFTIP) Contact Representative’s Meeting, May 22-23, 2012, Bastrop, TX, USA.
47. Chhatre, V., T. Byram, and K.V. Krutovsky, 2012 Evolutionary & population genetics of the Lost Pines: Lessons from history. Western Gulf Forest Tree Improvement Program (WGFTIP) Contact Representative’s Meeting, May 22-23, 2012, Bastrop, TX, USA.


55. Chhatre, V., T. Byram, D.B. Neale, J.L. Wegrzyn and K.V. Krutovsky 2011 Genetic structure and association mapping of adaptive and selected traits in East Texas loblolly pine breeding populations. National Association of Plant Breeding Annual Meeting, 5th Annual Plant Breeding Coordinating Committee Meeting, 1st Annual National Association of Plant


62. Koralewski, T.E., and K.V. Krutovsky, 2010 Evolution of intron-exon structure and alternative splicing: what did we learn from genomes of completely sequenced species and what can we predict for insufficiently studied species? 11th Annual Ecological Integration Symposium: Understanding Patterns and Processes Across Scales at Texas A&M University, March 26-27, 2010, College Station, TX, USA (http://theeis.tamu.edu/old/EIS_Student_Symposium_Schedule.pdf)


78. Krutovsky, K. V. 2007 Population genomics and tree improvement. Western Gulf Forest Tree Improvement Program (WGFTIP) Contact Representative’s Meeting, May 8–9, 2007, Beavers Bend State Park, Broken Bow, Oklahoma, USA


Others


103. Tarakanov, V. V., K. V. Krutovsky and J. Turok, 2009 The 2nd International Conference on Forest Genetic Resources in Siberia (review). *Bioversity Newsletter for Europe* 39: 15


Ronald E. Lacey  
Department of Biological and Agricultural Engineering  
302A Scoates Hall, 2117 TAMU  
College Station, Texas 77843-2117  
Phone: 979-845-3967  
Email: ron-lacey@tamu.edu

Education and Training
University of Kentucky Agricultural Engineering PhD 1992
University of Kentucky Agricultural Engineering MS 1979
University of Kentucky Agricultural Engineering BS 1977

Professional Engineer, State of Texas, License Number 86580

Professional Experience
2004 – present  Professor, Biological and Agricultural Engineering, Texas A&M University. Research focused on the systems engineering and design of bioenergy technologies. Teaching assignments are the two semester capstone engineering design sequence and a graduate course in experimental design.

1998 – 2004  Associate Professor; Biological and Agricultural Engineering, Texas A&M University. Research focused on production of plants under controlled, extreme environments. Teaching assignments were to teach the two semester capstone engineering design sequence and an undergraduate course in instrumentation and process controls.

1992 – 1998  Assistant Professor, Biological and Agricultural Engineering, Texas A&M University. Research focused on food and biochemical processes. Teaching assignments were to teach an undergraduate course in instrumentation and process controls, develop a new undergraduate course in bioprocessing, and a new graduate course in remote sensing.

1985 – 1990  Director of Engineering Services, Taco Bell, Inc., Irvine, CA. Responsible for specification, design, and testing for all restaurant equipment and process flow for new and existing products in all restaurants. Created system models and simulations to increase throughput by 50% at peak sales times.

1983 – 1985  R&D Engineer, Pizza Hut, Inc., Wichita, KS. Responsible for specification, design, and testing for restaurant equipment and process flow for several new and existing products in all domestic restaurants.


Recent Publications

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¹ PhD student under the direction of Dr. Lacey


**Synergistic Activities**

Expertise in systems engineering and process control has led to significant and broad long term collaborative efforts with several divergent disciplines including horticultural scientists, hydrologists, economists, air quality researchers, and poultry and animal scientists. This has included developing techniques for sensor integration and data fusion to address land cover and land use change; fusion of sensors to assess crop health at the field scale; designing and perfecting a unique, low pressure plant growth facility to permit long term studies of photosynthesis and respiration at hypobaric pressures with elevated CO2 and variable O2 partial pressures; evaluation of livestock wastes as potential energy sources and as sources of air pollution; and application of advanced engineering methodology to food processing systems. Current research focus is on techno-economic and life cycle analysis of bioenergy systems. Practical experience in systems dynamics, continuous, and discrete simulation for agricultural and food processing applications with two different Fortune 500 companies resulting in significant improvements to profitability and system capacity. Experience in management of personnel, resources, and projects.
Name: Leonardo Lombardini
Address: Dept. of Horticultural Sciences, Texas A&M University
Telephone: (979) 458-8079       Fax: (979) 845-0627
E-mail: l-lombardini@tamu.edu

Education/Training
Ph.D, Horticulture. 1999. Michigan State University, East Lansing, MI
Laurea, Forestry 1993. Università degli Studi di Firenze, Italy

Positions and Employment
2008-present  Associate Professor, Dept. of Horticultural Sciences, Texas A&M University -
Interdepartmental affiliation: Molecular and Environmental Plant Sciences (MEPS)
2002-2008    Assistant Professor, Dept. of Horticultural Sciences, Texas A&M University
1995-1999    Research Assistant, Michigan State University
1994-1995    Research Associate, Università di Pisa, Italy
1993-1994    Research Associate, National Research Council, Italy
1985-1993    Graduate Assistant, Università di Firenze, Italy

Awards and Honors
– Recipient of the J. Creighton Miller, Jr. Distinguished Educator Award 2012. Presented at the 72nd
  Annual Meeting of the Southern Region American Society for Horticultural Science, held in
  Birmingham, AL on February 3-6, 2012

Professional Experiences (last 4 years)
Courses taught: Undergraduate: Horticulture Learning Community, International Horticulture, Nut
  Culture, Cultivating Global Leaders in Agriculture; Graduate: Molecular and Physiological Basis
Student training: Served as advisor for 6 undergraduate students for their research project.
  Currently primary advisor for 4 M.S. students, 1 Ph.D. student and member of 4 M.S., 1 M.Ag.
  , 1 M.Ed., and 5 Ph.D. graduate student committees.
Study Abroad Programs: Developed and lead study abroad programs in Italy, Guatemala and Costa
  Rica.
International activities: Conducted research projects in collaboration with Mexican and Italian
  counterparts for over a decade.

Competitive Funding (Last 4 Years)
Global leaders in agriculture: enhancing participation in undergraduate experiential learning
  opportunities for minorities. 2009. USDA Higher Education Challenge (HEC) Grant. (co-PI: G.
  Wingenbach). $137,840
Anti-inflammatory effects of pecan extracts and fractions of different pecan cultivars. 2010. USDA –
  ‘Designing food for health’. (co-PI: L. Cisneros-Zevallos). $22,000

**Selected refereed publications (last 4 years)**


Book chapters (last 4 years)

Peer-reviewed journal articles (last 4 years)

Scientific abstracts (last 4 years)
2. Lombardini L. Challenges, stratagems, and gratification of teaching a study abroad course in horticulture to non-major students. 69th ASHS-SR Meeting. Atlanta, GA. Jan. 31-Feb 2, 2009.


CURRICULUM VITAE: CAROL A. LOOPSTRA

Carol A. Loopstra
Associate Professor
Department of Ecosystem Science and Management
Texas A&M University

CONTACT INFORMATION
324 Horticulture Forest Science Building
Office Phone: 979-862-2200
e-mail: c-loopstra@tamu.edu

EDUCATION AND TRAINING

<table>
<thead>
<tr>
<th>Institution</th>
<th>Major</th>
<th>Degree, Year</th>
</tr>
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<tbody>
<tr>
<td>Oregon State University</td>
<td>Forest Management</td>
<td>BS, 1979</td>
</tr>
<tr>
<td>Oregon State University</td>
<td>Forest Science</td>
<td>MSc, 1984</td>
</tr>
<tr>
<td>North Carolina State University</td>
<td>Genetics and Forestry</td>
<td>PhD, 1992</td>
</tr>
</tbody>
</table>

  Dissertation Title: Xylem Specific Gene Expression in Loblolly Pine
  Dissertation Advisor: Ronald R. Sederoff, PhD

ACADEMIC APPOINTMENT HISTORY

2001-present  Associate Professor, Dept. of Ecosystem Science and Management, Texas A&M University, College Station, TX, USA
2002-2006  Associate Department Head for Graduate Programs, Dept. of Forest Science, Texas A&M University
1995-2001  Assistant Professor, Dept. of Forest Science, Texas A&M University
1995-present  Member of the Faculty of Molecular and Plant Sciences, Texas A&M University
1995-present  Member of the Faculty of Genetics, Texas A&M University
2000-present  Member of the Faculty of Biotechnology, Texas A&M University
1993 - 1994  Research Officer, The University of Queensland, Brisbane, Australia*
1992 - 1993  Research Fellow, Griffith University, Brisbane, Australia*
  • These were the same postdoctoral position. Our university affiliation changed.

TEACHING

COURSES TAUGHT (RECENT)

ESSM 203 Forest Trees of North America (formerly FORS 203 Dendrology) (70 to 96 students/semester – taught 15 semesters)
GENE / MEPS 411 Biotechnology for Crop Improvement (15 – 20 students / semester – taught 16 semesters)

GRADUATE STUDENTS SUPERVISED

PhD Students – 6 graduated, 1 current
Mengmeng Lu, Ph.D., Molecular and Environmental Plant Sciences, current (co-chair)
Candace Seeve, Ph.D., Molecular and Environmental Plant Sciences, 2010
- Currently Research Molecular Biologist, USDA, Columbia, Missouri
Sreenath Palle, Ph.D., Molecular and Environmental Plant Sciences, 2010
- Currently Postdoctoral Research Associate, Dept. of Soil and Crop Sciences, TAMU
Suk-Hwan Yang, Ph.D., Molecular and Environmental Plant Sciences, 2004
- Currently Scientist at Monsanto
G. "Jack" Jagadeeswaran, PhD, Genetics, Texas A&M University, 2001 (co-chair)
Hongyan Wang, Ph.D., Plant Physiology, Texas A&M University, 2000
- Currently Postdoctoral Research Associate, University of Massachusetts
Eun-Gyu No, Ph.D., Plant Physiology, Texas A&M University, 1999
- Currently Assistant Research Scientist, TAMU

MS Students – 2 graduated
Pratheesh Sathyan, M.S., Molecular and Environmental Plant Sciences, 2004
- Currently Postdoctoral Fellow at MD Anderson Cancer Center
Angie Cheng, M. Biotechnology, Professional Program in Biotechnology, 2002
- Currently Staff Scientist at Life Technologies

Served as a Committee Member for
- 19 PhD Students
- 3 PhD Students as GCR
- 5 Masters Students

RESEARCH

My primary research interests involve understanding the role gene regulation plays in wood formation and resistance to abiotic stresses in forest trees. Most of my research, going back to my days as a PhD student, has been on loblolly pine, the most commercially important tree species in the southeastern U.S. However, I have also worked on pecan and was recently involved in a project to look at salt and drought tolerance in Pongamia, an oil seed species that has great potential for southern Texas. I consider the training of graduate students to be one of my most important roles as a faculty member at Texas A&M University so much of my research is done in collaboration with students. Most of my projects in the past 10 years have been multi-institutional with collaborators from other universities, the U.S. Forest Service, the Texas Forest Service and industry.

PUBLICATIONS


CHAPTERS IN BOOKS:


GRANT FUNDING


Martin et al. (~54 co-PIs) Southern Conifer Climate Change Cap. 2011 – 2016. USDA AFRI. $20,000,000 total.


CURRICULM VITAE

NAME: Clint William Magill

TITLE/ADDRESS: Professor of Genetics
Department of Plant Pathology & Microbiology
Texas A & M University
College Station, Texas  77843
(409) 845-8250  FAX: 845-6483
E-Mail: c-magill@tamu.edu

EDUCATION & HONORS:

UNIVERSITY: University of Illinois, 1959-1963. B.S in Agricultural Science awarded June, 1963. Advisor, Dr. D. E. Alexander, Agronomy Department. Honors and Awards: Bronze Tablet, Borden Award, Outstanding Senior in Agriculture, Phi Kappa Phi, Phi Eta Sigma, Chicago Tribune Silver Medal (twice), and an NSF Undergraduate Fellowship for summer research to attempt to cross tetraploid corn and sorghum.

GRADUATE SCHOOL: Cornell University, 1963-1968. Ph. D. in Genetics, 1968. Chairman of Advisory Committee; Dr. Adrian Srb, Members; Dr. Joe Calvo, Biochemistry, and Dr. Walter Federer, Biometry. Financial support included a NSF Cooperative Graduate Fellowship, The Andrew Dixson White Fellowship, and an NIH Traineeship. Research involved complementation and reversion of morphological mutants of Neurospora crassa.

TAMU 1986: College Level Award for Excellence for Undergraduate Teaching
2008-2009 Speaker, TAMU Faculty Senate
2009: Named a Fellow of the American Association for the Advancement of Science

PROFESSIONAL EXPERIENCE:


EMPLOYMENT: 1969-1975 Assistant Professor, Texas A&M University, Texas Agricultural Experiment Station (50% Teaching, 50% research).
1975-1989 Associate Professor (75% Teaching, 25% research).
1989- Professor (50% Teaching, 50% Texas Agrilife Research)

CURRENT CLASSROOM TEACHING

Genetics 310, Principles of Heredity; Genetics 603 Introductory Graduate Genetics; BESC 481 and GENE 482, Undergraduate Seminar Presentations

RESEARCH

MOST SIGNIFICANT ACHIEVEMENTS

• Identification of multiple amino acid transport systems in Neurospora crassa
• Demonstration of parasexual recombination in the rice blast fungus
• Development of Texmont Rice, a high yielding, early maturing doubled haploid variety via anther culture
• Demonstration of high levels of DNA methylation in DNA of resting spores Phymatotrichum omnivorum
• Contributions to development of an RFLP map for sorghum
• Identification of host defense pathways in cotton and sorghum inoculated with spores of fungal pathogens
• Development of antisense constructs of cadinene synthase to lower gossypol production in cottonseed (in collaboration with Dr. Chan Benedict)
• Tagging of multiple genes for resistance to four different sorghum pathogens
• Use of AFLP and SSR technology to measure genetic variability in sorghum and populations of pathogens
• Development of PCR tools for identification of the oomycetes that cause downy mildew in cereal crops.
• Potential nematode resistant cotton via RNAi (collaboration with Keerti Rathore and Jim Starr)

Edited Publications (Since 2005)
Magill, C.W. 2013 Bridging Classical and Molecular Genetics of Sorghum Disease Resistance, In “Genomics of the Saccharinae” ed. Patterson, A.H., Ch. 15, pp347-367.
THOMAS D. MCKNIGHT
Department of Biology
Texas A&M University
College Station, TX 77843

CONTACTS:
telephone  (409) 845-3896
e-mail  mcknight@bio.tamu.edu

EDUCATION:
B.S.  Microbiology, University of Georgia, 1975
Ph.D.  Molecular and Population Genetics, University of Georgia, 1983

PROFESSIONAL EXPERIENCE:
1982-1985  Postdoctoral Associate, Atlantic Richfield Plant Cell Research Institute, Dublin CA
1985-1991  Assistant Professor, Department of Biology, Texas A&M University
1985-  Member of Interdepartmental Faculties of Genetics and Plant Physiology
1991-2002  Associate Professor, Department of Biology, Texas A&M University
2002 -  Professor, Department of Biology, Texas A&M University
2003 -  Associate Head, Department of Biology, Texas A&M University
2003 - 2007  Director, Introductory Biology Program, Texas A&M University
8/2008 -12/08  Acting Department Head, Department of Biology, Texas A&M University
1/2013 -  Interim Department Head, Department of Biology, Texas A&M University

PROFESSIONAL ACTIVITIES AND HONORS:
1980-1982  NIH Predoctoral Trainee in Genetics
1986-1991  Editor for GENE
1987  Organizing Committee for 1989 AIBS Genetics Symposium
1988- 2000  Organizing Committee for Lost Pines Molecular Biology Conference
1994  Association of Former Students Distinguished Teaching Award
1997- 2002  University Council of Master Teachers
2001 - 2005  NSF Biochemistry of Gene Expression Review Panel
2001 - 2005  Director, Texas A&M Microarray Service Facility
2009 – 2010  National Academy of Sciences Education Fellow in the Life Sciences

PUBLICATIONS SINCE 2000 (from 46 Total):


**RESEARCH PRESENTATIONS SINCE 2000:**

**Scientific Meetings**

*Telomerase Structure, Function and Regulation in Arabidopsis thaliana*, International Plant Molecular Biology Conference, Quebec City, June 20, 2000.


**Invited Seminars**

*Plant Telomeres, the Ends and the Means*, Texas A&M University, Interdepartmental Program in Molecular and Environmental Plant Sciences, January 27, 2000.

*Structure, Function and Regulation of Telomerase in Plants*, Texas A&M University, Interdepartmental Program in Genetics, September 7, 2000.

*Telomeres, Telomerase and Stability of the Plant Genome*, University of Georgia, Departments of Botany and Genetics, September 25, 2000.

*Regulation of telomerase in Arabidopsis*. University of Texas, Institute of Molecular, Cellular and Developmental Biology, November 6, 2000.


*Activation of Telomerase by Synergistic Action of a Zinc-finger Protein and Auxin*, Graduate Program in Plant Biology, University of Texas, October 3, 2003.

*TELOMERASE ACTIVATOR1 Induces Telomerase Activity and Potentiates Responses to Auxin in Arabidopsis*, Virginia Polytechnic Institute, Department of Plant Physiology, Plant Pathology and Weed Science, January 26, 2005.

*Role of BT2 ubiquitin ligase in telomerase regulation and drought tolerance in Arabidopsis*, Texas A&M University, Interdepartmental Program in Genetics, March 1, 2007.

*Regulation of telomerase activity and hormone responses in Arabidopsis by the BT2 ubiquitin ligase*, Donald Danforth Plant Science Center, October 31, 2007.

*Regulation of telomerase activity and hormone responses in Arabidopsis by the BT2 ubiquitin ligase*,
CURRENT RESEARCH SUPPORT:
Title: Solanum pennellii, a potential feedstock for biogasoline production
Amount: $99,995
Period: 2/15/12 to 9/30/14
PI: T.D. McKnight (subcontract from $368,343 parent award to Virginia State University)

Title: Transcriptome profiling of Solanum pennellii, a non-crop source of biogasoline
Agency: Whole Systems Genome Initiative
Amount: $10,000
Period: 8/15/12 to 8/14/13
Co-PIs: T.D. McKnight and A.E. Pepper

Title: Meeting: MEPS 2013: Plant Signaling Systems – From Cells to Environment
Agency: National Science Foundation (124501)
Amount: $13,000
Period: 8/15/12 to 8/14/13
Co-PIs: H. Koiwa, W. Versaw, T.D. McKnight, S. Finlayson, C. Loopstra

PREVIOUS RESEARCH SUPPORT: PI or co-PI on $5,663,048 in total research support from competitive federal, state, and local funds since 1986.

