

CURRICULUM VITAE

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MARITAL STATUS Married

CITIZENSHIP USA

SECURITY CLEARANCE Top Secret

EXPERIENCE

| | | |
|--------------|--|---|
| 2018-Present | President | Northwest Commission on Colleges and Universities, Redmond, WA |
| 2012-2018 | Director Appointed by Pres. Barack Obama | National Institute of Food and Agriculture United States Department of Agriculture |
| 2009-2012 | Dean and Reub Long Professor Director | Oregon State University Oregon Agricultural Experiment Station |
| 2006-2009 | Director and Associate Dean | Purdue University |
| 2004-2006 | University Distinguished Professor and Head | Kansas State University |
| 1997-2004 | Tenured Professor and Head | Kansas State University |
| 1995-1998 | Ad-Hoc Graduate Faculty | University of Kansas |

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| 1994-1997 | Graduate Coordinator | Mississippi State University |
| 1992-1997 | Tenured Professor | Mississippi State University |
| 1992 | Visiting Associate Professor | Cornell University |
| 1988-1992 | Tenured Associate Professor | Mississippi State University |
| 1982-1988 | Assistant Professor | Mississippi State University |
| 1979-1982 | Post-doctoral Research Associate | Michigan State University |
| 1976-1980 | Research Assistant | Rutgers University |
| 1973-1975 | Research Assistant | University of Agric. Sciences, Bangalore, India |

EDUCATION

| | | | |
|------|------------|------------|---|
| 1980 | Ph. D. | Entomology | Rutgers University New Brunswick, NJ 08903 |
| 1976 | M. Sc (Ag) | Entomology | University of Agric. Sciences Bangalore 560 024, INDIA |
| 1973 | B. Sc (Ag) | Entomology | University of Agric. Sciences Bangalore 560 024, INDIA |

CONTINUING EDUCATION

| | | |
|------|--|--------------------------------|
| 2006 | New Dean/Director/Administrator and National Program Workshop | NIFA, Washington, DC |
| 2003 | Academic Chairpersons Conference Workshop | Orlando, FL |
| 2001 | Management Development Program | Harvard University |
| 1997 | Newly Appointed Administrators Workshop | University of Nebraska-Lincoln |

HONORS, AWARDS, DISTINGUISHED LECTURES

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|-----------|---|
| 1969-1973 | Merit Scholarship for B. Sc (Ag), University of Agricultural Sciences, Bangalore, India |
| 1973-1975 | Junior Fellowship for M. Sc (Ag), Indian Council of Agricultural Research (Govt. of India) |
| 1976-1977 | J. N. Tata (India) Fellowship for Ph. D. in the United States of America |

- 1969-1976 **Highest grade point average** in Entomology during B. Sc (Ag) and M. Sc (Ag), University of Agricultural Sciences, Bangalore, India
- 1980 **Thomas J. Headlee Fellow** Rutgers University
- 1996 **Keynote Sigma Xi Lecturer** University of Idaho, Moscow, ID
- 1998 **Karl Marmarosch Distinguished Alumnus Award** Rutgers University
- 1998 **F. S. Arant Memorial Speaker** Auburn University
- 1999 **ESA Recognition Award** in Insect Physiology, Biochemistry, and Toxicology. Southeastern Branch, Entomological Society of America
- 2000 **Charles Lincoln Memorial Keynote Speaker** University of Arkansas
- 2001 **Fellow** of the American Association for the Advancement of Science
- 2002 **Presidential Award** for Outstanding Department Head, Kansas State University
- 2003 **Board Certified Entomologists Educational Project Award** Co-recipient along with Lee Manske and Ralph Charlton for design of the KSU Butterfly Conservatory and Insect Zoo
- 2003 **Dennis M. Fenton Distinguished Graduate Alumni Award** Cook College, Rutgers University
- 2004 **Entomological Society of America Recognition Award in Entomology** Northcentral Branch
- 2004 **University Distinguished Professor** Kansas State University
- 2005 **Fellow** of the Entomological Society of America
- 2012 **Commencement Address Society, 21st Century Land Grant Universities, and Graduates' Role in Addressing Wicked Problems.** Colorado State University, College of Agricultural Sciences. Ft. Collins, CO. December 15, 2012
- 2013 **Honorary Member and William A. "Tex" Frazier Lecturer** American Society for Horticultural Science
- 2013 **Presidential Award** Soil Science Society of America
- 2014 **Distinguished Lecture** National Academy of Agricultural Sciences, New Delhi, India
- 2014 **President Sam Smith Distinguished Lecture** Washington State University
- 2014 **Honorary Doctorate** University of Agricultural Sciences, Bangalore, India
- 2015 **George Washington Carver Distinguished Lecture** Tuskegee University, Tuskegee, AL

- 2016 **Outstanding Achievement Award.** Leadership and Dedication to Serve Asian American and Pacific Islander Population. Asian Pacific American Network. Washington, DC.
- 2016 **Distinguished Lecture** *Feeding the World by User-Inspired Science* Environmental Science and Policy Program, Michigan State University. October 18, 2016.
- 2016 **Commencement Address** *Seven Deadly Sins: Lessons from Mahatma Gandhi and Martin Luther King for 21st Century Graduates and Society.* University of Arkansas-Pine Bluff. Pine Bluff, AR. December 9, 2016
- 2017 **Distinguished Lecture 2017 CALS Lecture Series** University of Idaho, Moscow, ID
- 2017 **Food Systems Leadership Award for Extraordinary Impacts** Food Systems Leadership Institute, Washington, DC
- 2018 **Davis-Michael Distinguished Lecture** West Virginia University, Morgantown, WV
- 2018 **Commencement Address** *Inspirational Lessons from Mahatma Gandhi and Martin Luther King for 21st Century Graduates.* University of Connecticut, May 5, 2018
- 2018 **Hutchinson Medal** recognizing outstanding leadership and professional accomplishment in furthering horticulture, plant science, or conservation. Chicago Botanic Garden and Chicago Horticultural Society
- 2018 **Leader in Agriculture Award** Agriculture Future of America, Kansas City, MO.
- 2018 **Outstanding Service Award** Entomological Society of America, Vancouver, Canada
- 2019 **Richards-Hodson Distinguished Lecture** University of Minnesota, St. Paul, MN
- 2019 **Election as Honorary Member** of the Entomological Society of America for sustained and distinguished service
- 2019 **Ellen Swallow Richards Public Service Award** for visionary leadership and exceptional contributions to advance the Human Sciences. Board on Human Sciences of the Association of Public and Land-grant Universities
- 2021 **Commencement Address** *Diversity, Equity, and Inclusion: Role of Health Sciences Graduates to Help Address Disparities in Healthcare.* University of Western States, June 18, 2021
- 2021 **Honorary Doctorate** University of Western States, Portland, Oregon

THESES

- Masters:** Chemosterilization of the gram pod borer, *Heliothis armigera* (Hubner) (Lepidoptera: Noctuidae). Department of Entomology, University of Agricultural Sciences, Bangalore 560 024, INDIA

Doctorate: Precopulatory behavior of *Blattella germanica* (L.) (Dictyoptera: Blattellidae): Effects of juvenile hormone on sense organs and responses of females to synthetic male tergal gland secretions. Department of Entomology, Rutgers University, New Brunswick, New Jersey 08903

HOBBIES

Motorcycling and Harley-Davidson motorcycles, Reading, Crossword puzzles

PROFESSIONAL SOCIETIES

Entomological Society of America
American Association for the Advancement of Science

ADMINISTRATIVE RESPONSIBILITIES AND EXPERIENCE

Northwest Commission on Colleges and Universities (NWCCU) (July 2018-Present)

I lead the Northwest Commission on Colleges and Universities, which is one of seven regional organizations recognized by the U.S. Department of Education as the authority on the educational quality and institutional effectiveness of higher education institutions.

The mission of the Northwest Commission on Colleges and Universities (NWCCU) is to accredit institutions of higher education by applying evidence-informed standards and processes to support continuous improvements and promote student achievement and success.

NWCCU accredits over 160 institutions of higher learning in Alaska, Idaho, Montana, Nevada, Oregon, Utah, and Washington, British Columbia, Canada, and other parts of the United States and internationally.

National Institute of Food and Agriculture (NIFA) (May 2012-May 2018)

As a senior federal official—director of NIFA—appointed by Pres. Barack Obama and then in the Donald Trump administration, I was responsible for providing leadership and direction in the formulation of broad, national policies needed to support extramural research, education, and Extension through the administration of Federal funding. I was responsible for providing national leadership and support for science, research, extension, and education programs and other cooperative activities in the food, agricultural, natural resource, and human sciences to meet major needs and challenges in food and agricultural system productivity; development of new food, fiber, and energy sources; agricultural energy use and production; sustainable natural resources use; promotion of the health and welfare of people; human nutrition; and international food and agriculture. In addition, my role was to help forge linkages with land-grant and other universities and colleges, stakeholders, including members of Congress and their staff, and beneficiaries and other organizations including scientific and professional associations, research foundations, industries, and other government agencies.

I managed a budget of approximately \$1.6 Billion and a staff of approximately 400 permanent, temporary, and contractual employees. Priorities for seeking and investing funds were developed in line with those of the President, USDA Secretary, the Office of Management and Budget, the Office of

Science and Technology Policy (OSTP), Congress, land-grant university partners, and other stakeholders. I worked with agency staff, departmental leadership, and the Office of Management and Budget to develop the agency budget, and then testified before relevant committees in Congress to seek appropriations of the funds. I provided leadership for the development and deployment of science priorities in the 2012 and 2018 Farm Bills.

During President Obama's term, I was appointed to a number of White House and OSTP workgroups and committees, including service as Co-Chair for the Workgroup on Grand Challenges, as part of President Obama's Second Term Agenda on Economic Growth. Similarly, I was named by Dr. John Holdren, President Obama's Science Advisor, to co-chair the Subcommittee on Food and Agriculture under the National Science and Technology Council to develop a national framework and agenda for food and agricultural science and research needs. I also served on OSTP's Subcommittee on Advanced Manufacturing, which helped articulate a vision for advanced manufacturing and which contributed to a number of advanced manufacturing institutes across America.

Oregon State University (August 2009-May 2012)

I provided overall leadership as dean of the College of Agricultural Sciences and director of the Oregon Agricultural Experiment Station, with a budget approaching \$125 Million for the College's programs at the Corvallis campus, at the OSU Cascades Campus in Bend, and OSU programs at Eastern Oregon University in La Grande; for-credit extended education; informal education through the Agricultural Sciences and Natural Resources Extension Program; and research at the main campus and 11 branch experiment stations throughout the state. As chief administrative officer of the college, I served as the principal external representative of the College and the Oregon Agricultural Experiment Station, and helped shape and guide the College's external relations, marketing, legislative and alumni relations, friend-building, fund-raising, and development activities. I served also as a member of the senior leadership team of the University, participating in institutional strategic planning, goal-setting, and resource allocation. I worked collaboratively with the deans of other colleges to help ensure cross-college planning, coordination, joint programs, shared faculty appointments, and other activities that advanced the University's goal of collaboration and interdisciplinary education.

At Oregon State University, I facilitated unprecedented success in extramural research support and donations to the College and was able to work with stakeholders to significantly mitigate the devastating state budget cuts. I also facilitated the development of the College's strategic direction and restructuring. We created an environment of research, extension, and teaching scholarship, which resulted in the College being recognized for its preeminence and global ranking amongst the top 10 colleges of agriculture. I envisioned, fund-raised for, and created the Leadership Academy, an extra-curricular entity to inculcate non-cognitive and leadership skills in undergraduate students. Capitalizing on the College's strength in enology and viticulture, brewing, and cheese making, I crafted a vision to create a Center for Innovations in Fermentation aka *iFerm*, with its first product being the Beaver Classic Comte-style artisan cheese.