TEACHING:
Undergraduate Courses -
BIOLOGY 481 - The Biology of AIDS (1996-2001)
BIOLOGY 489 - DNA Sequencing Techniques (Lecture and Lab) (2000)
BIOLOGY 112 – Introductory Biology II (2010-2013)
BIOLOGY 328 – Economic Botany (2011-2012 – taught with one other professor)

Graduate Courses -
BIOLOGY 671 - Transgenic Plants (1987-1990)
BOTANY 636 - Plant Cell Biology (1991-1994 - taught with one other professor each year)
BIOLOGY 689 - Biology of Natural Products (1997)
BIOLOGY 681 - Plant Molecular Biology Journal Club (1997-1999)
BOTANY 635 - Plant Molecular Biology (1989-2001- taught with one other professor in 1989 and from 1997 to 2001)
Graduated Ph.D. Students

Daniel R. Bergey, Ph.D. 1993. Postdoctoral work with plant responses to pathogens with Dr. Clarence (Bud) Ryan at the Institute of Biological Chemistry, Washington State University. Currently Associate Professor in the Department of Biology, Black Hills State University.

Lu Hua, Ph.D. 1999. Postdoctoral work with Dr. Jean Greenburg, University of Chicago. Currently Associate Professor at University of Maryland, Baltimore County.

Keat Teoh, Ph.D. 2001. Postdoctoral work on secondary metabolism in plants with Dr. Norman Lewis at the Institute of Biological Chemistry, Washington State University. Currently Research Assistant Professor at Arkansas State University.

Elizabeth Gorman, Ph.D. 2002. Postdoctoral work in Department of Entomology, Texas A&M. Currently at Texas Institute for Genomic Medicine, Houston.


Ketan Patel, Ph.D. December, 2006. Chief of Molecular Diagnostics, Armed Forces Institute of Pathology, Washington, DC.

Kranthi Mandadi, Ph.D. August 2010. Postdoctoral Associate, Department of Plant Pathology, Texas A&M University. (MEPS Student)

Anjali Misra, Ph.D. December, 2011. Postdoctoral Associate, University of Florida Agricultural Experiment Station, Fort Myers, Florida. (MEPS Student)

SERVICE:

National
Organizing Committee for 1989 AIBS Genetics Symposium
Review panel member for the NSF program in Biochemistry of Gene Expression, 2001 - 2005

State
Organizing committee for the Lost Pines Molecular Biology Conference, 1988 to 2002

University
Faculty Director, Affymetrix Microarray Facility, 2001-2004
Institutional Biosafety Committee, 1994 - 2002
Council of Master Teachers, 1997 - 2003
Protein Chemistry Laboratory Users Committee, 1996 - 2002
Gene Technologies Laboratory Users Committee, 1998 - present
Executive Committee of the Interdepartmental Faculty of Plant Physiology, 1989-1991 and 1995-1996
Executive Committee of the Interdepartmental Faculty of Genetics, 2010 – present
Organizing Committee for Annual Molecular and Environmental Plant Science Symposium 2005-2007 (Chair in 2005) and 2013

College
College of Science Research Committee, 1993 - present
College of Science Instructional Enhancement and Equipment Fund Committee, 1995 - 2003

Department (only major assignments for the last five years are listed)
Associate Department Head, 2003 – present
Interim Department Head, 1/2013 - present
Chair of Annual Faculty Review Committee, 2003 - present
Undergraduate Curriculum Committee (ex officio), 1999 - present
Director of Introductory Biology Program, 2003 – 2007
GEORGIANNE W. MOORE  
Associate Professor  
Department of Ecosystem Science & Management, Texas A&M University  
2138 TAMU, College Station, TX 77843-2138  
Phone: (979) 845-3765, Email: gwmoore@tamu.edu  
Citizenship: Natural-born U.S. Citizen

EDUCATION AND TRAINING
Georgia Institute of Technology  Biology  B.S. 1995  
Oregon State University  Environmental Sciences  Ph.D. 2003  
Texas A&M AgriLife Research  Ecohydrology  Postdoc 2003-2004

RESEARCH AND PROFESSIONAL EXPERIENCE
Associate Professor of Ecohydrology, Department of Ecosystem Science & Management, Texas A&M University, 2012-present  
Assistant Professor of Ecohydrology, Department of Ecosystem Science & Management, Texas A&M University, 2005 - 2012  
Postdoctoral Research Associate, Texas Agricultural Experiment Station, Texas A&M University, Uvalde, TX, 2003-2004  
Graduate Research Assistant, Department of Forest Science, Oregon State University, 2001-2003  
Graduate Teaching Assistant, Department of Environmental Sciences, Oregon State Univ., 1999-2000

PUBLICATIONS (Most recent 3 years)


Book Chapters


**GRANTS (Most recent 3 years)**


**TAMU Tier-One Program.** (9/13-8/16) Ecology and Evolutionary Biology. G. Rosenthal (PI), G. Moore (PI), and 10 others. $300,000. Internal competitive.


**USDA National Institute of Food and Agriculture** (7/06-6/11) Efficient Irrigation for Water Conservation in the Rio Grande Basin. B. Harris (PI) and 29 co-PI’s, including G. Moore. Six separate awards totaling $6,250,009: 2005 ($1,388,981), 2006 ($1,548,069), 2008 ($1,151,931), 2009 ($1,081,453), and 2010 ($1,079,575). Congressional appropriations. Annually, submit internal competitive proposals to B. Harris.

## GRADUATE STUDENT PROGRAM

### Total Students by Degree

<table>
<thead>
<tr>
<th>Graduate Degree</th>
<th>Total</th>
<th>Completed</th>
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<tbody>
<tr>
<td></td>
<td>Chair or Co-chair</td>
<td>Member</td>
</tr>
<tr>
<td>Ph.D.</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>Master of Science</td>
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<td>14</td>
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<tr>
<td>Masters (non-thesis option)</td>
<td>1</td>
<td>6</td>
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<tr>
<td><strong>Total:</strong></td>
<td><strong>7</strong></td>
<td><strong>28</strong></td>
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### Chair or Co-chair

<table>
<thead>
<tr>
<th>Ph.D.</th>
<th>Master of Science</th>
<th>Masters Non-thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rosaleen March A</td>
<td>^Fan Li 2013</td>
<td>Blake Alldredge 2010</td>
</tr>
<tr>
<td>Caitlyn Cooper A</td>
<td>^Li Kui 2011</td>
<td>Jean Devlin 2013</td>
</tr>
<tr>
<td></td>
<td>^David Watts 2009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>David Barre 2009</td>
<td></td>
</tr>
</tbody>
</table>

### Committee Member

<table>
<thead>
<tr>
<th>Ph.D.</th>
<th>Master of Science</th>
<th>Masters Non-thesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alyson McDonald</td>
<td>Rebecca Pizano</td>
<td>Kathryn Herzog 2013</td>
</tr>
<tr>
<td>Pablo Delclos A</td>
<td>Natanya Hayden</td>
<td>Stephanie Powers 2010</td>
</tr>
<tr>
<td></td>
<td>Ross Klein 2010</td>
<td>Michelle Hollingsworth 2009</td>
</tr>
<tr>
<td>James Tracy A</td>
<td>Leonardo Rivera</td>
<td>Christina Bernal 2008</td>
</tr>
<tr>
<td>Steve Potter A</td>
<td>Lindsey Staszek</td>
<td>Steve Bereyso 2007</td>
</tr>
<tr>
<td>Josh Gunn A</td>
<td>Allison Parnell</td>
<td>Richard Wilson 2006</td>
</tr>
<tr>
<td>Ray Kamps A</td>
<td>Ronald Navarrete  2009</td>
<td></td>
</tr>
<tr>
<td>Adam Lee A</td>
<td>Constanza Cosimano 2009</td>
<td></td>
</tr>
<tr>
<td>Haly Neely A</td>
<td>Clint Robertson 2007</td>
<td></td>
</tr>
</tbody>
</table>

### 4.5.4 Committee Member – Outside TAMU

<table>
<thead>
<tr>
<th>Master of Science</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>^Matthias Vanduren A</td>
<td>^Enrolled in PhD program at Penn State University</td>
</tr>
<tr>
<td>^Kelly Goodsheller 2010</td>
<td>^Enrolled in PhD program at SUNY Syracuse</td>
</tr>
<tr>
<td>^Heather Dammeyer 2010</td>
<td>^Enrolled in PhD program at University of Houston</td>
</tr>
<tr>
<td>^Iris Pit 2010</td>
<td>^Leuven University, Belgium – Thesis reviewer</td>
</tr>
<tr>
<td>^Rebecca Elkington 2009</td>
<td>^Texas State University</td>
</tr>
<tr>
<td>^Hloniphani Mthunzi 2009</td>
<td>^Utrecht University, Netherlands - Thesis reviewer</td>
</tr>
<tr>
<td></td>
<td>^University of Fort Hare, South Africa - Thesis reviewer</td>
</tr>
</tbody>
</table>
SYNERGISTIC ACTIVITIES

- Faculty member of interdisciplinary interdepartmental research and graduate programs in Ecology and Evolutionary Biology, Molecular and Environmental Plant Sciences, and Water Management and Hydrological Sciences
- Undergraduate Research: Mentoring team member for the “Cloud Forest Ecohydrology” project, a NSF Research Experience for Undergraduates in Costa Rica.
- Professional Service - Conferences: Convening AGU Fall Meeting 2012 session on “Ecohydrology of Tropical Forests: Processes, Feedbacks, and Global Change.”
- Project leader for undergraduate high impact learning activity related to “Bastrop Fire Restoration” as part of the campus-wide ‘Integration of Multidisciplinary Research and Creative Activities into the Learning Experience’ program at Texas A&M University.
- Currently advisor for one PhD student (USDA National Needs PhD Fellow in Forest Resources and Global Change) working on remote sensing of tree mortality and two masters students. Also hosting one visiting masters student from Leuven University in Belgium.

POTENTIAL CONFLICTS OF INTEREST

**Collaborators:** Barbara J. Bond, Oregon State University; Sam Brody, Texas A&M University-Galveston; Tanya Doody, CSIRO Australia; John Goolsby, USDA-ARS, Weslaco; Chris Houser, Texas A&M University; Kevin Hultine; Northern Arizona University; Julia A. Jones, Oregon State University; Marcy Litvak, University of New Mexico; Rick Meinzer, US Forest Service; Kevin McInnes, Texas A&M University; Pamela Nagler, US Geological Survey; M. Keith Owens, Texas Agricultural Experiment Station; Karin Rebel, Utrecht University; George Rogers, Texas A&M University; Robert Washington-Allen, Texas A&M University; David Watts, Penn State University; Jason West, Texas A&M University

**Graduate and Postdoctoral Advisors:** Barbara J. Bond, PhD Advisor, Oregon State University; Julia A. Jones, PhD Advisor, Oregon State University; M. Keith Owens, Postdoc Advisor, Oklahoma State University (formerly Texas A&M AgriLife Research)

**Students Supervised at TAMU:** Rosaleen March PhD (current), David Barre, MS; David Watts, MS; Li Kui, MS; Fan Li, MS; Blake Aldredge, Masters of Water Management; Jean Devlin, MS (current); Christina Bishop, MS (current), Deseri Nally, Undergraduate Research Scholar
CURRICULUM VITAE

NAME: John Emerson Mullet
Department of Biochemistry & Biophysics
Texas A&M University
College Station, Texas 77843
(979) 845-0722, jmullet@tamu.edu

Ph.D., Cell Biology, University of Illinois, Champaign, 1976-1980.

AWARDS: Phi Beta Kappa, Summa Cum Laude
Faculty Distinguished Achievement Award
Christine Richardson Professor, 1991-1996
Perry Adkisson Chair in Agricultural Biology, 1996 - present

EXPERIENCE: Director, Institute for Plant Genomics and Biotechnology, 1999-2005
Director, Crop Biotechnology Center, 1993-1999
Professor, Department of Biochemistry and Biophysics, 1991- present
Associate Professor, Department of Biochemistry and Biophysics, 1986
Assistant Professor, Department of Biochemistry & Biophysics, 1983
NIH Postdoctoral Fellow, Rockefeller University, 1980-1983
NATO research at the CNRS, France, 1980; Japan, 1978

PROFESSIONAL, SCIENTIFIC AND HONOR SOCIETY ACTIVITIES:
NSF - Developmental Biology Panel, 1989-1992
USDA - CRGO Photosynthesis Panel Member, 1985, 1986
NRI Rice Genomics panel, 2003; NRI panel, 2004, 2006
American Society of Plant Physiologists; Biochemistry and Molecular Biology
Member of Texas A&M Plant Physiology, Genetics, Molecular and Cell Biology Faculty
Co-Editor - The Plant Cell, 1996-1998
American Society of Plant Physiology Board of Trustees, 1993-1996
National Agricultural Biotechnology Committee Representative, 1995-2001
Noble Foundation, Non-Resident Fellow, 1998-2003
Noble Foundation Board Advisory Trustee, 2004-2006

CURRENT GRANT SUPPORT:
CERES (Co-PI): Designing Sorghum for Bioenergy, 9/07-9/15
Pioneer (PI): Sorghum Drought Tolerance Traits, 6/08-1/15
DOE (Co-PI): Systems Level Regulation of Rhythmic Growth Rate and Biomass Accumulation in Grasses, 10/11-10/14
DOE (PI): Engineering Energy Sorghum Feedstocks, 12/12-12/17
PUBLICATIONS (Total 167):


Bhimanagouda S. Patil

**NAME**

**POSITION TITLE**

Professor and Texas A&M AgriLife Fellow

Director, Vegetable and Fruit Improvement Center

**eRA COMMONS USER NAME** (credential, e.g., agency login)

Bpatil

**EDUCATION/TRAINING** (Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>University of Agricultural Sciences, India</td>
<td>B.S.</td>
<td>1984</td>
<td>Agriculture</td>
</tr>
<tr>
<td>University of Agricultural Sciences, India</td>
<td>M.S.</td>
<td>1986</td>
<td>Horticulture</td>
</tr>
<tr>
<td>Texas A&amp;M University, College Station, Texas</td>
<td>Ph.D.</td>
<td>1994</td>
<td>Horticulture</td>
</tr>
<tr>
<td>Washington State University, Prosser, WA</td>
<td>Postdoctoral</td>
<td>1994-95</td>
<td>Horticulture</td>
</tr>
<tr>
<td>University of California, Parlier, CA</td>
<td>Postdoctoral</td>
<td>1996-97</td>
<td>Horticulture</td>
</tr>
</tbody>
</table>

**A. Personal Statement**

Dr. Patil has been actively involved in both research and educational activities related to global level ‘Foods for Health’. His research, in collaboration with trans-disciplinary scientists, related to bioactive-derived assays led to isolation and characterization of certain bioactive compounds in citrus and turmeric and other vegetables. His research is also focused on pre and postharvest effects on bioactive compounds in citrus, onion and recently his work is focused on other vegetables, fruits and spices including turmeric. He works with 40 VFIC industry members such as seed companies (Monsanto, Lark Seeds), retailers and wholesalers (HEB, Kroger), processors (Campbell Soup Company, Tropicana Nutrition Institute [Pepsico Inc], Beverage Institute of Health and Wellness [Coca-Cola] and Texas Citrus Exchange), and other commodity groups. He has published extensively in scientific papers in peer-reviewed journals, editor reviewed proceedings, book chapters, edited a book. He has extensive experience in handling and implementation of multi-state and multi-disciplinary grants. For example, he was the lead PI on USDA-IAFS grant which was focused on multi-state effort to isolate and characterize citrus limonoids and understand their biological activities.

**B. Positions and Honors**

**Positions and Employment:**

- 2005 – Present: Director, Vegetable & Fruit Improvement Center, TAMU Horticulture
- 2008- Present: Professor, Department of Horticultural Sciences, TAMU
- 2005 –2008: Associate Professor, Dept. of Horticultural Sciences, TAMU
- 2002 - 2004: Associate Director, Vegetable & Fruit Improvement Center, TAMU
- 2002 – 2004: Associate Professor, Texas A&M University-Kingsville, TX
- 1997 – 2002: Assistant Professor, Texas A&M University-Kingsville, TX
- 1996 – 1997: Faculty (part time), California State University, Fresno, CA
- 1992 – 1994: Research Assistant/Teaching Assistant, Texas A&M University, TX
- 1989 – 1991: Assistant Professor, University of Agri., Sciences, Dharwad, India

**Other Experience and Professional Membership**

- 2009- Co-convenor, Third Int. Symposium on Human Health Effects of FAV, Avignon, France
- 2008- Co-chair (goal-3)- National Vegetable Crop Initiative- Provide white paper to SCRI
- 2007-08 Chair, Division, Agri. Food Chemistry (Centennial celebration), ACS
- 2008 Chair, International Symp Pre & Post Harvest effects on Bioactive Compounds-AGFD-ACS
- 2006-07 Program Chair, Division, Agri Food Chemistry, American Chemical Society
- 2007- Chair, Second International Symposium on Human Health Effects of FAV, Houston, TX
2005 Chair, Colloquia “Role of Hort. in Foods for Health”, ASHS
2005 Co-Chair, Int. Sym. on Human Health Effects of FAV, Quebec city, Quebec, Canada

Honors:
2013- Distinguished Service Award-American Chemical Society- Division of Agriculture and Food Chemistry
2013- American Society for Horticultural Sci. Outstanding Graduate Education Award
2013- Dean’s Outstanding Achievement-Research, Texas A&M University
2010 Vice Chancellor Research Excellence (on campus), Texas A&M University, Texas AgriLife
2009 Fellow, Division of Agri. and Food Chemistry, American Chemical Society
2009 Fellow, American Society for Horticultural Sciences
2009 Fellow, Texas AgriLife, Texas A&M University, College Station, TX
2005 Exceptional Research Productivity Award, Texas A&M University-Kingsville
2005 Karnataka State Rajoythsava Award-Award was given by the Governor of the State
2004 Outstanding Young Scientist Award, Div of Ag & Food Chemistry, Amer Chem Society
2003 Paul Harris Fellow (Rotary Foundation)
2003 Outstanding Young Scientist Award (Ass of Ag Sci. of Indian Origin, ASA, SSSA, & CSA)
2003 Research and Excellence Award (College of Agriculture & Human Sciences, TAMUK)
2002 Achievement Excellence Award, India Association of the Rio Grande Valley
2001 Outstanding Teacher Award, TAMU-Kingsville, Dept of Agronomy & Resource Sciences