Purdue University (January 2006-July 2009)

I provided leadership for research programs as Director of Agricultural Research Programs and Associate Dean for Research in the College of Agriculture at Purdue University, with a budget approaching \$100 Million for efforts in agriculture, food, and natural resources, including fiscal management and regulatory functions assigned by the Indiana State Legislature. I also oversaw research and the physical

infrastructure at the Purdue College of Agriculture, eight regional Purdue Agriculture Centers, research farms and woodlands, campus-based research facilities and nearly 30 research centers and institutes. I coordinated Federal capacity and formula-funded research at the Purdue College of Consumer and Family Sciences and School of Veterinary Medicine, the Animal Disease and Diagnostic Laboratory, and facilitated effective linkages with other Purdue research communities and with Cooperative Extension. I facilitated the creation of intellectual communities to address issues as a collaborative partnership between faculty in the Colleges of Agriculture, Engineering, Science, Consumer and Family Sciences, Veterinary Medicine, and Pharmacy. Similarly, I facilitated the creation of integrated research and Extension teams to address issues of importance to Indiana and the region, and facilitated multi- and trans-disciplinary research and education projects on bioenergy, climate change, water, agroecology, and food security and production agriculture—my proudest achievement was to help faculty, staff, and students work across disciplines to address societal challenges, and the concomitant success on several multi-million dollar grants.

During my tenure, Purdue Agriculture's extramural research grants increased by nearly 30% to well over \$60 million. In addition to these responsibilities, I liaised with the Indiana federal and state representatives, the Indiana State Department of Agriculture, Department of Natural Resources, Department of Environmental Management, and Board of Animal Health, stakeholder organizations such as the Farm Bureau, and commodity organizations, including the checkoff programs.

Kansas State University (June 1997-January 2006)

As department head of a comprehensive department at a land-grant university with a budget of nearly \$5 Million and tripartite mission of research, extension, and teaching, my role was to provide leadership in all aspects of departmental administration such as budgeting, personnel issues and evaluations, graduate program coordination, facilitation of research, extension, and teaching activities, resource and space renovations and allocation, fund raising, conflict resolution, and advocacy at higher administrative levels. As a department head, I believed promoting diversity was something that comes from the heart and from the head – i.e., it is the right thing to do and it is good for our organization. Facilitating development was a significant part of what I did from the perspective of developing our faculty, staff, and students and also from the perspective of developing opportunities for our clientele and end users.

I was particularly effective in nurturing and mentoring people, team building, facilitating excellence in teaching, research, and extension, and conflict resolution. I used positive reinforcements to help alleviate factionalism, rancor, and ill will by: 1) focusing on the mission; 2) taking a proactive approach; 3) being a catalyst, facilitator, and advocate; and 4) promoting an optimistic vision and core values in the department. Additionally, I did things by example, i.e., be a role model for everyone in the department. By this method, I was able to get everyone excited about doing things.

My actions as a department head entailed being responsive to our students, faculty, staff, clientele, and stakeholders, and to provide better service with greater accountability. My administrative style abhorred top down micro-management, with little or no input in decision-making processes. I solicited input from everyone, but ultimately, I made the decision; and I was willing to change a decision if warranted. A key to my effective leadership was communication.

My approach as department head was to serve as a facilitator and catalyst, and I had a clear sense of my shortcomings, which I used to promote excellence amongst faculty, staff, and students. My effectiveness as an administrator is due, in part, to rapport with people and my gregarious nature and excitement

about science, education, and outreach, being a cheerleader, and the ability to point out the possibilities.

SUPPORT OF DIVERSITY AND INCLUSION

I have taught and mentored high school, undergraduate, graduate, and veterinary students and post-doctoral associates, particularly women and minorities.

For over a decade with significant and continuous funding from the National Institutes of Health, I recruited and mentored African American college students from Tougaloo College, a historically black institution in Jackson, Mississippi, who worked with me to undertake scientific research and learn leadership skills, critical and problem solving skills, and communication skills. These students were coauthors on scientific publications, and they went on to pursue medical education and are now practicing doctors.

I developed an effort at facilitating greater and measurable opportunities for students of color by raising money to endow the Minorities in Agriculture and Natural Resource Related Sciences (MANRRS) program at Oregon State University, where I also envisioned, created, and endowed the Leadership Academy, including an endowed professorship, to inculcate non-cognitive and leadership skills in undergraduate students; executing experiential/service learning requirement for students.

As director of NIFA, I created a purposeful approach to creating an inclusive environment in the agency, which included offering workshops and training to staff on issues related to implicit and explicit bias, development of position descriptions for our scientific positions that allowed us to attract the broadest pool of applicants, recruitment of a diverse pool of staff, formal and informal mentoring to ensure success of staff. I provided the vision and support to create a number of Special Emphasis Programs to ensure our diverse staff representing different ethnicities and races and gender and sexual orientation are all welcomed, nurtured, and supported to be successful. I had significant success in hiring a diverse workforce, particularly at the executive leadership level – amongst my senior executives, I hired an African American male, two African American females, a Caucasian female, a Hispanic female, two Asian males, and two Caucasian males. In the lower cadres, over 40 percent of my staff belonged to under-represented groups. Indeed, the US Department of Agriculture recognized NIFA for its diversity and for its Special Emphasis Programs focused on supporting minorities. Additionally, over the last several years, the Asian Pacific American Network in Agriculture (APANA) recognized my efforts in support of NIFA's Asian American and Pacific Islander (AAPI) staff (https://nifa.usda.gov/sites/default/files/resource/aapi_brochure_rev_fnl.pdf).

NIFA oversees and supports America's 1890 Historically Black Land-Grant Universities, 1994 Tribal Land-Grant Colleges and Universities, Hispanic Serving Agricultural Colleges and Universities, and Alaska Native- and Native Hawaiian-Serving (ANNH) Institutions. As director of NIFA, I made a commitment to seek increased funding for our Minority Serving Institutions (MSIs) across America, and I have had exceptional success in obtaining the same from Congress during my six-year term. I provided the vision for also creating professional development opportunities and grants workshops to enhance success of faculty at MSIs. These latter efforts have contributed to significant increases in success rates of grants submitted by faculty from underrepresented groups and from MSIs.

I chaired the AAPI efforts at USDA and, as such, represented USDA at the White House AAPI Initiative under President Barack Obama. Under this program, we developed an aggressive effort to support the unique needs of AAPIs within USDA and across the United States, many of whom are new immigrants

and often do not speak English and, therefore, cannot avail USDA's offerings. I worked with several agencies to collate funding that was offered to Michigan State University under a cooperative agreement to translate USDA resources into myriad Asian languages and to create a website to offer the same to AAPI communities across America. These efforts have resulted in tangible increase in engagement by AAPIs with USDA programs, including grants from NIFA. NIFA's Limited English Proficiency program (<https://nifa.usda.gov/resource/limited-english-proficiency>) was significantly improved under my leadership, and I provide the vision and articulated my expectations to make all of NIFA's web pages translatable using the Google Translator (<https://nifa.usda.gov>).

I also have supported the Federal Asian Pacific American Council (FAPAC) and the Asian American Government Executives Network (AAGEN) in their efforts to support, recruit, and retain not just Asian Americans but also men and women from underrepresented groups in positions in the US government; AAGEN is focused exclusively on the Senior Executive Service (SES) cadre and offers workshops and mentoring, both of which I was involved in actively.

As part of my efforts to support future executives, I continue to mentor and coach women and minorities.

CORE EXECUTIVE QUALIFICATIONS AND ACCOMPLISHMENTS

Executive Competencies

The bulk of my career has been in the academy. I have studied and worked as an educator, scientist, and administrator at multiple Land-Grant Universities in the United States—in New Jersey, Michigan, Mississippi, New York, Kansas, Indiana, and Oregon. As a leader, I articulated the vision for, nurtured, and managed the units, personnel, budgets, programs, and direction. Additionally, I acquired knowledge and skills in advancement and development, and executed a strong development program and raised funds for the units I headed.

I have used evidence-based approaches to measure outcomes and impacts, which were enabled by helping craft and getting buy-in for a strategic vision that contributed to success in obtaining significant additional funding from: 1) the state and federal governments, even during the last 15 years plus when budgets were being cut; and 2) from alumni and other donors, including corporate, private sector, non-governmental, and (agricultural) commodity groups.

Over the last almost two decades, I have managed increasingly large and complex operations, including an academic department, university agricultural research programs, a college, and a federal government agency, with a staff ranging from 40 to over 700, excluding student workers. I have managed budgets ranging from approximately \$5 million to approximately \$1.6 billion.

As a senior official in the Obama Administration, and now in the Trump Administration, heading the National Institute of Food and Agriculture (NIFA), my priorities for seeking and investing funds are developed in line with those of President Barack Obama and USDA Secretary Tom Vilsack, Congress, university partners, and other stakeholders. I work with Agency staff, departmental leadership, Office of Science and Technology Policy, and the United States Office of Management and Budget to develop the Agency budget, and then testify before relevant committees in Congress to seek the funds. Since my taking the helm of NIFA, we have had remarkable success in obtaining significant increases in funding; our budget request has increased by almost \$350 million between Fiscal Year 2013 and Fiscal Year 2016.

In President Obama's Fiscal Year 2017 budget request, NIFA's flagship competitive grants program, the Agriculture and Food Research Initiative (AFRI), is proposed to receive a 100 percent increase in funding, which is the highest proposed increase of any federal science agency—this has come about because we have created a compelling, stakeholder-driven vision, which has been supported by Secretary Vilsack and by the White House. During my tenure at NIFA, we have revamped the Agency's funding priorities based on stakeholder input; developed a close working relationship with a broad community of university partners and other stakeholders and with congressional representatives and staffers; helped enhance the global stature of the Agency; synergized inter-agency—with NIH, NSF, DOD, USAID, EPA, DOE, NASA, NOAA, DARPA, ARPA-E, and DoED—and international partnerships with agencies in Israel, the UK, Ireland, and the EU. With the investments made, we have articulated a vision for and promoted greater collaboration and partnerships between biophysical scientists and social scientists throughout the United States.

I have promoted use of *Lean Six Sigma Continuous Process Improvement* approaches and revamped business processes, IT infrastructure, reporting/accountability systems, and improved data systems and online presence; set into motion NIFA going paperless; promoted "just-in-time" grants application process and streamlining awards management; modernized grants processes; and initiated a new, stakeholder driven strategic direction.

In my various administrative roles, as department head, director, and dean, I have been involved in facilitating improved communications, enhanced community and alumni relations, and significant fundraising, including the creation of endowments for professors and for undergraduate and graduate student support, improvement of infrastructure and construction of new facilities, and capital investments for upgrading equipment. I have worked closely with development personnel in planning and successfully executing development plans. I enjoy development and advancement efforts, and my gregarious nature, energy, optimism, passion, commitment to excellence, and excitement about science, education, and outreach have been significant contributors to my success at fundraising. As dean of the College of Agricultural Sciences I constituted and worked with a board as an Advisory Cabinet that helped me develop a strategic direction and execution of a planned College Capital Campaign of \$100 million aligned with that of Oregon State's \$1 billion Capital Campaign. During my tenure as dean, in less than three years we had unprecedented success in donations to the College, and the development work we initiated continues to come to fruition today and have surpassed the goal we set. We had a number of significant accomplishments in our Capital Campaign, which resulted in raising funds for faculty endowments, student scholarships, support of research and extension, infrastructure improvements, and construction of new facilities.

Making Complex Decisions

I approach challenges as a scientist, and am data and outcomes driven. As a scientist, I have developed keen analytical, critical thinking, and problem solving skills, along with evaluative approaches, which I apply to deal with challenges—from the simple to the complex. I help bring about consensus so as to enable shared decision making to deal with complex issues.

At Oregon State University's College of Agricultural Sciences and at NIFA I moved into leadership positions and immediately had to deal with very significant budget reductions in the range of just over 20 to 30 percent. To deal with the same, we undertook a bottom to top review of personnel, processes, procedures, and infrastructure; we engaged in conversations with Oregon state legislators and congressional representatives and their staff; we undertook a series of town hall listening sessions; I

traveled around Oregon (over 3,000 miles in one week, multiple times, meeting stakeholders across the state) and across the United States to seek input on what stakeholders expected from the College and NIFA and to rally their support; we developed a plan for closure, sale of assets, or elimination of units; and undertook strategic restructuring and realignment. A consequence of all of these efforts was that at Oregon State we eliminated 60 positions (24 professorial and 36 staff) and put on hold filling 45 positions at NIFA. These latter actions helped us stanch the immediate impact of the devastating budget cuts, and then followed up with a planned and strategic approach to seeking additional and/or new resources to build new capacity.