C Selected Peer-reviewed Publications (selected peer reviewed publications out of total 146)


PMI20471125

D. Research Support

1R01CA168312-01 (Chapkin) 09/01/2011 – 08/31/2016 (3 calendar)
NIH/NCI, Chemoprotective effects of natural products on colonic adult stem cells.
The use of highly novel, Lgr5-LacZ and Lgr5-EGFP-IRES-cre ERT2 knockin mouse models to visualize and isolate adult intestinal stem cells, examine their response to chemotherapeutic natural botanical products, and establish their stem cell-specific gene expression profile (transcriptome)
Role: PI

TB-8056-08 (Patil) 06/01/2008-06/30/2011 (0.9 calendar)
Texas Department of Agriculture (TDA)
Optimization of postharvest storage conditions to maintain fruit quality and health maintaining properties of grapefruit. No scientific or budgetary overlap with the present proposal.
Role: PI

2009-34402-19831 (Patil) 09/2009-08/2012 (1.2 calendar)
USDA Special Grant
Designing Food for Health- The major goal of this project to optimize, characterize bioactive compounds in fruits, vegetables and nuts and understand their role human health. This is multidisciplinary project with 23 scientists. No scientific or budgetary overlap with the present proposal.
Role: PD

2010-34402-20875 (Patil) 09/2010-08/2013 (1.2 calendar)
USDA Special Grant
Designing Foods for Health- The major goal of this project to optimize, characterize bioactive compounds in fruits, vegetables and nuts and understand their role human health. This is multidisciplinary project with 23 scientists. No scientific or budgetary overlap with the present proposal.
Role: PD

2006-38411-17085 (Patil) 09/2006-08/2011 (1.8 calendar)
USDA Higher Education Challenge Grant
The Science of Foods for Health: A Multi-Institutional, Multi-State Effort for Undergraduate Education- The focus is on increasing undergraduate students’ (1) interest in careers in agriculture, food science, nutrition, biochemistry, chemistry, medicine, toxicology and related interdisciplinary fields, (2) knowledge and understanding of the relationships between research findings and practical use of bioactive compounds, and (3) abilities to analyze complex information, make science-based decisions, and effectively communicate science-based knowledge.
No scientific or budgetary overlap with the present proposal.
Role: PD
Curriculum Vitae

C. O. Patterson
Professor Emeritus of Biology
Professor Emeritus of Biotechnology, Professor Emeritus of Molecular & Environmental Plant Sciences
Department of Biology, Texas A&M University
College Station, Texas 77843-3258
phone (979) 845-2187 e-mail: cop@mail.bio.tamu.edu FAX: (979) 845-2891

EDUCATION:

Postdoctorate  Indiana University at Bloomington (1972-77), Microbiology
Ph.D.  University of Texas at Austin (1971), Zoology
B.A.  University of Texas at Austin (1964), Honors

ACADEMIC EXPERIENCE:

2011 - present  Professor Emeritus, Department of Biology, Texas A&M University
2006 - present  Professor, Department of Biology, Texas A&M University
1984 - 2006  Associate Professor, Department of Biology, Texas A&M University.
1984 - 1983  Associate Professor, Department of Biology, Texas A&M University. Director of
Freshman Biology Programs
1980 - 1983  Assistant Professor, Department of Biology, Texas A&M University. Director of
Freshman Biology Programs.
1977 - 1980  Assistant Professor, Division of Biological Sciences, University of Missouri.
Director of Introductory Biology
1975 - 1977  Research Associate (Post-Doctoral), Department of Microbiology, Indiana
University
1972 - 1975  Visiting Assistant Professor, Division of Biological Sciences, Indiana University
1971 - 1972  Instructor, Department of Zoology, University of Texas.
1970 - 1971  Teaching Assistant, Department of Zoology, University of Texas
1967 - 1970  National Science Foundation Graduate Fellow, Dept of Zoology, Univ of Texas
1966 - 1967  Teaching Assistant, Department of Zoology, University of Texas.

AREAS OF EXPERTISE AND RESEARCH EMPHASIS:
Physiology and systems biology of photosynthetic microbes, including algae and cyanobacteria,
photosynthetic metabolism, nutrient uptake and utilization, techniques of mass culture and
cultivation.

SOCIETY MEMBERSHIPS:
Phi Beta Kappa, Sigma Xi, American Society of Plant Biologists, Phycological Society of America,
American Association for the Advancement of Science, National Association of Biology
Teachers, Texas Academy of Science

SELECTED RECENT PUBLICATIONS AND PRESENTATIONS:
C.O.Patterson: Harmful Algal Blooms: Toxic Algae and Algal Toxins. in Encyclopedia of
R.D. VanPutte and C.O. Patterson: Micro-algal Plasma Membranes Purified by Aqueous Two-Phase
Wm. Bond, B. Briggs, F. Brown, M. Case, N. Ganguly, H.A.E. Howell, L. Kirby, C.O.Patterson, J.
York, 2004, 224 pages. (Authors are listed alphabetically.)


C.O. Patterson: "Development and Implementation of the Texas College Readiness Standards" keynote address at Austin Community College's Conference on College Readiness Standards, Austin, Texas, 1 August 2008.

C.O. Patterson: "How to Do Inquiry-Based Exercises and Activities in the Large Lecture Classroom." TAMU Center for Teaching Excellence. 15 October 2008

C.O. Patterson & Wendy Keeney-Kennicut: Writing in the Science Curriculum: Using the Calibrated Peer Review System for Writing Assignments in Science Classes. 2-day workshop for faculty at University of Kentucky (Lexington), 20-21 February 2009

C.O. Patterson: Overview of College Readiness Standards in Science (keynote address) at College & Career Readiness Initiative Faculty Collaborative Science Symposium, sponsored by Texas Higher Education Coordinating Board, held at Texas A&M University - Corpus Christi, 28 February 2009

C.O. Patterson & Linda Gann: College Readiness Standards in Science & Math: Implementation & Assessment. one-day workshop for science & math faculty from Texas State University (San Marcos) and from Alamo Community College District (Bexar County) part of the "Puentes" project of TSU. 3 April 2009

C.O. Patterson: Development & Use of College Readiness Standards in Science (keynote address) at Community College Symposium for Mathematics and Science Faculty, sponsored by Texas Higher Education Coordinating Board, held at Austin Community College, 24-25 September 2009

C.O. Patterson: College Readiness Activities - Development of Pilot Activities, Kick-off meeting, sponsored by Texas Higher Education Coordinating Board, held in Austin, 13 October, 2009. I prepared and led the working group (about 40 educators) through an example exercise to show what a "College-Readiness Activity" would look like.

Timothy P. Scott, C.O. Patterson, and Adrienne Bentz: Incorporating College and Career Readiness Standards into Capstone Science and Mathematics Methods Courses. poster presentation at CCRI Symposium sponsored by Texas Higher Education Coordinating Board and Texas State University, San Antonio 26 February 2010


RECENT GRANTS & FUNDING RECEIVED:

“Texas Collaborative for Excellence in Teacher Preparation (TxCETP)” NSF, $5,207,500. 2000-2006. Co-PIs are Mauro Castro (TAMU-Kingsville), Pam Littleton (TAMU-Tarleton), and Kit Price (TAMU-Corpus Christi). I served on the steering committee for the project, and was team leader for the College Station campus.

“Writing for Assessment and Learning in Science (WALS) -- Application of the Calibrated Peer Review System for Biology, Mathematics, and Physics.” NSF-DUE, $481,850, 2003-2007. Dr. Nancy Simpson (Math), Dr. Michael Stecher (Math), Dr. Lewis Ford (Physics), and I are Co-PIs on this project.


"Bioreactor Design and Testing for Biofuel Production by Photosynthetic Microbes" Harizan Venture Capital Investments. $35,000, 2006 - present
AWARDS RECEIVED:
Distinguished Achievement Award for Excellence in Teaching, College of Science, TAMU, 1986.
Texas A&M University Honors Program Teacher/ Scholar Award, 1988.
College Board Special Recognition Award for contributions to excellence in education and collaboration among school and college faculty, 1997.
Distinguished Achievement Award for Excellence in Teaching, College of Science, TAMU, 1999.
Distinguished Achievement Award for Excellence in Teaching, University-wide award, TAMU, 2005.

RECENT SERVICE:
Referee (manuscript reviewer), Journal of Phycology, Plant Physiology, Texas Journal of Science, etc. 1976-present.
Referee (reviewer) for proposals to Cooperative Grants Program of the U.S. Civilian Research and Development Foundation (CRDF), 2001-2003.
National Advisory Board for the College-Level Examination Program (CLEP) in Natural Science. 2002-2008.
Question writer/editor for various national/international examination programs including SAT, GRE Subject exam in Biology, Praxis Teacher Certification exams, etc, etc, 2005 - present.
Search Committee for Head of the TAMU Department of Biology 2007 - 2008.
Science Vertical Teams Committee, Chair, 2006 - 2008. This is a project to revise high school science curricula, jointly sponsored by Texas Education Agency and Texas Higher Education Coordinating Board. Chairman of the Science Curriculum Section Commission for a College-Ready Texas, 2007 - 2008. appointed by Governor Rick Perry, State of Texas.

Science Vertical Teams Committee -- development and dissemination of College-Ready Exercises, Assignments, and Assessments. Continuing with the project to revise high school science curricula, jointly sponsored by Texas Education Agency and Texas Higher Education Coordinating Board. 2009 - present.

Community College Symposium for Mathematics and Science Faculty, sponsored by Texas Higher Education Coordinating Board, Austin, 24-25 September, 2009. Second keynote address: College Readiness Activities and Assessment.

College Readiness Activities and Assessment Pilot Kick-off Conference. Austin, 13 October, 2009. Texas Higher Education Coordinating Board workshop to introduce the newly-written exercises for college readiness (CRAs). Keynote address and lead presenter for hands-on try-outs and review of the materials.
Curriculum Vitae—William A. Payne

Current Positions:  Director, CGIAR Research Program on Dryland Systems, International Center for Agricultural Research in the Dry Areas
                  http://drylandsystems.cgiar.org/

Professor of Crop Physiology, Texas A&M University

As Director of the CGIAR Research Program on Dryland Systems, William (Bill) Payne is in charge of a multi-institutional, $150 million research endeavor aimed at improving food security and livelihoods in the dry areas of the world, which cover more than 40 percent of the world’s land area and are home to more than one-third of the global population. The Dryland Systems program is the first-ever global-scale research program to use an innovative, integrated agro-ecosystem approach involving multi-stakeholders to improve agricultural productivity, protect the planet, and alleviate poverty and hunger in dry areas. As Professor of Crop Physiology in the Department of Soil and Crop Sciences of Texas A&M University, he has mentored dozens of graduate students, postdoctoral scientists, and visiting scientists from many countries. He has held numerous leadership roles at the state, national and international level, and advised charitable foundations, national and international agencies, publishers, foreign governments, and universities on science and agriculture. His research has focused on optimization of water use in cropping systems through introduction of new species, improved cultivars, and appropriate soil and crop management suited to local conditions. Dr. Payne has published on such topics as alternative crops, systems agronomy, cropping system sustainability, genetic diversity, water- and nutrient-use efficiency, soil hydrology and plant stress physiology. He has worked with a variety of crops, including sorghum, wheat, barley, pearl millet, cowpea, corn, cotton, lupin, and peanuts. He has been invited to speak and write on diverse subjects including soil and water conservation, plant adaptation to low nutrient and water availability, improving plant drought tolerance and water-use efficiency, biofuels, food security, and sustainability of agricultural systems. Dr. Payne has authored or co-authored more than 120 journal articles and book chapters, and edited three books. He has been named fellow of five international scientific societies.

Contact Information:  ICARDA-Ethiopia
                      International Center for Agricultural Research in the Dry Areas
                      P.O. Box 5689, Addis Ababa, Ethiopia
                      Telephone +251 11 617 2285
                      Fax +251 11 617 2001
                      Email: w.payne@cgiar.org

Areas of Expertise:  Crop physiology, systems agronomy, soil physics and hydrology, soil fertility and plant nutrition, international agriculture, sustainability, agro-climatology, modeling, alternative crops, crop diversification, and research administration and planning.

Education:  B.A.  Wabash College  Chemistry  1981
            M.S.  Texas A&M, TX  Soil Science  1988
            Ph.D.  Texas A&M, TX  Soil Science  1990

Previous positions:  Assistant Director for Research, N. Borlaug Institute  2008-2012
for International Agriculture, Texas A&M University, College Station, TX
Liaison Scientist, McKnight Foundation 2008-2011
Professor, Crop Physiology, TAMU Bushland TX 2005-2008
Adjunct Professor, West Texas A&M University 2000-2008
Assoc. Professor, Crop Physiology, TAMU Bushland 2000-2005
Assist. Professor, Dryland Systems Agronomy, Oregon State Univ., Pendleton
Principal Scientist, Crop Physiology, ICRISAT Niger 1991-1996
Global Team Leader, Integrated Systems Project for Asia and Africa 1995-1996
Agronomy Division Coordinator (Africa) 1995-1996
Postdoctoral Scientist, Soil physics of compacted clay liners of landfills. Texas A&M University 1990-1991

Languages: Fluent in English and French. Conversational in Hassiniya Arabic.

Honors and Awards:
Fellow, Crop Science Society of America (2013)
High Impact Paper Award from the Chinese Journal of Integrative Agriculture for article “Canopy temperature depression as a potential selection criterion for drought resistance in wheat” (2012; shared with 3 other authors)
Fellow, Soil Science Society of America (2009)
Sigma Xi Honorary Research Society (2007)
Fellow, American Association for the Advancement of Science (2006)
Fellow, American Society of Agronomy (2006)
Marquis Who’s Who in America
Marquis Who’s Who in Science and Engineering

Professional Memberships:
Crop Science Society of America
American Society of Agronomy
Soil Science Society of America
International Union of Soil Scientists
American Association for the Advancement of Science
Sigma Xi, Honorary International Research Society

Training: Nineteen MSc students, sixteen PhD students, seven postdoctoral scientists, and seven visiting scientists.

Editorial Board Roles:

Major Service and Professional Roles:

• Organizing Committee of “Desert Technology/International Conference on Arid Land” (San Antonio, Texas, November 19-22) with Japanese Association for Arid Land Studies (JAALS), Tokyo University of Agriculture, Texas A&M University, and CGIAR Program on Dryland Systems.
• Board of Directors, USAID-funded International Sorghum and Millet (INSTORMIL), 2008-2012-present. Board Chairman, 2012.
• Board of Directors, USAID-funded Peanut CRSP, 2008-2012. Board Chairman 2012.
• Leader for Texas A&M participation in President Obama’s Water Center of Excellence in the Middle East (USAID’s “Further Advancing the Blue Revolution”), 2011-2012
• Leader for Texas A&M participation in Middle East “Water Livelihood Initiative” in cooperation with USAID, ICARDA, and four other U.S. universities, 2008-2012
• External reviewer of Georgian Academy of Agricultural Sciences (2010, 2011)
• National Science Foundation Review Panel for Ecosystem Science and Technology Center, 2011
• External examiner to Aligarh Muslim University (India), 2003-present
• External examiner to Faisalabad Agricultural University, Pakistan, 2010-present
• Liaison Scientist as consultant to McKnight Foundation’s Collaborative Crop Research Program for West Africa programs. Managed scientific aspects of 12 crop research projects with total funding of approximately $3 million/year. 2008-2011
• National Scientific and Technical committee of CERRAS (Centre d'Etude Regional pour l'Amélioration de l'Adaptation a la Sécheresse, Senegal’s Ecoregional Centre for Research on Drought Adaptation) 2006-2008
• Advisory member of agricultural team in South Central Iraq for USDA, June 2008
• Advisory member of agricultural team for multi-provinces in Iraq, April, 2007
• ASA Task Force on International Agronomy 2007-2008
• Coordinator of Cropping Systems research for Federal Sorghum Initiative with Kansas State University, 2006
• Board of Directors, American Society of Agronomy, 2002-2005
• Scientific committee for International conference on Tropical Sandy Soil Management, Kohn Kaen, Thailand 2005
• Leader of USDA/ERS mission to four China cities (Beijing, Shijiazhang, Guanzhou, and Lanzhou) 2005
• CAB International Crop Science Advisory Board 1999-2005
• Consultant to Famine Early Warning System (FEWS) of USAID for Africa, 1999
• Lead ASA organizer for joint ASA/World Bank 1998 symposium “Sustainability of agricultural systems in transition.”
• Chairman of International Agronomy Division of American Society of Agronomy, 1997
• External evaluator of Savanna Agricultural Research Institute (SARI), Tamale, Ghana, 1995.

PUBLICATIONS
(Underlined names indicate former or present graduate student, postdoctoral scientist, or visiting scientist).

Books


Book Chapters


**Refereed Journals**

Submitted


In Print


Refereed Proceedings:


Hong Li, C. Bielder, and W. A. Payne. 2006. Spatial variation of unsaturated hydraulic


Abstracts/non-refereed papers
(>100; Detailed list available upon request)

Dissertation and Thesis:


Recent Limited Distribution Publications


Norman Borlaug Institute for International Agriculture, 2011. Case studies and training needs assessment on the potential to access carbon market with biogas, bio slurry and compost projects in Greater Mekong Subregion. FAO RAS report.


Abbreviated Vitae

ELIZABETH ANN PIERNON

Title
Associate Professor, Department of Horticultural Sciences, MEPS Interdisciplinary Program, Department of Plant Pathology and Microbiology (Adjunct), and Texas A&M AgriLife Research

Education
Ph.D. Major: Botany (Ecology), Washington State University, Pullman, WA, 1987
BS, Honors Major: Biology, Indiana University, Bloomington, IN, 1982

Academic and Professional Experience
Associate Professor, Plant-microbe interactions, Department of Horticultural Sciences, Texas A&M University, 2009-present
Research Associate Professor, Division of Plant Pathology and Microbiology, Department of Plant Sciences, University of Arizona, Tucson, AZ, 1999-2009
Research Assistant Professor, Department of Plant Pathology, University of Arizona, 1990-1999
Research Associate, USDA-ARS Root Disease and Biological Control Research Unit, Pullman, WA, 1989-90
Statistical Consultant, Computer Information Center, Washington State University, Pullman, WA, 1987-8
Teaching/Research Assistant, Dept. of Botany, Washington State University, 1982-87

Research and Teaching
Research: Plant-microbe interactions to promote plant healthsuppress plant disease, microbial ecology, bacterial signaling, secondary metabolite production, biofilm formation, gene regulation, genomics of Pseudomonas; epidemiology of emerging diseases caused by Candidatus Liberibacter
Courses TAMU: HORT689/MEPS689/PLPM689 Plant-Associated Microorganisms, 3 credits;
HORT301 Garden Science, 3 credits; BESC 484 Field Experience (Writing-Intensive), 3 credits;
HORT491 Undergraduate Research, 3 credits.
Courses taught UA: PLP550: Principles of Plant Microbiology (team taught course/ecology and epidemiology section), 4 credits; PLP551: Biology and Characterization of Plant Pathogenic Agents (team taught course/bacteriology section), 4 credits; PLP596A: Contemporary Topics in Plant Pathology, 1 credit.