During this whole process, we focused on the mission and engaged in developing a compelling and shared strategic vision and direction with the help of the large stakeholder community, including faculty and staff, alumni, parents, students, advisory cabinet, and external stakeholders. We assuaged faculty and staff angst and had their buy-in; we worked with students to make sure that they understood that although there were going to be structural changes, their education would not be compromised. Similarly, we demonstrated to farmers and ranchers our commitment to help discover and translate knowledge into innovations and solutions to problems they faced. We continued to undertake outstanding research and education in the College or the support of research and education by NIFA. Because we demonstrated that we were indeed responsive and because we were able to rally stakeholders, the Oregon legislature reinstated most of the cuts—instead of reducing the budget an additional 20-30 percent on top of the 20 percent they had already cut, they cut us only approximately 8 percent. Additionally, we made a compelling argument that convinced stakeholders around Oregon to provide up to 25 percent of the operating funds for the off-campus branch experiment stations and extension offices in Oregon. We worked with key community leaders in a few locations in eastern and southern Oregon to undertake referenda and successfully raised local taxes by popular vote to support the College's efforts. Finally, because we worked hard to ensure the student experiences were not going to be compromised and because of reenergized programs and student recruitment and aggressive enrollment management, we saw unprecedented increases in student enrollments, a consequence of which was that the College received additional resources from the University. Because of such efforts, combined with the significant increase in extramural grants and donations through our development efforts, we successfully traversed the worst budget situation in the history of the College.

Capitalizing on its strengths, we also set a vision for the College to grow and thrive beyond the budget issues of the deep recession of the last decade – it's most gratifying to see the Oregon governor and legislature have provided over \$15 million in additional funding in support of new programs during the recent two biennia.

Similarly, by articulating a persuasive vision to Congress, in the last three fiscal years we were able to successfully obtain double digit increases for the NIFA budget in an environment in Washington, DC where political standoffs, cutting budgets, and attempting to address deficits has been the norm in recent years; these additional resources have allowed us to increase funding research, education, and extension efforts across the United States.

The result of such a broad-based approach has allowed my former college at Oregon State University and NIFA to weather devastating budget cuts, and both organizations are on a path to be better able to handle future budget challenges.

Note: Because of my experiences in successfully dealing with the intense budget reductions in Oregon, I mentored and advised the university president and dean of agriculture at Pennsylvania State University

to mount a statewide campaign to successfully mitigate the budget cuts resulting from the standoff between the Pennsylvania governor and legislature.

Catalyst and Facilitator

An effective leader is one who listens, communicates, serves as a facilitator and catalyst, sets realistic goals and is clear in sharing the same and in seeking buy-in, is outcomes driven, holds himself and others accountable, and one who understands one's shortcomings. I have these characteristics. My demonstrable effectiveness as a leader has been due, in part, to rapport with people and my gregarious nature and passion and excitement about science, education, and outreach, being a cheerleader, and having the ability to point out and achieve the possibilities.

At NIFA, for decades the grants process has included printing hard copies of the grant applications (despite the fact that grant applicants submit proposals electronically to Grants.Gov), placement in a "blue jacket", and moving the hard copy jacket through the different review, awards, and post-awards processes. In addition, our grants processes took up to 450 days to complete; and most of the applications were processed in the last two weeks of the fiscal year, contributing to huge overtime payroll costs. Upon becoming the agency head, I met with staff from the various units, including scientific staff doing the grant programs, grants management specialists, information technology personnel, budget personnel, and the leadership group. After a series of fact finding conversations, I crafted a vision to modernize systems, enhance business processes, eliminate paper, reduce the length of time for grants processing, and release of requests for applications (RFAs) and awards processing to be spread throughout the year, rather than at the end of the fiscal year. I charged a small group to create a strategic path forward to achieve the same through *Lean Six Sigma Continuous Process Improvement*, and to develop cost estimates. We incorporated the cost estimates into our budget request to Congress, and provided a compelling rationale for the same—i.e., increased efficiencies and effectiveness, increased transparency and accountability, reduced costs, and ultimately reduction in personnel, which I spoke about passionately during the budget hearings before the congressional appropriations subcommittee, and got stakeholders to advocate for the same. We have received full funding from Congress during last four fiscal years—close to an additional \$37 million just for process improvements. The result of this multipronged effort is that we have gone from physical blue jackets to electronic jackets (e-jackets), flattening the awards processing timeline by almost 180 days, and reduced our overtime costs by over 90 percent. This whole effort is still continuing and will culminate in modernized systems and processes that will be completely paperless, reduce overall number of steps, reduce personnel numbers, and result in significant cost savings. We are reinvesting the savings to support the research, education, and extension work so critically needed across America. Incidentally, we have a dashboard that tracks progress, steps, costs, etc., which we use to make decisions and to inform the Secretary and the White House and our stakeholders.

Being Organizationally Savvy

I have been an academic leader and am a presidential appointee heading a major federal agency, and I have created and participated in organizations affiliated with professional societies, academic institutions, and community-based organizations such as Habitat for Humanity and community theatres. I have worked with the disparate stakeholder groups to understand their needs and used the same to frame effective organizational structure and function and promoted the value of shared governance. For example, the budget situation in Oregon in 2009 and 2010 required us to come up with effective strategies to deal with the same, one of which was to consider restructuring and reducing the footprint

of the College of Agricultural Sciences at Oregon State University. I traveled thousands of miles around the state, multiple times, and I engaged with farmers and farm groups, agricultural commodity organizations, bankers, lawyers, doctors, schoolteachers, community leaders and elected officials, interested citizens, county administrators, legislators, the Governor's staff, state agencies, faculty, students, staff, alumni, parents, college and university administrators, and donors. I also reached out to other universities across the nation to find out about approaches being used in other states to cope with budget reductions. Based on these conversations, over the next many months we developed a compelling vision and new structure for the College that we shared with the disparate stakeholders for feedback, and successfully sought buy-in, following which the plan to restructure was tweaked multiple times, approved by the University, and finally executed. The resulting structure has contributed to effective outcomes, without losing the core research, education, extension, and outreach function in support of the state's food and agricultural system.