Honors
- Elected, Incoming Vice President, Texas Plant Protection Association, 2013
- Selected by students as Faculty Advisor, Horticulture Graduate Council, 2010-present.
- Nominated speaker, University of Arizona Faculty Fellows, 2002.
- USDA Certificate of Merit, 1990

Current Research Funding

● Texas Department of Agriculture, Specialty Crop Block Grant Program 2013. Title: The Development of Simplified Methods for Rapid and Effective Screening of Psyllids and Plant Tissues for the Citrus Greening and Potato Zebra Chip Pathogens”. PIs Elizabeth Pierson and Dennis Gross.


**Editorial Positions and Other Synergistic Activities**

**Professional Memberships**
American Society for Microbiology, American Phytopathological Society, American Society for Horticultural Science

**Microbiology Publications (Last 10 yrs)**


Ecology Publications (Last 10 yrs)


CURRICULUM VITAE

Ping He

Department of Biochemistry and Biophysics
Institute for Plant Genomics and Biotechnology
Faculty of Molecular & Environmental Plant Sciences (MEPS)
Texas A&M University, College Station, TX 77845
Phone: 979-458-1368; Email: pinghe@tamu.edu

EDUCATION
2003-2008  Harvard Medical School, Boston, MA  Molecular Biology  Postdoc
1998-2003  Kansas State University, Manhattan, KS  Plant Pathology  Ph.D.
1995-1998  Chinese Academy of Sciences, China  Genetics  M.S.
1989-1993  China Agriculture University, Beijing, China  Plant Breeding & Genetics  B.S.

PROFESSIONAL EXPERIENCE
2013-present  Associate Professor, Department of Biochemistry and Biophysics
               Institute for Plant Genomics and Biotechnology
               Faculty of Molecular & Environmental Plant Sciences (MEPS)
               Texas A&M University, College Station, TX
2009-2013  Assistant Professor, Department of Biochemistry and Biophysics
               Institute for Plant Genomics and Biotechnology
               Faculty of Molecular & Environmental Plant Sciences (MEPS)
               Texas A&M University, College Station, TX
2003-2008  Postdoctoral Research Associate, Department of Genetics, Harvard Medical School and
               Department of Molecular Biology, Massachusetts General Hospital, Boston, MA

HONORS
2008 American Society of Plant Biologists Early Career Award
2002-2003 Don C. Warren Genetic Scholarship, Kansas State University
1998 Second Prize of Natural Science Award, Chinese Academy of Sciences
1998 Special Prize of the President Scholarship, Chinese Academy of Sciences

FEDERAL FUNDING
2010-2015  NIH R01, Differential regulation of plant innate immunity, $1,271,045.00
2012-2015  USDA, Cotton functional genomics in biotic and abiotic stress responses (Co-PI), $498,464.00
2013-2018  NSF CAREER, Orchestrating transcriptional reprogramming by combinatorial complexity of
general transcriptional regulation and specific immune responses, $1,086,592.00

TEACHING
BICH631:  Biochemical Genetics (3 credit). Spring semester with about 50 graduate students enrolled.
BICH281:  Seminar in Biochemical Research (1 credit) with about 15 undergraduate students enrolled.
BICH608:  Critical Analysis of the Biochemical Literature (2 credit). Fall semester with about 12 graduate
students enrolled.
PUBLICATIONS


Hongmin Qin  
Department of Biology  
Texas A & M University  
TAMU MS 3258  
College Station, TX 77843-3258  
Phone: (+1) 979-458-0512  
Fax: (+1) 979-845-2891  
Email: hqin@mail.bio.tamu.edu

EDUCATION  
B.S. Microbiology, Shandong University, 1993  
M.S. Microbiology, Shandong University, 1996 (Advisor, Changkai Zhang)  
Ph.D Genetics, The Institute of Microbiology, Chinese Academy of Sciences, China, 1999  
(Advisor, Yingchuan Tian)  
Postdoc, MCDB Dept. Yale University, completed 2005 (Advisor, Joel Rosenbaum)

EMPLOYMENT  
Associate Professor, Texas A&M University, 2013- present  
Assistant Professor, Texas A&M University, 2006-2013

HONORS  
1993-1996 “Yang-Guan” Predoctoral Fellowship, Shandong University  
1999 “Di-Ao” Predoctoral Fellowship, Chinese Academy of Sciences, China  
2001 Best Paper Award, Beijing Society for Plant Pathology  
2002-2004 Polycystic Kidney Disease Foundation Postdoctoral Fellowship  
2002 Genetics Society of America Travel Award

PUBLICATIONS  


**Invited Review or Book Chapters**


**PATENTS (IN P. R. CHINA)**


**PRESENTATIONS (Invited)**

Dec 2012 College of Life Science, University of Science and Technology of China, Anhui, China
Dec 2012 American Society for Cell Biology. San Francisco, CA, USA
Jun 2012 15th International Conference on the Cell and Molecular Biology of Chlamydomonas, Potsdam, Germany, June 5-10, 2012.
Oct 2011 Genetics Graduate Student Association Meeting, TAMU.
Feb 2011 Molecular Cell & Developmental Biology Graduate Program, The University of Texas at Austin, Austin, TX, USA.
Sep 2010 Departments of Pharmacology, Baylor College of Medicine, Houston, TX, USA.
Dec 2009 Dept. of Biological Sciences, Sam Houston University.
Sep 2009 Biophysics Image Life workshop, Sponsored by the NSF. Texas A&M Health Science Center.
Mar 2009 Dept. of Microbiology, Molecular Biology & Biochemistry, University of Idaho, USA.
Jan 2008 National Institute of Biological Sciences, Beijing, China.
Jan 2008 Institute of Microbiology, Chinese Academy of Sciences, Beijing, China
Dec 2006 American Society for Cell Biology. San Diego, CA, USA.
Aug 2006 Gordon Research Conference Plant and Fungal Cytoskeleton, Proctor Academy, Andover, NH, USA.
Dec 2005 American Society for Cell Biology. San Francisco, CA, USA
RESEARCH FUNDING

Current Funding
1) Agency: National Science Foundation (NSF)
   Title: Small GTPase regulators of Intraflagellar Transport (IFT)
   Funding period: 02/01/2010 - 02/28/2013, no cost extension
   Total Direct Costs: $435,936
   Role: Principle Investigator

2) Agency: National Science Foundation (NSF)
   REU Supplement: Small GTPase Regulators of Intraflagellar Transport (IFT)
   Total funds: $6,894.00
   Funding period: 6/1/2012 - 2/28/2013, no cost extension
   Role: Principle Investigator

Grant Pending
1) Agency: NIGMS
   Title: Biogenesis of cilia and flagella
   Funding period: 07/1/14 - 6/31/19
   Role: Principle Investigator

Completed Funding
1) Agency: American Heart Association National Center - Scientist Development Award
   Title: Small GTPase regulators of Intraflagellar Transport (IFT)
   Total budgeted amount: $308,000
   Funding period: 07/01/2009 - 06/30/2013
   Role: Principle Investigator
   Status: The grant was relinquished on April 1st, 2010 before the funds for the same proposal from the NSF was released.

2) Agency: Polycystic Kidney Disease Foundation
   Funding period: 03/01/2008 - 02/28/2010
   Total Direct Costs: $128,182
   Project Title: Identification of Effectors for IFT27, an Intraflagellar Transport Particle Protein Functioning in the Cell cycle
   Role: Principle Investigator

3) Agency: Polycystic Kidney Disease Foundation
   Funding period: 07/01/2002 - 06/30/2004
   Total Direct Costs: $80,000 (Postdoc Fellowship)
   Project Title: Intraflagellar Transport and Polycystic Kidney Diseases
   Role: Principle Investigator

TEACHING

2007 Spring BIOL-613-600 Cell Biology, Credit Hours 3.9 (Enrollment 14, co-taught with Dr. Ryan)
2007 Fall BIOL-213-500 Cell Biology, Credit Hours 3.0 (Enrollment 70, co-taught with Dr. Erickson)
2008 Spring BIOL-613-600 Cell Biology, Credit Hours 3.0 (Enrollment 19, co-taught with Dr. Ryan)
2008 Fall BIOL-213-502 Cell Biology, Credit Hours 3.0 (Enrollment: 46)
2009 Spring BIOL-613-600 Cell Biology, Credit Hours 3.0 (Enrollment 8, co-taught with Dr. Ryan)
2009 Fall BIOL-213-502 Cell Biology, Credit Hours 3.0 (Enrollment: 44)
2010 Spring BIOL-613-600 Cell Biology, Credit Hours 3.0 (Enrollment 20, co-taught with Dr. Ryan)
2010 Fall BIOL-213-502 Cell Biology, Credit Hours 3.0 (Enrollment: 78)
2011 Spring BIOL-613-600 Cell Biology, Credit Hours 3.0 (Enrollment 13, co-taught with Dr. Ryan)
2011 Fall BIOL-213-502 Cell Biology, Credit Hours 3.0 (Enrollment: 88)
2011 Fall BIOL-681-617 Seminar: Cilia/Flagella Credit Hours 1.0 (Enrollment: 5)
2012 Spring BIOL-613-600 Cell Biology, Credit Hours 3.0 (Enrollment 8, co-taught with Dr. Ryan)
2012 Spring BIOL-681-617 Seminar: Cilia/Flagella Credit Hours 1.0 (Enrollment: 4)
2012 Fall BIOL-213-502 Cell Biology, Credit Hours 3.0 (Enrollment: 74)

ADVISING

Graduate students

A. Chair, Master's thesis committee
Agarwal, Saroochi Department of Biology, 2006-2008
Elizabeth Richey, Genetics Program, Sept 2012-Dec 2012
David A. Silva, Department of Biology, Sept 2012-Dec 2012

B. Member, Master’s thesis committee
Kreipe, Tony, Department of Biology, 2007-2009

C. Chair, Ph.D. dissertation committee
Jiang Xue, Department of Biology, Jan 2012-present
Elizabeth Richey, Genetics Program, Jan 2011-Sept 2012
David A. Silva, Department of Biology, Sept 2010-Sept 2012
Xiaomeng Huang, Genetics Program, May 2007-May 2010

D. Member, Ph.D. dissertation committee
Krock, Bryan, Department of Biology, 2006-2009
Irigoyen, Sonia, Department of Biology, 2006-2011
Liu, Gang, Department of Chemistry, 2006-2011
Jin Hee Kim, Department of Horticultural Sciences, 2007-2011
Saleem, Sehresh, Department of Biology, 2009-present
Whitaker, Gregory, Department of Biology, Feb 2012-present

Undergraduate students
- Andrew Travis Hynes, Fall 2006.
- Chad Ryan Retzloff, Jan 2009-Dec 2009.
- Yue Wu, Aug 2009-May 2010. Accepted as medical student at Baylor College of Medicine in Houston, Feb 2011.
- Genevieve Hartman, Spring 2009, currently a laboratory technologist at Halliburton, Inc.
- Thomas Vaclavik, Summer 2009, currently a graduate student at University of Illinois at Urbana-Champaign.
- Zhongping Xu, Summer 2009.
- David A. Silva, May 2009-Sep 2010, currently a graduate student at TAMU supported by a Texas A&M University System Lous Stokes Alliance for Minority Participation (LSAMP) fellowship
- Ryan Wayne McMasters, Aug 2010-Sept, 2011. Currently a lab technician at the Small Animal Vet Hospital, TAMU.
- Roxsan Manshouri, Aug 2010-present.Supported by LSAMP Undergraduate Research Program.
- Katherine Michelle Snodgrass, Aug 2011-May 2012. Accepted by several medical schools.
- Catherine Marie Hernandez, Sept 2011-present. Supported by LSAMP Undergraduate Research Program.
- Garrison Mathis, Jan 2012-present.

PROFESSIONAL SERVICE
- Dept. of Biology Graduate Program committee, member, 2012 - present.
- Dept. of Biology Graduate Admission and Recruitment committee, member, 2007-2009.
- Student Research Week judge, 2006, Texas A&M University.
- Ad Hoc reviewer, Israel Science Foundation, 2009, total 1 proposal.
- Ad Hoc reviewer, NSF, 2009, total 2 proposals.
- Ad Hoc reviewer, NSF, Apr., 2010, total 2 proposals.
- Ad Hoc reviewer, NSF, Jan., 2012, total 1 proposal.
- Book reviewer, reviewed 4 chapters for a Cell Biology text book (Author and educator, Dr. George Plopper) from the Jones & Bartlett Publishers, LLC, 2010.
- 2010 and 2011, Student/ Post-doc Research Conference (SPRC) judge, Department of Biology, TAMU.
- The Texas A&M System Louis Stokes Alliance for Minority Participation (LSAMP TAMU) 7th Annual Symposium judge, 2010, supported by NSF.
- Review of scientific publications for Current Biology, Genetics, the Journal of Cell Biology, Nature of Cell Biology, Sensors, PLOS One, Trends in Cell Biology, Experiment Cell Research, Cytoskeleton.
- Coordinator for a teaching in China program “The GREAT Program” offered by the Capital Normal University in China, 2008-2012.
- Advisor for the exchange student program sponsored by the Dean’s exchange program from the Capital Normal University in China, Nov. 2009-Mar, 2010.
Name: Keerti S. Rathore
Title: Professor
Address: Institute for Plant Genomics and Biotechnology and Dept. of Soil & Crop Sciences, Texas A&M University, College Station, TX 77843-2123
Telephone: (979) 862-4795 Fax: (979) 862-3414
E-mail: rathore@tamu.edu

M.Sc. (1976) Gujarat University, India (Plant Sciences)
B.Sc. (1973) Rajasthan University, India (Zoology, Botany, Chemistry)

Positions and Employment:

12- Professor and Director, Laboratory for Crop Transformation, Institute for Plant Genomics & Biotechnology and Dept. of Soil & Crop Sciences, Texas A&M University, College Station, TX. A member of the Faculty of Molecular & Environmental Plant Sciences.

03-12 Associate Professor and Director, Laboratory for Crop Transformation, Institute for Plant Genomics & Biotechnology and Dept. of Soil & Crop Sciences, Texas A&M University, College Station, TX. A member of the Faculty of Molecular & Environmental Plant Sciences.

97-03 Assistant Professor and Director, Laboratory for Crop Transformation, Institute for Plant Genomics & Biotechnology and Dept. of Soil & Crop Sciences, Texas A&M University, College Station, TX. A member of the Faculty of MEPS.

95-97 Asst. Research Scientist and Director, Laboratory for Crop Transformation, Crop Biotechnology Center, Texas A&M University, College Station, TX.

91-95 Research Scientist, Dept. of Botany and Plant Pathology, Purdue University, W. Lafayette, IN.

85-90 Postdoctoral Research Associate, Dept. of Biological Sciences, Purdue University, W. Lafayette, IN.

82-84 Postdoctoral Research Associate, Dept. of Pure & Applied Biology, Imperial College, London, U.K.

Professional Society Membership:

- American Association for the Advancement of Science
- American Society of Plant Physiologists

Awards and Honors:

- 2011 Cotton Genetics Research Award

Publications:


2. RATHORE, K.S. & GOLDSWORTHY, A. 1985

3. RATHORE, K.S. & GOLDSWORTHY, A. 1985

4. GOLDSWORTHY, A. & RATHORE, K.S. 1985


A refined technique to apply electrical currents to callus cultures. Plant Physiol. 88: 515-517.

7. RATHORE, K. S. & ROBINSON, K. R. 1989


A cytoplasmic gradient of Ca²⁺ is correlated with the growth of lily pollen tubes. Dev. Biol. 148: 612-619.


15. EMANI, C., SUNILKUMAR, G. & *RATHORE, K. S. 2002


Developmental and tissue-specific expression of CaMV 35S promoter in cotton as revealed by GFP. Plant Molecular Biology 50: 463-474.


Enterotoxigenic K99* Escherichia coli attachment to host cell receptors inhibited by recombinant pili protein. Veterinary Microbiology 101: 153-160.


Book Chapters:


Technology Transfer (Patents):


Curriculum Vitae
Gunnar W. Schade
Associate Professor
Department of Atmospheric Sciences, Texas A&M University,
3150 TAMU, 1104 Eller O&M Building, College Station, TX 77843, USA
ph: (1) 979 845-0633, FAX: (1) 979 862-4466, e-mail: gws@geos.tamu.edu

• Qualifications
1993 Diplom, University (MSc) degree in Chemistry, Johannes Gutenberg Universität, Mainz, Germany. Thesis title: "Emissions of volatile aliphatic amines from animal husbandry" (in German); Department of Physical Chemistry; overall grade: 1 (eqv. to an A).

• Positions and Professional Experience
2012-present Associate Professor, Texas A&M University, Department of Atmospheric Sciences
2012-2013 Researcher, Kjemisk Institutt, Universitetet i Oslo
2005-2012 Assistant Professor, Texas A&M University, Department of Atmospheric Sciences
2003-2005 Emmy Noether Research Fellow, University of Bremen, Germany
2001-2002 Assistant Specialist, University of California at Berkeley, Department of Environmental Science, Policy, and Management (ESPM)
1998-2001 Post-doctoral Research Fellow, University of California at Berkeley, ESPM
1997-1998 Post-doctoral Researcher at the Max-Planck-Institute of Chemistry, Air Chemistry Department, Mainz, Germany
1994-1997 Post-Graduate Research Assistant (Doktorstudent) at the Max-Planck-Institute of Chemistry, Air Chemistry Department
1993-1994 Graduate Research Assistant (diploma/masters student) at the Max-Planck-Institute of Chemistry, Air Chemistry Department

• Main Research Interests
Boundary Layer Atmospheric Chemistry and Biogeochemical Cycles, Analytical Chemistry. The development of instrumentation and methods to measure atmospheric trace gases and their fluxes between the biosphere and the atmosphere to improve our understanding of the underlying biogeochemical cycling and their impacts on and feedbacks with atmospheric chemistry and climate, including how anthropogenic disturbances have altered these.