Immediately following my swearing-in by USDA Secretary Vilsack, I started the process of getting to know NIFA's stakeholders, including units and individuals in the White House and Executive branch, Congress, and a broad array of groups and individuals across the United States in the over \$2 trillion food systems value chain. I reached out to university administrators, researchers, educators, extension professionals, scientific professional societies, farmers, farm groups such as Farm Bureau and Farmers Union, agricultural commodity organizations, food processors, vintners and winery owners, Grocery Manufacturers Association, Convenience Stores Association, Cold Chain Alliance, Wal-Mart, Pepsico, General Mills, and other corporates, restaurateurs, storage and transportation logistics associations, health professionals, children's and youth groups, etc., etc., etc. I traveled the country to engage with these groups to learn about their needs and whether NIFA was meeting the same. Because of such engagement, I have been able to rally stakeholders to advocate successfully for the need for additional resources from Congress for research and education. A net result of the same is the significant increases in our budget during the last three years despite other agencies being subjected to budget reductions.

As a leader, I have promoted diversity—of people and thought—from the perspective that it should come from the heart and from the head, i.e., it is the right thing to do and it is good for our organization. I have had particular success in recruiting women and minorities into leadership positions; indeed, NIFA is recognized as one of the most diverse within the US Department of Agriculture, and I have personally received several commendations.

In the situations described above, our success was predicated upon creating a compelling vision, seeking buy-in, engaging stakeholders, and having the latter become advocates: in the Oregon legislature; in the effort to raise local taxes through popular vote; in the agreements to provide additional local resources to the enterprise; and in the White House and in the United States Congress.

Communicating Effectively

As a scientist, educator, and administrator, I have had the opportunity and privilege to communicate. I have also received media training.

I use various media—both written and oral—and am also an avid and effective user of social media. Indeed, I have written articles and made presentations to varied audiences, from young children to

college students to scientists and the lay public to the executive and legislative branches of the government. I blog and I tweet. My speeches and writings are available online. I attempt to use my blogs and social media presence to inform the public about science and science based policies: <http://blogs.oregonstate.edu/sonny/>; <https://nifa.usda.gov/newsroom/blogs>

I have been an avid user of digital tools since 1981. I taught myself hypertext markup language in the very early 1990s and created one of the first entomology websites in 1993, which I figured out was a powerful communications tool. I have offered and facilitated offering online courses starting in the mid-1990s, and facilitated significant online presence at my former College. I have facilitated creation of media and approaches to offer virtual tours—for example of the Kansas State University Insect Zoo, which I conceptualized, helped raise funds for, and helped build.

For over two decades I taught students the art and science of public speaking and the development and use of visual aids—from analog and digital photography to PowerPoint—for effective and compelling posters and oral presentations. The most gratifying aspect about the latter was that many of my students won awards at professional society meetings for their presentations.

In my current position as director of NIFA, I give several lectures, speeches, or seminars per month—formal, informal, and extemporaneous—to diverse audiences in America and around the world. I have briefed the Secretary of Agriculture, Dr. John Holdren, Science Advisor to the President Barack Obama, the Office of Science and Technology Policy, the President’s Council of Advisors on Science and Technology, and congressional representatives and staffers, and have provided testimony at congressional hearings.

I truly enjoy engaging with media outlets, particularly explicating complex scientific and societal challenges and concepts in lay terms. More importantly, I have been able to engage effectively with state and federal legislators and donors, by framing a strategic vision and communicating the same, orally and in writing, which has resulted in our success at getting significant additional resources. I have appeared on numerous radio and TV broadcasts and in interviews with major national and regional/local newspapers and magazines, including the Washington Post, Bloomberg News, Forbes, etc. (See for example: https://www.washingtonpost.com/video/postlive/feeding-the-future-whats-next/2014/12/10/6a9a3606-7fb8-11e4-b936-f3afab0155a7_video.html?utm_term=.312c5b9a24af); also: <https://www.planetforward.org/summit2015/tomorrow's-food-tomorrow's-farmers>).

In addition to speeches, meetings, lectures, keynotes, Congressional hearings (e.g., <https://www.agriculture.senate.gov/hearings/agricultural-research-perspectives-on-past-and-future-successes-for-the-2018-farm-bill>) panel discussions, international science fairs, etc., I have appeared in documentaries, such as the Discovery Film Projects (<https://app.curiositystream.com/video/653/what-is-food-security>) and films about edible insects (<http://bugsonthemenu.com/>; <http://thegatewaybug.com/>). Last year I spoke at the Napa Film Festival where the [Gateway Bug](#) was screened for several hundred high school students. I hosted a discussion about hunger, food, poverty, nutrition, climate change, etc., while whipping up “chirpy guacamole”, i.e., guacamole with crickets. The young people learned about critical issues affecting humanity, and why they should become involved in the same.

I have appeared along with former USDA Sec. Dan Glickman and others at an event sponsored by the Center for Strategic and International Studies, promoting the Research Title in the Farm

Bill (<https://www.csis.org/events/2018-farm-bill-ensuring-us-leadership-agricultural-research-and-development>).

To dispel the veil of secrecy and false narratives that surround the food and agricultural enterprise, I provided the vision for and helped develop and execute a national communications effort in partnership with the LGUs, which has completely changed and significantly enhanced public engagement about food and agricultural sciences, by using powerful stories built around impacts and outcomes of policies, education, research, and extension (e.g., <http://www.newsweek.com/2017/12/29/greek-yogurt-waste-could-be-used-jet-fuel-and-livestock-feed-746965.html>). The NIFA impacts site (<https://nifa.usda.gov/impacts>) and LGU impacts website (<https://landgrantimpacts.tamu.edu>) are the result of such efforts. Indeed, the completely revamped NIFA website also provides semantic analytical tools and other data driven resources for the public to access. NIFA and its LGU partners have promoted tremendous increase in stories on public print, broadcast, and online media.

The NIFA website (<https://nifa.usda.gov>) was completely revamped following a market and focus group analysis, aligned with the vision I articulated. The site receives nearly 800,000 unique visitors each year, and provides information on grants, data on projects funded by NIFA, heat maps of investments in projects, outcomes and impacts (<https://nifa.usda.gov/data>), and provides resources for Congress, the public, grant applicants, students, farmers, and other interested individuals.

With the vision I articulated to help provide content through social media, NIFA's social media using the hashtag #NIFAImpacts (<https://twitter.com/hashtag/NIFAImpacts?src=hash>) and public engagement through blogs (e.g., <https://nifa.usda.gov/blog/breeding-highly-productive-corn-has-reduced-its-ability-adapt>), and push-pull communications tools have tremendous reach, with almost 20,000 Twitter followers and almost 60,000 recipients of NIFA's GovDelivery news alerts (<https://content.govdelivery.com/accounts/USDANIFA/bulletins/1cc35e8>). The latter are continuously updated based on analytics.