• Awards and Funding
Past
1999 DAAD: Postdoctoral Research Grant (NATO Program); 1 year (salary only)
2003-2005 DFG: Emmy Noether Program Research Grant; 2 years including Research Group complete salary support for myself (PI), graduate student, and postdoctoral researcher; instruments for €250k plus consumables at approx. €200k
2005 BLE/BMVEL\textsuperscript{1}: Exploratory research grant on animal husbandry VOC emissions (PI); no salary support; consumables at €9k (in Germany)

2005-2007 DFG: Laboratory and field measurements of methanol fluxes (Co-I with John P. Burrows; in Germany); salary support for graduate student; consumables at approx. €20k

2006-2008 USDA: Physical and chemical characterization of particulate matter emissions from Concentrated Animal Feeding Operations, CAFOs (Co-I with Dr. Sarah Brooks); $499k/3 yrs total including one month summer salary support; Contact at USDA: Dr. Ray Knighton, ph. 202-401-6417; award number 2006-35112-16636

2006-2009 Texas Air Research Center (TARC): Urban turbulence and trace gas fluxes from a tall lattice tower near downtown Houston, TX (PI); two independent funds (~$14k/yr + $59k/2yr) for graduate student salary, travel, and consumables; contact: George Talbert, Lamar University, ph. 409-880-2183; award numbers 066TAM0070A & 077TAM0981A

2009 DAAD\textsuperscript{2}: Group Study Visit to Germany (~$5k); taking ten ATM0463 students for a study abroad trip over spring break (co-sponsored by ATMO and College of Geosciences)

2007-2010 Characterization of East Texas Air Quality (Co-I; joint project between TAMU and University of Houston researchers); $48.6k/2 yrs; award number R-07-0157

2009-2010 NSF: ARRA-EAGER: Mixing ratio and flux measurements of Volatile Organic Compounds during BEARPEX 2009 using a portable, self-sufficient REA-GC-FID system (PI); ~$85,000, award # ATM-0934345

2010-2012 NOAA-GCC: Anthropogenic and biogenic carbon fluxes from typical urban land uses in Houston, TX (PI); ~$250,000; award #NA10OAR4310089 (no-cost extension into 2013)

Present

2010-2015 NSF-CAREER – Using an urban-to-rural gradient as a proxy for global change effects on selected biosphere-atmosphere trace gas exchanges (PI); ~$600,000, award-# 0955438

2010-2013 EPA-STAR: Improving emission inventories using direct flux measurements and modeling (PI); ~$500,000; award-# RD834556 (no-cost extension into 2014)

• Publications

Published or in press in the peer-reviewed literature (advised students in italic):


\textsuperscript{1} The agricultural branch of the Ministry (BM) of Consumer Protection (V), Nutrition (E), and Agriculture (L)

\textsuperscript{2} Deutscher Akademischer Austauschdienst (German Academic Exchange Service)


3


Submitted/Accepted:


Book Chapters

CURRICULUM VITAE

Libo Shan
Institute for Plant Genomics and Biotechnology
Department of Plant Pathology and Microbiology
Faculty of Molecular & Environmental Plant Sciences (MEPS)
Texas A&M University, College Station, TX 77843
Phone: 979-845-8818; Email: lshan@tamu.edu

Education:
2003-2008 Harvard Medical School, Boston, MA Molecular Biology Postdoc
1998-2003 Kansas State University, Manhattan, KS Plant Pathology Ph.D.
1995-1998 Chinese Academy of Sciences, China Genetics M.S.
1991-1995 Beijing Normal University, China Biochemistry B.S.

Professional Positions and Appointment:
2013-present Associate Professor
Department of Plant Pathology and Microbiology
Institute for Plant Genomics and Biotechnology
Faculty of Molecular & Environmental Plant Sciences (MEPS)
Texas A&M University, College Station, TX
2009-2013: Assistant Professor
Department of Plant Pathology and Microbiology
Institute for Plant Genomics and Biotechnology
Faculty of Molecular & Environmental Plant Sciences (MEPS)
Texas A&M University, College Station, TX
2003-2008: Research Fellow, Massachusetts General Hospital and Harvard Medical School

Honors and Awards:
• Dean’s Outstanding Achievement Award for Excellence in Early Career Research, The College of
  Agriculture and Life Sciences, Texas A&M University, 2013
• American Society of Plant Biology Women’s Young Investigator Travel Award, 2010
• Don C. Warren Genetic Scholarship, Kansas State University, 2002-2003
• Di-Ao Scholarship, Chinese Academy of Sciences, 1998

Research Funding Awards:
• NIH R01, Phosphorylation and ubiquitination of immune sensory complexes in innate immune
  signaling, PI, $1,216,245.00; 04/01/2011-03/31/2016
• USDA, Cotton functional genomics in biotic and abiotic stress responses, PI, $498,464.00; 04/15/2012 to 04/14/2015
• NSF, Collaborative Research: Modulation of host auxin physiology by Pseudomonas syringae, PI,
  $299,581.00; 09/01/2010 to 08/31/2013
• The Welch Foundation, Biochemical and Regulatory Constraints of Immune Sensors, PI,
  $180,000.00; 06/01/2012 to 05/31/2015
• Texas AgriLife Research Cotton Improvement Program, Mining Genes for Texas Cotton: Identify
  and Deploy Genes that Confer Resistance to Pathogen Stress. Co-PI, $32,000.00; 09/01/2013 to
  08/31/2014
Texas AgriLife Research Cotton Improvement Program, Mining Genes for Texas Cotton: Identify and Deploy Genes that Confer Resistance to Verticillium Wilt, PI, $32,000.00; 09/01/2011 to 08/31/2013

Texas AgriLife Research Genomics Seed Grant Program, Discovery novel cotton drought-inducible genes by next generation sequencing, PI, $30,263.29; 09/01/2011 to 08/31/2012

Teaching

• BESC201 “Introduction to the Bioenvironmental Sciences” 3 Credit, undergraduate course (100–150 students)
• PLPA616 “Principle & Methodology in Molecular Plant-Microbe Interactions” 2 credit, Graduate course (~15 students)
• PLPA681 “Seminar in Molecular Plant-Microbe Interaction Research” 1 credit, Graduate course (~15 graduate students)

Publications


1453-1457.


### Professional Activities

**Review for scientific journals:**

Science Signaling, PNAS, PloS Pathogen, Plant Cell, Plant Journal, Plant Physiology, Molecular Plant Microbe Interaction, Molecular Plant, Molecular Plant Pathology, European Journal of Plant Pathology, Frontier in Cellular and Infection Microbiology, PloS One

**Review for grant agencies:**

NSF, USDA, The Netherlands Organisation for Scientific Research (NWO, the Dutch research council); United States-Israel Binational Agricultural Research and Development Fund (BARD); Flanders (Belgium)

**Panel service**

NSF review panel in fall of 2010

**Editorial service**

- Editorial Board Member of The Arabidopsis Book, 2013-present
- Editorial Board Member of Molecular Plant Pathology, 2012-present
- Associate editor for Frontier in Plant-Microbe Interaction, 2013-present
- Review editor for Frontier in Plant Physiology, 2010-present
- Review editor for Frontier in Plant Traffic and Transport, 2011-present

**University service**

- Department Undergraduate curriculum development Committee, 2010, 2011, 2012
- Research and Distinguished Speaker Seminar Committee Chair, 2013
- Chair of Texas A&M University MEPS symposia, 2010, 2011
David M. Stelly

Professor, Dept. Soil & Crop Sciences (SCSC)
Texas A&M University and Texas A&M AgriLIFE Research

Professional Teaching Appointments:
Professor (1993-present), Member of the Graduate Faculty
Graduate Degree Programs
- Plant Breeding (PLBR)
- Molecular & Environmental Plant Sciences (MEPS)
- Genetics (GENE)

Professional Research Appointment:
Professor (1993-present), Texas A&M AgriLIFE Research

Professional Preparation:
University of Wisconsin - Madison
- Genetics
- B. Sc., 1975

Iowa State University
- Plant Breeding & Cytogenetics
- M. Sc., 1979

University of Wisconsin - Madison
- Plant Breeding & Plant Genetics
- Ph. D., 1983

Goals:
Enhance society and its sustainability by
- Increasing sustainability, usefulness and economic yields from cotton
- Creating new biofuel crops from sorghum wide-hybridization
- Educating scientists so that they think creatively and incisively, and are enthused by the prospect of bringing about novel crop genetic improvements

Research Activities
We endeavor to increase baseline genetic crop genetic potentials through integrative research involving genetics, cytogenetics, molecular cytogenetics, reproductive manipulations (genomes, chromosomes, sexuality, fertility, crossability), genomics, informatics and breeding:
- Development and maintenance of the Cotton Cytogenetics Collection
- Chromosome manipulations, including interspecific chromosome substitution
- Cotton germplasm utilization, wide-hybridization and germplasm introgression
- Integrative mapping, genomics & sequencing -- SNP development, mapping, integration
- Molecular cytogenetics
- Reproductive genetics & cytology; ploidy manipulations; apomixis and doubled haploid extraction
- Fiber development and improvements

Teaching Activities
Teaching activities are largely focused in the following areas.
- Graduate student advising: Plant Breeding (PLBR), Genetics (GENE), and Molecular & Environmental Sciences (MEPS) graduate programs, and two courses:
  - SCSC 603: Plant cytological preparations, microscopy, cytometry and imaging, a three-credit lecture-laboratory methods course, and
  - GENE 620: Cytogenetics (all eukaryotes), a three-credit lecture course.

Synergistic Activities (five examples):
1. International Cotton Genome Initiative (ICGI) -- Co-Chair 2013-2015 (Chair-elect for 2015-17). Previously served as the first elected overall “Chair” (2002-2005), and also as various workgroup chairs, most recently as Chair for Structural Genomics 2011-2013.
   http://www.cottongen.org/icgi/home


4. **Educational workshops and tours for K-12, minority and international students:**
   - Biotech research tours for middle schoolers (multiple years); NSF “Stepping into Biotechnology” 2-d workshops (2005, 2006), [http://cottongenomics.biosci.utexas.edu/workshop/](http://cottongenomics.biosci.utexas.edu/workshop/) outreach.
   - 4-H lab tours and Biotech tour for UTPA (S. TX) undergraduates.


**REFEREED PUBLICATIONS LAST FOUR YEARS (Total: >130 refereed; >390 overall):**


Lee Tarpley  
Associate Professor, Plant Physiology  
Texas A&M AgriLife Research Center, Beaumont, Texas 77713, U.S.A.  
Office: (409)752-2741 x2235; E-mail: ltarpley@tamu.edu

### Degrees Received
- Ph.D. Texas A&M University. 1993. Plant Physiology
- M.S. California State University. 1987. Plant Science: Viticulture
- B.A. University of Wyoming. 1980. Botany (High Honors)

### Present and Past Positions
- Associate Professor of Plant Physiology. Texas A&M AgriLife Research, Texas A&M University. 2008 - present
- Assistant Professor of Plant Physiology. Texas A&M AgriLife Research, Texas A&M University. 2001 - 2008
- Postdoctoral Research Plant Biochemist, USDA ARS, 1997-1999
- Postdoctoral Crop Physiologist, Texas A&M University, 1996-1997
- Postdoctoral Plant Physiologist, Texas A&M University, 1993-1996
- Research Plant Biochemist, Texas A&M University, 1992-1993

### Synergistic Activities:
- **Monitoring of the field environment.** The impacts of plant morphological and physiological properties on yield are strongly influenced by environment. I have been an early adopter in developing the practice of wireless sensing networks to continuously monitor soil and canopy conditions within fields. Such monitoring provides necessary information for interpreting variation in physiological response, but can also be economically beneficial to farmers.
- Part of an international network to monitor and understand variation in the rice canopy environment in diverse climates, and work with a private company and a university in Utah to research other methods for monitoring the canopy environment.
- **Ionomics.** During the last six years, I have participated in a multi-institutional study to identify genes controlling the accumulation of numerous elements in rice grain. As both a model species for genomics research and a major cereal crop, the identification of these genes allows improved knowledge in functional genomics and enhanced ability for molecular breeding to improve rice and other crops for nutritional value for consumers and for improved plant mineral nutrition. This involves enhancing levels of desirable elements while decreasing undesirable ones.
- Primary responsibility for plant physiology aspects of this research, and co-guided a Ph.D. student identifying root physiological and morphological traits impacting element levels in grain. Plant water status and field water management greatly influence the plant’s ionome.
- **Training and mentoring.** In 2012, training in methodology was provided to a visiting scientist from the Rubber Research Institute of India. This indicates the increasing interest to apply modern scientific understanding of the biology of the plant, element interactions, and the prominence of the Beaumont Center in ionomics research of crop plants.
- Currently hosting or co-hosting 2 visiting scientists.
- In the last year, I have mentored the research of students ranging from high school to the postdoctoral level.
• **High night temperature effects on crop production.** Crop genotypes vary in response to environment in multiple ways, including in response to oxidative stress in vegetative structures. For a number of years, I have directed or partnered in research optimizing genotype and abiotic stress physiology interactions and preventive measures. The knowledge I am gaining from the stress physiology research enables me to develop translational knowledge to help farmers.

• **Service to Scientific Societies.** Incoming Secretary for the Rice Technical Working Group (RTWG), which is the principal society in the US for rice science. The ~ 300–400 members conduct or utilize a mix of basic and applied research. I have served on the executive committee in RTWG currently and for most years since 2006, and as a chair or member for one or more committees since 2002. From 2014–2020, I will become Secretary, then Chair, then Past Chair.

• Chair-elect for the C-9 division of the Crop Science Society of America.

• **Service Presentations/Posters of Research:** 161

• **Safety Officer.** Texas A&M AgriLife Research Center at Beaumont, 2010 – present

• **Invited presenter.** MARCO Symposium 2009. Challenges for Agro-Environmental Research in Monsoon Asia. Tsukuba, Japan. 2009

**Teaching**
Major advisor for two completed MEPS Ph.D. students and one completed MEPS M.S. student

**Research Summary**
• 44 refereed journal articles and refereed peer-reviewed book chapters; 100 research outreach/extension publications; 183 abstracts/proceedings; 1 book co-edited
• Assisted with obtaining more than $15.3 million in research funds, with about $3.7 million allocated to my program
• 2013 USDA NIFA program proposal review panel member
• Reviews for federal agencies, Canadian and Jordanian institutions, commercial publishers
• Internal manuscript reviews, Hatch proposal reviews

**Acquisition of research funds**
Expenditures for FY 12 exceeded $300,000. **Last five years, initiated:**


**Tarpley, L. 2012.** Gift in thanks of training. Indian Rubber Research Institute. $9,000.


Networks Controlling Nutrient Content in Rice Grain (which is a 5th year creativity extension for a NSF PRGP grant. October 1, 2011 - September 30, 2012. $1,465,461 ($246,494 to my program).

**Wilson, L. T., Y. Yang, L. Tarpley, and M. O. Way. 2011.** Texas AgriLife Research subcontract to Mississippi State University; within B. Baldwin et al. Regional Biomass Feedstock Partnership. Herbaceous Bioenergy Crop Field Trials. SunGrant. $20,000.


**Tarpley, L. 2010.** Plant physiology-based management practices to improve Texas rice crop profitability. Texas Rice Research Foundation. $15,000.

**Wilson, L. T., Y. Yang, L. Tarpley, and M. O. Way. 2010.** Texas AgriLife Research subcontract to Mississippi State University; within B. Baldwin et al. Regional Biomass Feedstock Partnership. Herbaceous Bioenergy Crop Field Trials. SunGrant. $23,000.

**Dou, F. and L. Tarpley. 2009.** Sustainable production of cellulosic biomass with attention to natural resource conservation and wildlife stewardship. TX AgriLife Bioenergy Initiatives Program. $20,000.

**Tarpley, L. 2009.** Varietal Evaluations and characterization and nutrient management improvement for Texas production practices. Texas Rice Research Foundation. $49,500.

**Tarpley, L. 2009.** Plant physiology research to improve Texas rice main and ratoon crop yields. Texas Rice Research Foundation. $20,000.


**Wilson, L. T., L. Tarpley, and M. O. Way. 2009.** Texas AgriLife Research subcontract to Mississippi State University; within B. Baldwin et al. Regional Biomass Feedstock Partnership â€“ Herbaceous Bioenergy Crop Field Trials. SunGrant. $23,000.

**Tarpley, L. 2009-2013.** Various Gifts from companies: nine totaling $205,010.

**Refereed, externally peer-reviewed articles/chapters from last 5 years**


On-line software resource

CURRICULUM VITAE

Wayne K. Versaw
Texas A&M University, Department of Biology, 3258 TAMU, College Station, TX 77843-3258
(979) 847-8587
fax: (979) 845-2891
e-mail: wversaw@tamu.edu

Education
1990-1995 Ph.D. Biomolecular Chemistry, University of Wisconsin-Madison
1988-1990 M.S. Biochemistry, University of Nebraska-Lincoln
1983-1987 B.S. Food Science, University of Nebraska-Lincoln

Appointments
2009-current Associate Professor
Department of Biology, Texas A&M University
2003-2009 Assistant Professor
Department of Biology, Texas A&M University
2000-2003 Senior Research Associate II
Plant Biology Division, Samuel Roberts Noble Foundation.
1998-2000 Postdoctoral Fellow
Plant Biology Division, Samuel Roberts Noble Foundation.
1997-1998 Postdoctoral Research Associate
Dept. of Pharmacology, University of Wisconsin-Madison.
1996-1997 Cytogenetics Technologist
Waismann Center, University of Wisconsin-Madison.
1990-1995 Graduate Research Assistant
Dept. of Biomolecular Chemistry, University of Wisconsin-Madison.
1988-1990 Graduate Research Assistant
Dept. of Biochemistry, University of Nebraska-Lincoln.
1986-1988 Laboratory Assistant
Dept. of Food Science, University of Nebraska-Lincoln.