Finally, I articulated a vision to promote greater awareness amongst congressional representatives and staff, along with national and state/local policymakers, of the outcomes of research, education, and extension efforts across America. Since 2012, NIFA mines the best outcomes from across America and sends targeted alerts to these critically important stakeholders on a daily basis, along with Tweets, Blogs, and other mass media campaigns. Additionally, I helped envision the design and content for quinquennial (five-year) reports on Farm Bill Research Title (https://nifa.usda.gov/sites/default/files/farm_bill_2013.pdf) and annual reports (e.g., <https://nifa.usda.gov/sites/default/files/resource/NIFA-2015-Annual-Report-Print-Version.pdf>), which are distributed widely and which have received tremendous positive feedback as being highly informative and useful to various stakeholders.

Inspiring Others

I use transformative approaches, and have particular interest in shared governance, nurturing and mentoring people, team building in the form of intellectual communities, facilitating excellence in discovery, learning, and engagement, and conflict resolution. I use positive reinforcements and empowerment to achieve excellence by focusing on the mission, taking a proactive approach, being a catalyst, facilitator, advocate, and cheerleader, and promoting an optimistic vision and core values. I solicit input from everyone and build consensus. My role is one of helping others achieve their vision. I make decisions promptly, and once I give my word that something will be done, I adhere to it.

I have facilitated the creation of intellectual communities to address issues as collaborative partnerships. One approach I have used successfully to create high-performing teams has been through a “speed dating” platform for faculty, staff, and students from various bio-physical, biomedical, engineering, and social science disciplines—from agriculture to the humanities and psychology to science and engineering—which allowed the participants and my support staff to understand the motivations, strengths and weaknesses, and complementarities of the individuals, which contributed to creation of effective teams. I have offered workshops at multiple venues on creating high performing teams. My proudest achievement has been to help faculty, staff, and students to work across disciplines to address societal challenges, and the concomitant success on several multi-million-dollar grants. In my conversations and speeches, I convey my commitment, excitement, optimism, passion, and can-do attitude. Many of my former colleagues, students, staff, and mentees have stepped out of their comfort zones and bought-in to the vision I have articulated.

I believe my success as an administrator and educator is in large measure because I connect with people and have inspired them to make a difference; when I left Oregon State University to assume the position at NIFA, farmers and other stakeholders wept and op-ed pieces were written in Oregon newspapers about my contributions to Oregon State University and Oregon agriculture.

Acting with Honor and Character

I have Top Secret security clearance within the United States government; I have a reputation—with students, faculty, staff, stakeholders, state legislators, federal employees, political appointees, and Republican and Democratic congressional representatives and staffers on Capitol Hill—as being direct and candid and one who keeps his word and follows through. Students, faculty, mentees, administrators, and staff have either used me as a sounding board or shared with me information in confidence, and I have helped them work their way through the situation. In my former life as a professor I served on university grievance panels, which required us to listen and to help make decisions about a number of personnel and personal issues. I have executed all of these responsibilities with integrity and honor and have never divulged any confidential information outside of the context in which it was shared with me.

ADMINISTRATIVE WORKSHOPS

- Newly Appointed Administrators Workshop, University of Nebraska-Lincoln, June 1997
- Faculty Development Workshop, Kansas State University, August 1997
- Department Heads Retreat, Kansas State University, August 1997
- Workshop - Electronic Scheduling of Classrooms, August 1997
- United Way Volunteers Training, Kansas State University, September 1997
- Workshop - President’s Committee on Multicultural Affairs, October 1997
- Workshop - Classified Employees Performance Evaluation, November 1997
- Workshop - New Heads, November 1997
- Department Heads Workshop - Perspectives on Faculty Development, January 1998
- Supervisors Training Workshop – Sexual Harassment in the Workplace, April 1998
- Heads and Deans Workshop – Managing Faculty and the Curriculum, Kansas State University, April 1998
- Provost's Series: Student Ratings - TEVAL and IDEA, April 1998

- Team Building Workshop, May 1998
- Lifeline Training for Supervisors, May 1998
- Department Head's Retreat, August 1998
- Orientation Program for Department Heads (Faculty Evaluations, Sexual/Racial Harassment), 1998
- Department Heads Workshop – Faculty Mentoring and Development, October 1998
- Department Heads Workshop – Conflict of Interest and Conflict of Time Commitment, November 1998
- Department Heads Workshop – Characteristics of Effective Departments and Departmental Leadership, February 1999
- Workshop on Post Tenure Review of Faculty, March 1999
- Department Heads Workshop – Human Relations Management and Organizational Climate, April 1999
- 1999 Department Head's Retreat, August 1999
- Panelist and Facilitator, Department Heads Workshop – Topics included mentoring and maintaining credibility, Fall 1999
- Panelist, Provost's Roundtable on Collegiality in the University, September 1999
- Department Head's Retreat – The Practice of Leadership in Academic Units, January 2000
- Kansas Board of Regents Workshop for Department Chairpersons and Heads: Challenges Facing Department Chairs in the New Millennium. February 2000
- Workshop on Setting Expectations and Resolving Conflicts Between Faculty and Graduate Students. March 2000.
- Department Head's Workshop: Workers Compensation and Injury Management. April 2000
- Department Heads Workshop: The Practice of Leadership in Academic Units – Exploring the Multiple Roles of Department Heads, September 2000
- Kansas Board of Regents Workshop for Department Chairpersons and Heads: Fostering Relationships in Recruitment, Mentoring, and Retention, 2000
- Department Heads Workshop: The Practice of Leadership in Academic Units – Dealing with Conflict, October 2000
- Tilford (Kansas Regents) Diversity Conference, University of Kansas Medical Center, Kansas City, October 2000
- Department Heads Workshop: The Practice of Leadership in Academic Units – Leadership skills for meeting expectations: Facilitating a Team Environment, November 2000
- Department Heads Workshop: The Practice of Leadership in Academic Units – Leadership skills for meeting expectations: Putting it All Together, March 2001
- Provost's Lecture Series/workshop: Post-tenure Review, April 2001
- Harvard Management Development Program, Harvard Institutes for Higher Education, Harvard University, June 2001
- Department Heads Workshop: Developing Strategies for Funding Programs. August 2001.
- Unit Leaders Workshop: How to Use Teams Effectively. December 2001.
- Department Heads Spring Retreat: Mediation and Conflict Resolution. January 2002.
- Department Heads Fall Retreat: What it Means to be a Student-Centered Research University. August 2002
- Kansas Department Chairs Conference: How to Retain Faculty and Create a Diverse Learning Environment. October 2002
- Department Heads Spring Retreat: How to Deal with Personnel with Emotional Problems. January 2003