National Service
2006-current Editorial board member for the journal Plant Signaling & Behavior
2012-current Editorial board member for the journal Frontiers in Plant Science
2010, 2005 NSF grant review panel member (Integrative Organismal Systems)
2003-current Ad Hoc reviewer for NSF grant proposals and for journals including Plant Physiology, Plant Cell, Functional Plant Biology, Eukaryotic Cell, Journal of Bacteriology, Botanical Studies, BMC Research Notes

Academic Service
2009-current Dept. of Biology Undergraduate Program Committee, Chair
2009-2010 Dept. of Biology Faculty Search Committee, member
2009-2012 Molecular and Environmental Plant Science (MEPS) Executive Committee, member
2009-2013 MEPS Graduate Program Committee, Chair
2008-current Dept. of Biology, Lower Division Instruction Advisory Committee, member
2006-2007 Dept. of Biology, Faculty Search Committee, member
2004-2006 Dept. of Biology, Graduate Program Committee, member
2003-current MEPS, member
2008-current MEPS Symposium Committee, member
2005-2009 MEPS Graduate Admissions Committee, member
2003-current Program for the Biology of Filamentous Fungi, member
2003-current Graduate Thesis Committee, chair (1 current)
2003-current Graduate Thesis Committee, member: Biology, Chemistry, Education, Genetics, MEPS, Plant Pathology & Microbiology, Soil and Crop Sciences (13 current)
Teaching
BIOL 111 Introductory Biology, 4 cr – (co-taught with Dr. Paul Hardin) fall semesters, 2011-current
BIOL 635 Plant Molecular Biology, 3 cr (co-taught with Dr. Alan Pepper) – spring semesters, 2005-current
BIOL 681 Seminar in Cell Biology, 1 cr – fall 2006, spring 2007, fall 2007
BIOL 491 Undergraduate Research, 3-4 cr – spring/summer/fall 2006-current

Research Support
Current
NSF #IOS-0956486, Plasticid phosphate transport and plant biomass allocation, 02/15/2010-01/31/2014, $429,000
NSF #IOS-127224, REU Supplement to #IOS-0956486, 05/30/11-01/31/14, $5,971
NSF #IOS-1135418, REU Supplement to #IOS-0956486, 05/30/11-01/31/14, $5,954

Past
NSF #IOS-1243501, co-PI, MEPS 2013: Plant signaling systems – from cells to environment (Conference)
05/13/12-05/14/12, $13,000
NSF #IOS-0416443, Molecular physiology of phosphate transport in Arabidopsis, 08/01/04-07/31/08, $515,364.
NSF #IOS-0628896, REU Supplement to #IOS-0416443, 05/31/06-07/31/08, $5,485.

Publications (Members from my laboratory are indicated in bold, undergraduate student researchers are indicated with underline)


Wayne K. Versaw


Patents

Patent No. 5,183,752  Heat-labile phosphatase isolated from Aspergillus niger. Awarded to J.P. Markwell, W.K. Versaw, J.C. Osterman and P.M. Kelley, assignors to the Board of Regents, University of Nebraska, Lincoln, NE.

Patent No. 5,432,064  Process for dephosphorylating linear polynucleotide substrate with phosphatase from Aspergillus niger. Awarded to J.P. Markwell, W.K. Versaw, J.C. Osterman and P.M. Kelley, assignors to the Board of Regents, University of Nebraska, Lincoln, NE.
Curriculum vitae – Astrid Volder

October 28, 2013

Education

Ph. D. 1998   Utrecht University, The Netherlands. Dissertation: "Nitrogen Economy of Polar Desert Plants". Co-advisors: Dr. H. Lambers (Utrecht University) and Dr. L.C. Bliss (University of Washington).
B.Sc. 1994   Biology. Utrecht University. The Netherlands

Experience

Current position

Assistant Professor, Department of Plant Sciences, UC Davis  
Nov 2013 - current
Associate Professor, Department of Horticultural Sciences, Texas A&M University.  
Sep 2012 – Dec 2014 (on leave Jan-Dec 2014)

Past positions and Experiences

Assistant Professor, Department of Horticultural Sciences, Texas A&M University.  
Sep 2006 - Aug 2012
Postdoctoral Research Associate, Department of Forest Science, Texas A&M University.  
Jan 2004 - Aug 2006
Post-Doctoral Research Fellow, CSIRO Plant Industry and Australian National University, Australia.  
Nov 2000- Jan 2004
Postdoctoral Research Associate, Department of Horticulture, Penn State University.  
May 1998- Sep 2000

Teaching Experience

Teaching awards:

2010-2011 Montague-Center for Teaching Excellence Scholar Award for early career excellence in undergraduate teaching at Texas A&M University (university level teaching award).

Classes taught:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Semester</th>
</tr>
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<tbody>
<tr>
<td>Undergraduate level:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HORT 489</td>
<td>Urban Plant Ecology</td>
<td>Fall 2007, 2008</td>
</tr>
<tr>
<td>Graduate level:</td>
<td></td>
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</table>

Undergraduate research projects supervised:

<table>
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<tr>
<th>Course</th>
<th>Student Name</th>
<th>Title</th>
<th>Semester</th>
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### Hort 485 special projects

<table>
<thead>
<tr>
<th>Projects</th>
<th>Participants</th>
<th>Project Description</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building a green roof on A&amp;M campus</td>
<td>Mark Benoit, Lacy Brown, Emily Giffin, Jannel Gonzales, Andrew Kirkpatrick, Alexandra Langhoff</td>
<td>Fall 2013</td>
<td></td>
</tr>
<tr>
<td>Building a green roof on A&amp;M campus</td>
<td>Amy McIntyre, Ruben Cardona</td>
<td>Spring 2013</td>
<td></td>
</tr>
<tr>
<td>Building a green roof on A&amp;M campus</td>
<td>A. Alajon, C Bartzen, C Blakely, N Luong, T McIntyre, J Poe, H Riley, I Sefic, G Speer, M Weintrub</td>
<td>Fall 2012</td>
<td></td>
</tr>
<tr>
<td>Building a green roof on A&amp;M campus</td>
<td>N. Snyder, J. Storm, K. Simpson</td>
<td>Summer 2012</td>
<td></td>
</tr>
<tr>
<td>Effect of intercropping on root production and soil microbial activity</td>
<td>J. Garcia</td>
<td>Fall 2011 / Spring 2012</td>
<td></td>
</tr>
</tbody>
</table>

### Hort 491 independent research

**J. Garcia**

Effect of intercropping on root production and soil microbial activity.

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**Graduate students:**

**Committee Chair:** 3 Ph.D. and 4 M.S. students

1. **M. S. Bhavana Viswanathan** – “Effect of porous and impervious concrete on soil respiration rates and root production of American Sweetgum (*Liquidambar styraciflua*)”. **Graduated May 2010.**
2. **Ph. D. Andrew D. Cartmill** – “Effect of warming and rainfall distribution on mycorrhizal symbiosis and soil respiration in oak-savanna”. **Graduated May 2011.**
3. **Ph. D. Catherine Simpson** – “Physiological effects of saline water on two economically important horticultural crops in South Texas”. Cooperative PhD program with TAMU-Kingsville, co-chaired with Dr. Chad Nelson (TAMU-Kingsville). **Graduation December 2013** (defended, submitted)

**Committee member:** 15 Ph.D., 5 M.S., and 3 MLA.

**Post-doctoral scholars supervised:**

Dr. Cartmill “Linking root production and soil CO₂ efflux”. June 2011 – November 2011

**Research:**

**Refereed publications (28 total – pubs since 2007 shown):**

3. **Volder A** and Dvorak B. 201x. Event size, substrate water content and vegetation affect storm water retention efficiency of an un-irrigated extensive green roof system in Central Texas. Sustainable Cities and Society. [http://dx.doi.org/10.1016/j.scs.2013.05.005](http://dx.doi.org/10.1016/j.scs.2013.05.005)


* Underlined names indicate graduate students advised as chair or committee member

**Dissertation:**


**Edited Book:**


**Book chapters:** 4, **Proceedings:** 4, **Published abstracts:** 45, **Presentations without abstracts:** 20, **Invited presentations:** 11

**Internal Competitive Grants:**

- 2012–2014 TAMU TOP grant (formerly activity 2). Multidisciplinary Experiential Learning with Green Roof Technology. Volder, Dvorak (College of Architecture), Conlee (College of Geosciences). $300,000
- 2011 Texas Water Resources Institute (TWRI) research grant ($1,500 to K. Laminack, MSc student in Dept. of Horticultural Sciences, Green roof research).
- 2011 Texas Water Resources Institute (TWRI) research grant ($1,500 to J. Franco, PhD student in Dept. of Ecosystem Science and Management, Sustainable agriculture research).
- 2009 TAMU OGS travel grant to travel to the annual meeting of the Ecological Society of America in Albuquerque ($350 to A. Cartmill, PhD student in Dept. of Horticultural Sciences)
- 2009 TAMU OGS travel grant to travel to the annual meeting of the American Society for Horticultural Sciences in St. Louis ($350 to B. Viswanathan, MSc student in Dept. of Horticultural Sciences)
- 2009 TAMU College of Architecture, College Research and Interdisciplinary Council (CRIC) grant. B. Dvorak and A. Volder. “A Green Roof Pilot Study at the Texas A&M Architecture Center Langford Building A.” $10,000
- 2008 Texas Water Resources Institute (TWRI) research grant ($1,500 to B. Viswanathan, MSc student in Dept. of Horticultural Sciences, Pervious pavement research).
- 2008 Permanent Utility Fund (PUF) grant for equipment purchase ($15,000 shared with Dr. Lombardini (PI), Dept. of Horticultural Sciences). Used to buy a Licor 6400 gas exchange system.
- 2007 PUF grant for equipment purchase ($17,500 shared with Dr. Lombardini (co-PI), Dept. of Horticultural Sciences). Used to buy a minirhizotron camera system + tubes and a soil moisture measurement system (TDR) + probes.
External Competitive Grants Funded:

- **2012-2013. USDA Block grant via Texas Department of Agriculture (TDA)** “Intercropping to Mitigate Salinity Stress on Watermelons”. Volder, Franco (grad. student), Simpson (grad. student), and King. Texas Department of Agriculture. $71,300.


- **2008 – 2012 USDA SCRI (Specialty Crops Research Initiative).** Advanced sensing and management technologies to optimize resource use in specialty crops: case studies of water and nitrogen use in deciduous crops. Total value of the grant administered by UC Davis (Dr. Patrick Brown) is $3,221,134. The TAMU sub-contract for Pecan root research to Dr. Lombardini (PI) and Dr. Volder (co-PI) is $147,798 for three years and is shared between the PI’s.


- **2003 Travel award - Terrestrial Ecosystem Responses to Atmospheric and Climatic Change (TERACC) travel award to attend international meeting in Lake Tahoe, CA. $2000**

- **2003 Postdoctoral Fellowship.** CRC for Greenhouse Accounting, Australia. With Dr. John R. Evans (Australian National University). AUD 31,400.

**SERVICE**

*Professional improvement and activities:*

*Ecological Society of America (ESA)*

- Member since 1998
- Member of the Physiological Ecology Section
- Member of the Urban Ecosystem Section

*American Society for Horticultural Sciences (ASHS)*

- Member since 2007
- Member of the Southern Region Chapter
- President elect of the rhizosphere working group in 2008, 2013
- President of the rhizosphere working group in 2009
- Coordinator and moderator of the rhizosphere workshop, “Genetic control of root architectural traits” at the 2009 annual meeting in St. Louis
- Member of the endowment committee 2010 - 2015

*Service as external reviewer for scientific journals:*

Service as external reviewer for grants:

2012 Ad-hoc reviewer of 12 USDA-SARE graduate student grants, 2011 Ad-hoc reviewer for NSF, Career grant, 2010 Ad-hoc reviewer for NSF, DEB – Ecosystem Studies, 2008 Clemson University – Hatch grant

Departmental service

- Teaching assessment committee. Fall 2008 – present
- Helped develop surveys and other methods to assess departmental teaching effectiveness with particular emphasis on the teaching goals that were defined by the departmental faculty.
- Undergraduate curriculum committee. April 2011 – Nov 2013
- Graduate curriculum committee. May 2011 – Sep 2012
- Committee chair to develop a sustainable horticulture curriculum. Feb 2011 – June 2011
- Search committee member for a Crop Physiologist/Agronomist at Uvalde. Spring 2012 – Spring 2013
- Search committee member for Horticultural Landscape Specialist in extension. Fall 2011
- Graduate seminar committee. Spring 2007 – Spring 2011, chair Fall 2010 – Spring 2011
- Search committee for undergraduate academic advisor. June 2011.
- Ad-hoc budget committee. Summer 2010.

Inter-Collegiate Faculty of Molecular and Environmental Plant Sciences (MEPS)

- Member since March 2007
- Executive committee July 2010 –
- Student admissions committee 2012 – 2013
- Symposium committee 2012 -2013 (temporary chair)
- Co-PI on a TAMU-Pathways to the Doctorate fellowship 2011 (PI Gunnar Schade, Atmospheric Sciences)
- Co-PI on an NSF-IGERT proposal June 2011 (PI Dirk Hays, Soil and Crop Sciences)

College of Agriculture and Life Sciences service

Selection committee for the CTE-Montague Teaching Scholar award 2011, 2012
Member of committee on Protecting our Environment grand challenge – strategic initiative to plan for the future. 2013 -

Student organization advising

Primary advisor to the TAMU badminton club. July 2009 – present

Other service

Served as a panel member for the Center of Teaching Excellence (CTE) discussion panel on teaching at the 2010 and 2011 new faculty orientations.
Served as a CTE panel member at the ADVANCE workshop for post-docs and early career faculty in March 2012.
Served as a judge for TAMU Student Research Week 2011, 2012, 2013
Curriculum Vita

1. PERSONAL INFORMATION

Name         Jason B. West
Rank         Assistant Professor
Unit         Dept. of Ecosystem Science & Management
Address      Texas A&M University
             College Station, TX 77843

2. EDUCATION

Ph.D. Botany, 2002
University of Georgia, Athens, Georgia
Dr. Lisa A. Donovan, advisor
Thesis “The effects of dominant bunchgrass species on sandhill longleaf pine savanna ecosystem function: a comparison of wiregrass to the bluestems”

B.S., Range Science, 1996
Utah State University, Logan, Utah

3. PROFESSIONAL EXPERIENCE

Assistant Professor, September 2011 – present, tenure track
Department of Ecosystem Science and Management, Texas A&M University

Interdisciplinary Faculty Membership: Ecology and Evolutionary Biology (EEB; 2008 – present),
Molecular & Environmental Plant Sciences (MEPS; 2011 – present)
Other faculty group membership: Interdisciplinary Faculty Group in Forensic and Investigative
Sciences (IFG-FIVS; 2011 – present), Center for Food Safety, Texas A&M University (2012 – present)
Co-Director of the Stable Isotopes for Biosphere Science (SIBS) Laboratory

Assistant Professor, July 2008 – 2011, non-tenure track
Texas AgriLife Research and Extension Center, Uvalde, TX
Department of Ecosystem Science and Management, Texas A&M University

Research Assistant Professor, 2006 – 2008
Department of Biology, University of Utah

Research Associate, 2004 – 2005
Department of Biology, University of Utah

Postdoctoral Fellow, 2002 – 2004
Department of Ecology, Evolution, and Behavior, University of Minnesota
Current funding
3. United States Department of Agriculture, Agriculture and Food Research Initiative. 2011-2016. Martin, TA and the PINEMAP team (55 Co-PIs including West; 11 Universities, 8 cooperatives, United States Forest Service, and state climate offices) PINEMAP: Integrating research, education and extension for enhancing southern pine climate change mitigation and adaptation, $19,100,000. External competitive.

Previous funding
*Graduate student

Refereed journal articles (updated 9/2/13)
1. *Kui, L, F Li, G Moore, J West. in press. Can the riparian invader, Arundo donax, benefit from clonal integration? Weed Research


**Book chapters**


**Books**

Benjamin Wherley, PhD
Assistant Professor- Turfgrass Physiology & Ecology
Dept. of Soil and Crop Sciences, Texas A&M University
Phone: 979-845-1591; Fax: 979-845-0456  E-mail: b-wherley@tamu.edu

ACADEMIC APPOINTMENT
70% Research: 30% Teaching

RESEARCH
Ben’s research program involves basic and applied studies in turfgrass physiology, ecology, and management of turfgrass systems. Research seeks to identify cultural management strategies for improving resource efficiency, environmental stress tolerance, and sustainability of turfgrass systems including golf courses, lawns, athletic fields, and sod production. His program collaborates with the Texas A&M AgriLife turfgrass breeding program in evaluation and development of experimental lines of turfgrass for drought, salinity, and shade tolerance.

TEACHING
SCSC 428- Advanced Turfgrass Ecology and Physiology
SCSC 489- Professional Turf Development

ADVISING
• Chair, co-chair or committee member for 7 graduate students (5 M.S., 2 PhD)
• 4 UGR student researchers

EDUCATION
Ph.D. 2008 North Carolina State University, Crop Science
M.S. 2003 The Ohio State University, Horticulture & Crop Science
B.S. 1999 The Ohio State University, Agronomy

PROFESSIONAL EXPERIENCE
DEPARTMENT OF SOIL AND CROP SCIENCES  Oct 2011 – present
Texas A&M University, College Station, TX
Assistant Professor- Turfgrass Physiology & Ecology

TEXAS AGRILIFE RESEARCH  July 2009 – Sept 2011
Texas AgriLife Urban Solutions Center, Dallas, TX
Assistant Research Scientist- Turfgrass Management & Physiology

University of Florida, Gainesville, FL
Postdoctoral Research Associate

RECENT PEER REVIEW PUBLICATIONS


**OTHER PUBLICATIONS AND PROFESSIONAL PRESENTATIONS**

- 4 book chapters
- 26 abstracts at national or regional meetings
- 60 trade articles or technical reports
- 73 seminars, workshops, or field day presentations

**RESEARCH GRANTS AND GIFTS**

Oct. 2011- Present: Principal investigator or co-PI share of projects totaling $700,000

**HONORS AND AWARDS**

2014-2016 Fred V. Grau Turfgrass Science Award Committee
2013 MEPS Faculty Member
2007 Turfgrass Council of North Carolina Eagle’s Award Recipient
2007 Crop Science Society C5 Poster Competition- 1st place
2006 Crop Science Society C5 Oral Competition- 3rd place
2005 GCSAA Watson Fellowship Recipient
2005 NCSU Crop Science Poster Competition- 1st place
2002 Pi Alpha Xi, National Horticulture Honor Society
1999 Great Lakes Turfgrass Invitational- 1st place team
1998 Gamma Sigma Delta, National Agriculture Honor Society

**PROFESSIONAL SOCIETY MEMBERSHIP**

Crop Science Society of America, 2001- present
Golf Course Superintendents Association of America, 1999- present
Irrigation Association, 2013- present
Lonestar GCSA, 2011- present
North Texas GCSAA, 2009- present
Texas Turfgrass Association, 2009- present
Turfgrass Producers of Texas, 2009- present
SERA-IEG 025-Turf, 2006- present
Curriculum Vita

Name: Richard H. White

Rank: Professor, Soil & Crop Sciences Department
rh-white@tamu.edu

Date of appointment or last promotion: 1 September 2003

EDUCATION:

B. S. 1979 Auburn University, Agronomy
M. S. 1982 Auburn University, Agronomy
Ph. D. 1985 VPI and State University, Agronomy

EMPLOYMENT:

Professor, Soil & Crop Sciences Department, Texas A&M University, College Station, TX 77843-2474. 2004-present.
Associate Professor, Soil and Crop Sciences, Texas A&M University, College Station, TX 77843-2474. 1993-2004.
Assistant Professor, Crop Science, North Carolina State University, Raleigh, NC 27695. 1993-present.
Assistant Research Scientist, Texas A&M University Research Center, Dallas, TX 75252 1989-1990.
Assistant Research Professor, Soils and Crops Department, Rutgers University-Cook College, New Brunswick, NJ 08903 1985-1989.
Research Associate, Department of Plant Physiology and Pathology, VPI and State University, Blacksburg, VA 24061 1985.
Graduate Research Assistant, Department of Agronomy, VPI and State University, Blacksburg, VA 24061 1982-1984.
Graduate Research Assistant, Department of Agronomy and Soils, Auburn University, Auburn, AL 36849 1979-1982.

Responsibilities:

The incumbent provides leadership for a turfgrass physiology and management research and teaching program in the Soil and Crop Sciences Department. The responsibilities include the conduct of a nationally recognized research program that focuses on the development of information to understand mechanisms of stress resistance in perennial grasses that are used for turf and conservation purposes. The primary focus of the program is to develop fundamental information for an understanding of mechanisms of drought and temperature resistance in perennial grasses. Such a focus should complement turfgrass improvement programs within Texas and nationally. The research program will also contribute to applied programs in irrigation water management and conservation. The research program will also contribute to development of information through applied research for the refinement of management strategies that reduce cultural inputs required to maintained turfgrass areas. Teaching responsibilities will include at least one undergraduate course in turfgrass science. Additional academic responsibilities include advising and directing graduate students.
Teaching:

Percentage budgeted time.  65%

Undergraduate courses.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
<th>No. Sections</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGRO 428 Turfgrass Culture</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>AGRO 312 Intro. To Turf Mngt. Lab</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>AGRO 429 Turfgrass Management Systems</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>AGRO 430 Turfgrass Maintenance</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>SCSC 484 Internship</td>
<td>2 to 4</td>
<td>NA</td>
</tr>
<tr>
<td>SCSC 481 Topics in Soil &amp; Crop Sciences</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

Direction of graduate students.

<table>
<thead>
<tr>
<th>Major</th>
<th>Professor</th>
<th>Committee Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ph. D.</td>
<td>6</td>
<td>Ph. D. 2</td>
</tr>
<tr>
<td>M.S.</td>
<td>13</td>
<td>M.S. 6</td>
</tr>
<tr>
<td>M.Agr.</td>
<td>2</td>
<td>M.Agr.</td>
</tr>
</tbody>
</table>

Graduate students receiving degrees for which you were major professor.

- Thomas J. Cowett, M.S., Agronomy
- Mark H. Hall, M.S., Agronomy
- Gene R. Taylor, II, Ph.D., Agronomy
- John E. Jordan, M.S., Agronomy
- Scott Abernathy, M.S., Agronomy
- Jason L. Gray, M.S., Agronomy
- Jason E. Gaudreau, M.S., Agronomy
- Trent C. Hale, Ph.D., Agronomy
- Roger Havlak, M.S., Agronomy
- William Robinson, M.S., Agronomy
- Brandon McDonald, M.S., Agronomy
- Daniel Dewey, Ph.D., Molecular & Environmental Plant Sciences
- Timothy Pannkuk, Ph.D., Agronomy
- Whitney Milberger-Laird, M.S., Agronomy

Research Activities:

Grant Funding:

$1,981,780  1991-2013 External
$147,273  1991-2013 Internal
Peer reviewed, refereed journal articles.


Books or chapters written or edited.


Abstracts and papers.


Faculty Name:

Title

Professor of Entomology, Adjunct Professor of Soil and Crop Sciences, Jack B. Wendt Endowed Chair in Rice Research, AgriLife Research Center Director at Beaumont, Texas A&M University

Current Appointment

Administration, with split research, extension, and teaching appointment

Education

Ph.D., Entomology, University California Davis, 1977
B.S., Entomology, University California Davis, 1973
A.A., Biology, Bakersfield Junior College, Bakersfield, California, 1971

Professional Experience

Adjunct Professor of Soil and Crop Sciences, Texas A&M University, 2000-present
Center Director, Agricultural Research and Extension Center at Beaumont, Texas A&M University System, 1999-present
Professor of Entomology, Texas A&M University, 1989-present
Assistant, Associate, and Professor of Entomology, U.C. Davis, California, 1981-89
Biological Systems Analyst, U.C. Systemwide 1980-81
Research Scientist, CSIRO Division of Plant Industry, Narrabri, NSW, Australia, 1978-80
Fulbright Post-Doctoral Fellow, Queensland University, Brisbane, Australia, 1977-78

Awards and Honors

Jack B. Wendt Endowed Chair, Texas A&M University, 2001-present
Honorary Professorship, Universidad Nacional de san Martin, Tarapoto, Peru, 5/23/2007
ESCAP/ACOP Leadership Training Program, Indianapolis, Indiana, 1998-1999
National Excellence in Integrated Pest Management Award from the Entomological Society of America, 1997
Excellence in Integrated Pest Management Award from the Entomological Society of America Southwestern Branch, 1994 and 1998
Distinguished Service Award from the California Farm Bureau Federation in Recognition of Outstanding Service in Creative Teamwork, 1990
Fulbright Research Fellow, University of Queensland, Brisbane, Australia, 1977-78
Graduated with highest honors, University of California, Davis, 1977
National Science Foundation Pest Management Fellowship, U.C. Riverside, 1974.

Area of Research Specialization

Dr. Wilson’s research program is broad-based and focuses on the theory and application of quantitative principles as they pertain to agroecosystem management. His current research largely focuses on rice, energycane, high biomass sorghum, and algae cropping systems management. He has expertise in field experimental design and analysis, in the development of physiologically based food, feed, fiber, and bioenergy crop models, in biological control, and the mathematics of sampling theory and its application.

For the past 5 years, an increasing amount of his research has focused on lignocellulosic
cropping production analysis. He is the site coordinator for the Texas Upper Gulf Coast component of the Sun Grant energycane DOE feedstock project. He is currently working with a team of scientists evaluating several energycane cultivars and miscane cultivars, a subset of which are undergoing detailed phenotyping to characterize the effects of phenotypic traits on yield performance. He is part of a multi-state project that is evaluating the impact of expanding lignocellulosic crop production and management. Part of this research will identify the best approach for preventing economically damaging stem borer pests from causing economic loss to energycane, sugarcane, and rice.

Dr. Wilson’s research outreach activities largely focus on interfacing with the Texas agricultural rice industry in delivering improved management programs. Nineteen M.S./Ph.D. students have completed their degrees under his supervision. He has served on an additional 21 committees for which students have completed M.S. or Ph.D. degrees.

Publications

During Dr. Wilson’s professional career, he has published almost 700 scientific papers, nearly 200 refereed journal articles and book chapters, and over 500 research outreach papers. A large number of his publications focus on cropping systems modeling, and the development of integrated systems and databases for use in simulation analysis.

Selected Publications (from last 10 years)


Contracts and Grants

Dr. Wilson has been successful at obtaining 147 grants as a PI or Co-PI, totaling over $15.1 million, representing a wide range of competitive grants.
Professional Service

Convener and organizer for the *Ecology and Population Dynamics* section of the XXI International Congress of Entomology held in 2000 in Brazil, 1998-2000


Teaching Experience

**Dr. Wilson** has served as instructor of record for 21 courses since receiving his Ph.D. in 1977. He developed and taught for a number of years a graduate level course titled “Advanced Principles of Agroecosystem Management”.
CURRICULUM VITA
JOSHUA S. YUAN
Phone: 979 845 3016
Email: syuan@tamu.edu

Professional Experience
2013 – now
Associate Professor
Faculty of Department of Plant Pathology and Microbiology
Institute for Plant Genomics and Biotechnology
Graduate Program in Biotechnology
Graduate Program in Molecular Environmental Plant Sciences
Graduate Program in Genetics
Texas A&M University (TAMU), College Station, TX

2008 – 2013
Assistant Professor
Department of Plant Pathology and Microbiology
Institute for Plant Genomics and Biotechnology
Texas A&M University, College Station, TX

2004 – 2008
Director, Genomics Hub
University of Tennessee, Institute of Agriculture (UTIA)
Genomics Scientist, Department of Plant Sciences,
University of Tennessee, Knoxville, TN

2001 – 2004: Microarray Core Manager, Ernest Gallo Clinic & Research Center
University of California, San Francisco, CA

2000 – 2001: Senior Research Associate, BASF Plant Sciences LLC, RTP, NC

Education
Sungrant Fellow
National Renewable Energy Lab 2008
Ph.D. Major: Plant Functional Genomics, Minor: Statistics
University of Tennessee Dec. 2007
M.S. Plant Sciences
University of Arizona Aug. 2001
B.S. Major: Biology, Minor: International Economics
Fudan University Jul. 1997

Teaching
BESC357/PLPA657: Biotechnology for Biofuels and Bioproducts, Spring, 2009 – 2014, TAMU,
Evaluation: 4.90/5.00
BESC489/PLPA689: Genome Informatics, Fall, 2009 – 2013, TAMU, Evaluation: 4.67/5.00

Honor
Sigma Delta Gamma Outstanding Graduate Student, 2007
BMC Bioinformatics Most Viewed Article of the Year, in 2012: http://www.biomedcentral.com/bmcbioinformatics/mostviewed/year
BMC Bioinformatics All Time Most Viewed Article 2012 – now: http://www.biomedcentral.com/bmcbioinformatics/mostviewed/alltime
Insect Science Most Download of the Year of 2011:
Molecular approaches to study the insect gut symbiotic microbiota at the ‘omics’ age

Research Program (>$7.5 Million extramural competitive funding as leading PI in 5 years)
Project Name (for representative projects only) Agency Amount Role
Develop Synthetic Crop through Photorespiration Re-channeling and Terpenoid Biosynthesis Optimization, Phase 2
DOE ARPA E $3 Million PI
Synthetic Design of Microorganisms for Lignin Fuel
DOE EERE $2.4 Million PI
Develop Synthetic Crop through Photorespiration Re-
channeling and Terpenoid Biosynthesis Optimization,
Phase 1
DOE ARPA E $1.9 Million PI
Novel Strategy to Improve Plant Biomass by
Manipulating PHB Gene Function
Sungrant $69,985 PI
Biodesign of Lignin-Derived Terpene Biofuel
State of Texas $150,000 PI
Structure Dynamics- Guided Enzyme Improvement
Sungrant $34,966 Co-PI
Manipulating Lipid Profile of Microalgae through
Synergistic Chemical Treatment. Texas Agrilife
Biofuel Initiative.
State of Texas $200,000 PI
National Alliance for Advanced Biofuels and
Bioproducts
DOE EERE $166,592 Co-I
Systems Biology Analysis NBUS for Biofuel
State of Texas $200,000 PI

Editorial Positions & Other Activities
2011 – now Review Panel US DOE
2011 – 2013 Board of Director MidSouth Comp Biol & Bioinformatics Society
2008 – now BMC Research Notes Associate Editor
2009 US-China Bioenergy Forum Co-Chair
2010 Biofuels Guest Editor for Special Issue

Publications
1. Shangxian Xie, Xing Qin, Yanbing Cheng, Weichuan Qiao, Su Sun, Scott Sattler, Zhanguo Xin, Susie Y. Dai, Katy Gao, Bin Yang, Xiaoyu Zhang, and Joshua S. Yuan, Simultaneous conversion of all cell wall components with oleaginous fungi without chemical pretreatment, 2013, under review.
9. Yixiang Zhang, Sanmin Liu, Susie Y. Dai, Joshua S. Yuan, Integration of shot-gun proteomics and bioinformatics analysis to explore plant hormone responses, BMC
10. Dongxia Yao, Wenying Xu, Joshua S. Yuan, and Zhen Su, Comparative genome analysis and network modeling of NAC transcriptional factors to dissect the regulatory mechanisms for cell wall biosynthesis, Bioinformatics, 2012, S15: S8.


**Conference Abstracts and References are Available upon Request**
BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors. Follow this format for each person. **DO NOT EXCEED FOUR PAGES.**

**NAME**
Zhang, Xiuren

**POSITION TITLE**
Assistant Professor of Genetics & Biochemistry

**eRA COMMONS USER NAME**
XIURENZHANG

**EDUCATION/TRAINING** (*Begin with baccalaureate or other initial professional education, such as nursing.*)

<table>
<thead>
<tr>
<th>INSTITUTION AND LOCATION</th>
<th>DEGREE</th>
<th>YEAR(s)</th>
<th>FIELD OF STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hefei College of Economy and Technology</td>
<td>B.S</td>
<td>1989</td>
<td>Botany</td>
</tr>
<tr>
<td>Cornell University</td>
<td>Ph.D.</td>
<td>2003</td>
<td>Plant Molecular Biology /Biochemistry</td>
</tr>
<tr>
<td>Rockefeller University</td>
<td>Postdoc</td>
<td>2008</td>
<td>Molecular Biology /RNA Biology</td>
</tr>
</tbody>
</table>

**A. Positions and Honors.**

**Positions and Employment**
1994-1997 Assistant to Director, Beijing Academy of Agriculture & Forestry, China
2008-2013 Assistant Professor, Institute for Plant Genomics & Biotechnology and Department of Biochemistry & Biophysics Texas A&M University

**Other Experience and Professional Memberships**
2005- Member for, American Society of Plant Physiologists / New York Academy of Sciences / American Association of Pharmaceutical Scientists
2009- *Ad hoc* members for NSF / NIH /USDA

**Honors**
1985-1989 Ranked 1st places for consecutive four years for undergraduate program in HCET, P.R.China.
1996 Distinguished young fellow in Municipality of Beijing, China.
2003 Graduate student with honor in Cornell University, NY.

**B. Selected peer-reviewed publications** (* equal contribution; ** corresponding author; authors in red are undergraduates trained in my lab)*


Please refer to "http://www.sciencedirect.com/science/article/pii/S0092867411003795 for perspective on this paper; PaperFlick http://www.youtube.com/watch?v=VuQvQCxHo-c from Cell (Top 5 Cell paperflick in 2011) and http://f1000.com/search/all?query=Argonaute10&selectedDomain=all for comments by Faculty of 1000.


Please refer to http://www.f1000biology.com/article/id/1092259/evaluation for comments on this paper by Faculty of 1000.


Please refer to http://www.f1000biology.com/article/id/1026874/evaluation for comments on this paper by Faculty of 1000.


C. Patent


D. Invited talks
2) Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, China. July, 2011
3) College of Agriculture and Life Sciences, China Agricultural University, China. July, 2011
4) College of Life Sciences, Anhui University, China. July, 2011
5) College of Agriculture and Life Sciences, Zhejiang University, China. Aug. 2011
6) Department of Plant Pathology & Microbiology, Texas A&M University, USA. Aug. 2012
7) The Huck Institutes of the Life Sciences, Penn State University, USA. Feb. 2013
8) Boyce Thompson Institute for Plant Research, Cornell University, USA. Feb. 2013
9) Posttranscriptional Gene Regulation in Plants, Rhode Island, USA. July, 26, 2013
11) College of Food and Biotechnology, Hefei University of Engineering, Aug. 5, 2013
12) College of Agricultural and Life Science, Huazhong Agricultural University, Aug. 8, 2013
13) Institute of Genetics and Developmental Biology, Chinese Academy of Sciences, Aug, 12, 2013
15) The 7th International Geminivirus Symposium, Hangzhou, China. Scheduled for Nov. 2013

E. Research Support

Funding Source: NSF (MCB-0951120; 2.1.2010 - 1.31.2014)
Project Title: “Argonuate-RNA interactome in Arabidopsis.”
Total costs: $532,909  Role: PI (95%); Co-PI, Sing-Hoi Sze (5%)

Funding Source: American Heart Association
Funding Program: NCRP National Scientist Development Grant (10SDG2640139;1.1.2010 - 12.31.2013)
Project Title: “Stem cell development and organogenesis in Arabidopsis.”
Total costs: $300,000  Role: PI

Project Title: “Biochemical features of Arabidopsis Argonaute 10.”
Total costs: $170,000  Role: PI

Funding Source: Texas AgriLife; Genomic center (7.1.2011 - 6.30.2012)
Project Title: “Argonaute 10 homologs in crops.”
Total costs: $ 50,357  Role: PI

Funding Source: NIH NIAID (R21 AI097570; 2.1.2012 - 1.31.2014)
Project Title: “Pathogenesis mechanism of Geminivirus-encoded AL2 suppressor.”
Total costs: $384,357  Role: PI

Project Title: “Towards to genome-wide identification of competing endogenous RNAs in Arabidopsis.”
Total costs: $ 35,000  Role: PI; Co-PI, Xiu-Jie Wang
Funding Source: NSFC

Project Title: “CAREER: Arabidopsis Argonaute10-protein interactome”
Total costs: $1,275,000.  Role: PI
Funding Source: NIH, (R01)  
Project Title: “Mechanism of AGO10-mediated miR166 decoy and decay”  
Total costs: $1,377,000.  Role: PI

This proposal was slotted for funding but I declined it due to partial overlap with the NSF CAREER.

Funding Source: NIH, (R01 Pending)  
Project Title: “miRNA biogenesis in Arabidopsis”  
Role: PI

F. Teaching and Mentoring
The classroom teaching duties include:
Gene 302  Principles of Genetics (4-credit course for Biochemistry and Genetics major undergraduates)  
BICH 689  RNA Biology (3-credit course for graduate students; I teach one-third of this course)

The non-classroom mentoring includes:

Former Postdoctoral researchers (2): Dr. Hongliang Zhu (now a faculty in China Agricultural University, China); Dr. Changjun Huang (Zhejiang University, China)

Current Postdoctoral researchers (3): Dr. Zhonghui Zhang; Ze-yang Ma; Zhiye Wang

Ph.D. students (3): Claudia Castillo-Gonzalez; Fuqu Hu; Chunxiao Ge

Technician (1): Ronghui Wang

Visiting scholars/students (4): Yuyi Zhou; Xiuying Liu; Tao Hu; Tong Zhou

Committee member for Doctoral candidates (17): Alfredo J Hernandez; Catherine Cifuentes Rojas; Chen Ru; Xi Chen; Hengyi Xu; Kyle Renfrew; Vikas Kumar; Aldrin Benzon Lugena; Jiaxin Lei; Juanita Marie McLachlan; Shane Aaron Guthrie, Jeremy Wood; Dongyin Su, Akihito Fukudome; Katerine Leehey; Mahnaz Kianifariz

Rotation graduate students (15): Zhihobg Xue; Fuqu Hu; Huiyan Jin; Michael Zhou; Shanna Quinn Mayorov; Jaime Parra; Chenxi Wang; Claudia Castillo-Gonzalez; Shane Guthrie; Xiyu Ma; Jinggeng Zhou; Brati Das; Callie Kobayashi; Indranil Malik; Dongyin Su

Undergraduate students (26): Danielle Rekers; Katrina Trapp; Neeti Anjan Kothare; Ashley Barefoot; Lisa Wen Liou; Derian Lai; Amanda Vorpahl; Aninye Rashad; Amber Au; An Ho; Leah Barnett; Alan John; Tyler Martin; Nicole Elizabeth Schrock, Andre Nicolas Martinez, Kevin Wallace; Rachel Pacilio; Kevin Joseph Records; Chelsea Alexandra Hope; Shelley Vekasy; Chang Hwan Yi; Myrna Lilia Hurtado; Madelien Puig; Tess Pham; Khoi Ho Thi Mei; Umar Ahmed Tariq.
Keyan Zhu-Salzman
Professor
Department of Entomology
Molecular and Environmental Plant Sciences
Texas A&M University

Education
Ph.D. 1994  Entomology  Purdue University, West Lafayette, Indiana
M.S.  1988  Biology  Fudan University, Shanghai, China
B.S.  1985  Biology  Fudan University, Shanghai, China

Professional Experience
2011-  Professor, Department of Entomology, Texas A&M University
2005-2010  Associate Professor, Department of Entomology, Texas A&M University
1999-2004  Assistant Professor, Department of Entomology, Texas A&M University
1997-1999  Research Associate, Department of Entomology, Purdue University
1995-1996  Postdoctoral Researcher, Department of Entomology, Purdue University

Faculty member of four interdisciplinary programs: Biotechnology (2001-2005), Genetics (2001-2008), Molecular and Environmental Plant Sciences (2000-present), Vegetative and Fruit Improvement Cr (2006-present)

Selected Publications (Authored or coauthored 59 refereed papers)


Book Chapters


Contracts and Grants

Totaling more than $2M for research associated with insect-plant interactions; since 2000, continuous funding by USDA AFRI as the principal investigator

Professional Service

- Editorial board member for the journal Insect Science. 2010- currently
- Associate Editor for a special 'Insect-Plant Interactions' section of Insect Science. 2012-2013
- Organizing committee member for The Second International Symposium on Insect Midgut Biology. South China Normal University, Guangzhou, China. 2012
- Panelist, Entomological Foundation Awards Judging Panels, ESA, 2008-2012
- Faculty Senate at Texas A&M University, 2010-2013
- Promotion and Tenure Committee for the Department of Entomology, TAMU, 2012-2014
- Ad hoc reviewer for peer reviewed scientific journals, 2000-present


Awards and Honors

The DuPont Young Professor Award. The Corporate Center for Collaborative Research and Education and the DuPont Fellows Forum. 2004

Collaborators

Hisashi Koiwa, Horticulture, Libo Shan, Plant Pathology, Bill Rooney, Soil and Crop Sci, Greg Sword, Entomology (co-chair Diana Castillo), Spencer Behmer, Entomology (co-chair Wei Chen), Bhimu Patil, VFIC

Current Teaching Responsibility

ENTO 428 Insect Biotechnology (3cr)
ENTO 429 Insect Biotechnology Laboratory (1cr)
ENTO 681 Insect, Plant and Environment Interaction (1cr)
ENTO691/MEMP 691 Graduate Student Research (variable)

Graduate and Post-Graduate Training

As Major advisor: 5 postdocs (1 current), 7 PhD (4 current), 1 M.S.
As Committee member: 13 PhD (9 current), 1 M.S.
APPENDIX B

Symposia

1. 2013 Fall Poster Competition Flyer
2. 2013 Spring Symposium Flyer
3. 2014 Spring Symposium Flyer
Horticulture Graduate Council & Molecular & Environmental Plant Sciences (MEPS) Program announce the Graduate Student Poster Symposium

**November 20th 2013, 3:00 PM**

**Venue:** Horticulture and Forest Science Building Atrium

Please email a tentative title by November 5th and your abstracts by November 15th to Paige Graves at

(\texttt{paige\_g\_08@neo.tamu.edu})

or to Jiaxin Lei (MEPS student) at

(\texttt{Jiaxin\_lei@neo.tamu.edu})

Prizes will be given to First, Second and Third winners.

Note: Limit the poster size to 42'' × 36''

You can visit TAMU-Horticulture Graduate Council at \texttt{www.hgc.tamu.edu}
MEPS SYMPOSIUM 2013 PRESENTS
“Plant Signaling Systems – From Cells to the Environment”
Wednesday, May 15, 2013, 8:00 a.m. - 5:00 p.m.; Thursday, May 16, 2013, 8:30 a.m. – 12:30 p.m.
Interdisciplinary Life Sciences Building — Texas A&M University, College Station, TX
For Free Registration Go To – http://meps.tamu.edu

FEATURED SPEAKERS
“A Novel Fertilization and Weed Control System Based on Transgenic Plants Able to Metabolize Phosphite.”
Dr. Luis Herrera Estrella, Director and Full Professor
National Laboratory of Genomics for Biodiversity (Langebio)
Center for Research and Advanced Studies of the National Polytechnic Institute (Cinvestav)

“The Phloem Network as a Whole-plant Integrator of Developmental Signals and Nutrient Homeostasis.”
Dr. Brian Ayre, Associate Professor of Biological Sciences
University of North Texas

“Waterproof Rice Gene, SUB1A – From Genes to Farmer’s Fields.”
Dr. Takeshi Fukao, Assistant Professor of Crop and Soil Environmental Sciences
Virginia Tech

“Active DNA Demethylation during Gametogenesis Regulates Gene Imprinting and Transposon Silencing in Arabidopsis”
Dr. Tzung-Fu Hsieh, Assistant Professor of Plant Biology; Systems Biologist - Epigenetics
North Carolina State University and Plants for Human Health Institute

“Iron Deficiency: Molecular Mechanisms for Sensing and Response in Plants”
Dr. Terri Long, Assistant Professor of Plant Biology
North Carolina State University

“Vernalization: Coordinated Epigenetic Silencing by Protein and Noncoding RNA Components”
Dr. Sibum Sung, Assistant Professor of Molecular Cell and Developmental Biology
The University of Texas at Austin

THANK YOU SPONSORS
National Science Foundation; Nikon Instruments Inc.
TAMU Office of Graduate Studies; College of Agriculture and Life Sciences –
Department of Biochemistry and Biophysics, Department of Horticultural Sciences,
Department of Plant Pathology and Microbiology, Department of Soil and Crop Sciences
Texas A&M University
Molecular and Environmental Plant Sciences

presents

2014 MEPS Symposium “Plant Stress Response: from Genomics to Ecosystems”

Monday, May 12, 2014, 8:00 a.m. - 5:00 p.m.
Tuesday, May 13, 2014, 8:30 a.m. – 12:30 p.m.
Interdisciplinary Life Sciences Building – Texas A&M University, College Station, TX
For Free Registration Go To – http://meps.tamu.edu

FEATURED SPEAKERS

Dr. Thomas Sharkey, Professor and Department Chair
Department of Biochemistry & Molecular Biology
Michigan State University

Dr. Lisa Donovan, Professor
Department of Plant Biology
University of Georgia

Dr. Georg Jander, Associate Professor
Boyce Thompson Institute for Plant Research
Cornell University

Dr. Thomas Juenger, Professor
Department of Integrative Biology
University of Texas at Austin

Dr. Andrew Leakey, Associate Professor of Plant Biology
Institute of Genomic Biology, Department of Biology
University of Illinois at Urbana-Champaign

Dr. Hideki Takahashi, Assistant Professor
Department of Biochemistry & Molecular Biology
Michigan State University

THANK YOU SPONSORS
College of Agriculture and Life Sciences, Nikon, Decagon, VWR
Institute for Plant Genomics & Biotechnology
Department of Biology, Department of Ecosystem Science & Management, Department of Horticultural Sciences,
Department of Plant Pathology and Microbiology, Department of Soil & Crop Sciences
APPENDIX C

18 Characteristics

1. 2012 - 18 Characteristics Report
2. 2013 – 18 Characteristics Report
Texas A&M University  
**18 Characteristics of Texas Public Doctoral Programs**

Programs included only if in existence 3 or more years. Program is defined at the 8-digit CIP code level.

<table>
<thead>
<tr>
<th>Department</th>
<th>Interdisciplinary Faculty of Molecular &amp; Environmental Plant Sciences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctoral Degree Program</td>
<td>Molecular and Environmental Plant Sciences</td>
</tr>
<tr>
<td>Contact Name</td>
<td>Dirk Hays</td>
</tr>
<tr>
<td>Contact Phone Number</td>
<td>979-458-0032</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1</th>
<th>Number of Degrees Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average, 2009-2012</td>
</tr>
<tr>
<td></td>
<td>Three-year average of the number of degrees awarded per academic year</td>
</tr>
<tr>
<td>2009-2010</td>
<td>5</td>
</tr>
<tr>
<td>2010-2011</td>
<td>4</td>
</tr>
<tr>
<td>2011-2012</td>
<td>3</td>
</tr>
<tr>
<td>3 Year Average</td>
<td>4.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2</th>
<th>Graduation Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Starting Cohorts: 2000-2002</td>
<td>Three-year average of the percent of first-year doctoral students who graduated within ten years. First-year doctoral students: Those students who have been coded as doctoral students by the institution and have either completed a master's program or at least 30 SCH towards a graduate degree.</td>
</tr>
<tr>
<td>% Graduating within 10 Years</td>
<td>93.75%</td>
</tr>
<tr>
<td>Years with Cohort greater than 0</td>
<td>2000, 2001, 2002</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>Average Time to Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students Starting 2000-2002</td>
<td>Three-year average of the registered time to degree[3] of first-year doctoral students within a ten year period. [3] Registered time to degree: The number of semesters enrolled starting when a student first appears as a doctoral student until she completes a degree, excluding any time taken off during graduate study. The number of years is obtained by dividing the number semesters by three.</td>
</tr>
<tr>
<td>Average Years to Degree</td>
<td>5.43</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Employment Profile</th>
</tr>
</thead>
<tbody>
<tr>
<td>(In field within one year of graduation). For each of the three most recent years, the number and percent of graduates by year employed, those still seeking employment, and unknown</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Employed</td>
</tr>
<tr>
<td></td>
<td>Number</td>
</tr>
<tr>
<td>2008-2009</td>
<td>4</td>
</tr>
<tr>
<td>2009-2010</td>
<td>2</td>
</tr>
<tr>
<td>2010-2011</td>
<td>2</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>5</th>
<th>Admissions Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Requirements plus letters of recommendation and personal interview</td>
<td><strong>Description of admission factors</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6</th>
<th>Percentage Full-time Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>FTS/number of students enrolled for the last three fall semesters.</td>
<td>Fall 2010</td>
</tr>
<tr>
<td></td>
<td>Fall 2011</td>
</tr>
<tr>
<td></td>
<td>Fall 2012</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>7</th>
<th>Average Institutional Financial Support Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>For those receiving financial support, the average monetary institutional financial support provided per full-time graduate student for the prior year, from assistantships, scholarships, stipends, grants, and fellowships. Does not include tuition or benefits.</td>
<td>$20,629.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>8</th>
<th>Percentage Full-Time Students with Institutional Financial Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>In the prior year, the number of full-time students with at least $1,000 of annual support/the number of full-time students</td>
<td>77.00%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9</th>
<th>Number of Core Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of core faculty in the prior year</td>
<td>42</td>
</tr>
</tbody>
</table>

| Student-Core Faculty Ratio | .5 |
### Core Faculty Publications
Three-year average of the number of discipline-related refereed papers/publications, books/book chapters, juried creative/performance accomplishments, and notices of discoveries filed/patents issued per year per core faculty member.

### Core Faculty External Grants
Three-year average of the number of core faculty receiving external funds, average external funds per faculty, and total external funds per program per academic year. All external funds received from any source including research grants, training grants, gifts from foundations, etc., reported as expenditures.

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average of the Number of Core Faculty</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Average External Funds per Faculty</td>
<td>$609,363.00</td>
<td></td>
</tr>
<tr>
<td>Total External Funds</td>
<td>$24,374,511.00</td>
<td></td>
</tr>
</tbody>
</table>

### Faculty Teaching Load
Total number of semester credit hours in organized teaching courses taught per academic year by core faculty divided by the number of core faculty in the prior year

### Faculty Diversity
Core faculty by ethnicity (White, Black, Hispanic, Other) and gender, updated when changed

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>Black</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### Student Diversity
Enrollment headcount by ethnicity (White, Black, Hispanic, Other) and gender in program in the prior year

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Black</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### Date of Last External Review
Date of last formal external review, updated when changed

#### 2005-2006

### External Program Accreditation
Name of body and date of last program accreditation review, if applicable, updated when changed

#### N/A

### Student Publications/Presentations
For the three most recent years, the number of discipline-related refereed papers/publications, juried creative/performance accomplishments, book chapters, books, and external presentations per year by student FTE

#### 23
### Contact Information

Information for the person filling out the form for the department.

**Department** Molecular and Environmental Plant Sciences  
**Doctoral Degree Program** Molecular and Environmental Plant Sciences  
**Program Code** MEPS  
**Contact Name** LeAnn Hague  
**Contact Phone Number** 845-6148

### 1. Number of Degrees Per Year

Three-year average of the number of degrees awarded per academic year.

<table>
<thead>
<tr>
<th>Year</th>
<th>Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010-2011</td>
<td>4</td>
</tr>
<tr>
<td>2011-2012</td>
<td>3</td>
</tr>
<tr>
<td>2012-2013</td>
<td>4</td>
</tr>
</tbody>
</table>

Average 2010-2013 3.7

### 2. Graduation Rates

Three-year average of the percent of first-year doctoral students who graduated within ten years. First-year doctoral students: Those students who have been coded as doctoral students by the institution and have either completed a master's program or at least 30 SCH towards a graduate degree.

<table>
<thead>
<tr>
<th>Starting Cohorts</th>
<th>Percent Graduating within 10 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2003</td>
<td>94.1%</td>
</tr>
</tbody>
</table>

Years with Cohorts greater than 0 2001,2002,2003

### 3. Average Time to Degree

Three-year average of the registered time to degree (3) of first-year doctoral students within a ten year period. [3] Registered time to degree: The number of semesters enrolled starting when a student first appears as a doctoral student until she completes a degree, excluding any time taken off during graduate study. The number of years is obtained by dividing the number semesters by three.

<table>
<thead>
<tr>
<th>Students Starting</th>
<th>Average Years to Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-2003</td>
<td>5.3</td>
</tr>
</tbody>
</table>

### 4. Employment Profile

(In field within one year of graduation). For each of the three most recent years, the number and percent of graduates by year employed, those still seeking employment, and unknown.

<table>
<thead>
<tr>
<th>Year</th>
<th>Employed Number</th>
<th>Employed Percent</th>
<th>Still Seeking Employment Number</th>
</tr>
</thead>
</table>

https://moses.tamu.edu/doctoralcharacteristics/Form.aspx 3/6/2014
5. Admissions Criteria
Description of admission factors.

University requirements, resume, letters of recommendation, personal interview.

6. Percentage Full-Time Students
FTS/number of students enrolled for the last three fall semesters.

<table>
<thead>
<tr>
<th>Semester</th>
<th>Fall 2011</th>
<th>Fall 2012</th>
<th>Fall 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Semester 1</td>
<td>76.5</td>
<td>94.4</td>
<td>88.9</td>
</tr>
<tr>
<td>Fall Semester 2</td>
<td>75.00</td>
<td>100.00</td>
<td>100.00</td>
</tr>
<tr>
<td>Fall Semester 3</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Still Seeking Employment Percent
Unknown Number
Unknown Percent

7. Average Institutional Financial Support Provided
For those receiving financial support, the average monetary institutional financial support provided per full-time graduate student for the prior year, from...

https://moses.tamu.edu/doctoralcharacteristics/Form.aspx
assistantships, scholarships, stipends, grants, and fellowships. Does not include tuition or benefits.

8. Percentage Full-Time Students with Institutional Financial Support
In the prior year, the number of full-time students with at least $1,000 of annual support/the number of full-time students.

<table>
<thead>
<tr>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>80.00</td>
</tr>
</tbody>
</table>

9. Number of Core Faculty
Number of core faculty in the prior year.

<table>
<thead>
<tr>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
</tr>
</tbody>
</table>

10. Student-Core Faculty Ratio
Three-year average of full-time student equivalent (FTSE)/three-year average of full-time faculty equivalent (FTFE) of core faculty. Core Faculty: Full-time tenured and tenure-track faculty who teach 50 percent or more in the doctoral program or other individuals integral to the doctoral program who can direct dissertation research.

<table>
<thead>
<tr>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8</td>
</tr>
</tbody>
</table>

11. Core Faculty Publications
Three-year average of the number of discipline-related refereed papers/publications, books/book chapters, juried creative/performance accomplishments, and notices of discoveries filed/patents issued per year per core faculty member.

<table>
<thead>
<tr>
<th>Publications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.74</td>
</tr>
</tbody>
</table>

12. Core Faculty External Grants
Three-year average of the number of core faculty receiving external funds, average external funds per faculty, and total external funds per program per academic year. All external funds received from any source including research grants, training grants, gifts from foundations, etc., reported as expenditures.

<table>
<thead>
<tr>
<th>Average of the Number of Core Faculty Receiving</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.30</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average External Funds per Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>$986886.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total External Funds</th>
</tr>
</thead>
<tbody>
<tr>
<td>$24014227.00</td>
</tr>
</tbody>
</table>

13. Faculty Teaching Load
Total number of semester credit hours in organized teaching courses taught per academic year by core faculty divided by the number of core faculty in the prior year.

<table>
<thead>
<tr>
<th>Teaching Load</th>
</tr>
</thead>
<tbody>
<tr>
<td>12.8</td>
</tr>
</tbody>
</table>

14. Faculty Diversity
Core faculty by ethnicity (White, Black, Hispanic, Other) and gender, updated when changed.

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>22</td>
</tr>
</tbody>
</table>

https://moses.tamu.edu/doctoralcharacteristics/Form.aspx 3/6/2014
### 15. Student Diversity

*Enrollment headcount by ethnicity (White, Black, Hispanic, Other) and gender in program in the prior year.*

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>8</td>
<td>2</td>
</tr>
</tbody>
</table>

### 16. Date of Last External Review

*Date of last formal external review, updated when changed.*

2006

### 17. External Program Accreditation

*Name of body and date of last program accreditation review, if applicable, updated when changed.*

### 18. Student Publications/Presentations

*For the three most recent years, the number of discipline-related refereed papers/publications, juried creative/performance accomplishments, book chapters, books, and external presentations per year by student FTE.*

26.00