- Invited Presentation. Of bugs and budgets: On being a department head at a land-grant university. Academic Chairpersons Conference. Orlando, FL. February 2003
- Department Heads Fall Workshop: What do you do with problem students? September 2003
- Department Heads Fall Workshop: What do you do when the President calls stating that a faculty member has been quoted publicly as advocating a particular piece of legislation that will work against the welfare of a major stakeholder? October 2003.
- Department Heads Fall Workshop: What can we do when a potential new hire asks for a spousal accommodation in another department? November 2003.
- Department Heads Spring Workshop: Follow-up discussion of what we can do when a potential new hire asks for a spousal accommodation in another department. February 2004.
- Department Heads Spring Workshop: What do you do when a reporter shows up at your office? April 2004.
- Invited Presentation. On leadership: The good, the bad, and the bugly. Annual Meeting of the US University Alumni Association Chief Financial Officers. Kansas State University. Manhattan, KS. July 2004.
- Department Heads Fall Workshop: How to recruit/retain minority faculty? September 2004.
- Department Heads Fall Workshop: How to engage alumni to enhance departmental and college performance? October 2004.
- Diversity Summit. Kansas State University. April 2005.
- Department Heads and Deans Fall Retreat: Improving the university through the priority setting process. August 2005.
- Department Heads and Deans Workshop: How do you deal with faculty unwilling to become engaged. September 2005
- Lecture on intellectual property management. Given by Suzanne Harrison at the Kauffman Foundation in Kansas City. Sponsored by the Licensing Executives Society-Midwest Branch. September 2005.
- Purdue Workshop on Development Training for deans and department heads. November 2006.
- National Association of State Universities and Land Grant Colleges (NASULGC) workshop for new deans and directors. December 2006. Washington, DC.
- Office of Human Resource Services and Affirmative Action Office, Purdue University. Workshop on Equal Access, Equal Opportunity. Ensuring a Campus Environment Free of Discrimination and Harassment. June 2007.
- Provosts' Council Leadership Workshop, December 2009
- Conversational Skills, May 2010
- Provost's Council Retreat on Organizational Change, September 2010
- Attended a number of workshops and taken the online USDA AgLearn modules on ethics, civil rights, cultural transformation, Implicit and Explicit Bias, scientific integrity, STOCK Act, HATCH Act, political/campaign activity by appointees, ethics and leadership, and other topics. 2012-present.

STUDENTS

Master's:

| | |
|-------------------|--|
| Peter W. K. Ma | 1985 |
| Rosanne Nicholson | 1993 |
| Ling-lan Cheng | 1999-2001 (Co-advisor) |
| Jayne Christen | 2003-2005 |
| Emily Jenson | 2005 (discontinued in 2006 after move to Purdue) |

Doctorate:

| | |
|--------------------|------------------------|
| Jeffrey L. Willers | 1986 |
| Jan Piet Kaas | 1990 |
| R. Patrick Porter | 1993 |
| Yong Ihl Park | 1997 |
| Jawwad Qureshi | 1999-2003 (Co-advisor) |
| Olgaly Ramos | 2001-2005 (Co-advisor) |
| Godfrey Ching'oma | 2002-2006 (Co-advisor) |

POST-DOCTORATE

| | |
|----------------------|----------------------------|
| Rufina C. Navasero | 1986-1988 |
| George N. Mbata | 1988; 1994-1996; 1997-1999 |
| Shengqiang Shu | 1993-1999 |
| Fanrong Zeng | 1994-1998 |
| Srinivas Chinta | 1996-1997 |
| Yong Ihl Park | 1997 |
| Anna Rachinsky | 1998-2002 |
| Tracey Webb (Cole) | 1999-2001 |
| Damon Crook | 1999-2002 |
| Gurunath Suryavanshi | 2001-2002 |
| Fengming Yan | 2003-2004 |
| Samuel Ocheing | 2003-2005 |
| Bright Agindotan | 2003-2005 |
| Maciej Pszczolkowski | 2003-2006 |
| Fengyou Jia | 2001-2008 |

VISITING SCIENTISTS/SCHOLARS/STUDENTS

| | |
|--------------------|---|
| George N. Mbata | 1988 (Imo State University, Nigeria) |
| Keita Sekou Moussa | 1996 (University of Montreal, Quebec) |
| Tracey Webb | 1997 (Swiss Federal Inst. of Technol., Switzerland) |
| Adissa Jones | 1997 (Tougaloo College, Jackson, MS) |
| Lakisha Crigler | 1997, 1998 (Tougaloo College, Jackson, MS) |
| Tom Clarke | 1997 (Louisiana State University, Baton Rouge, LA) |
| Ahmed Mourad | 1998 (Texas A & M University/Cairo University) |
| Shalana Donald | 1998 (Tougaloo College, Jackson, MS) |
| Brigitte Rohner | 1998, 1999 (University of Zurich, Switzerland) |
| Jack Dillwith | 1998 (Oklahoma State University) |
| Colin Brent | 2000 (North Carolina State University) |
| Michael Rogers | 2001 (University of Kentucky) |
| Stephanie Fortner | 2001 (University of Bayreuth, Germany) |
| Indira Kuriachan | 2001 (Texas A&M University) |
| Ashley Peterson | 2004 (KSU College of Veterinary Medicine Scholar) |
| Emily Olson | 2005 (KSU College of Veterinary Medicine Scholar) |

Member of graduate advisory committees of eighteen Masters and twenty-four Ph.D. students; minor professor for students in Biochemistry and Wildlife and Fisheries at Mississippi State University. From 1994-97, as the MSU entomology department graduate coordinator, I served as an ex-officio member of all student advisory committees. I served as a member of graduate student advisory committees of eight graduate students at Kansas State University. I served in an ex-officio capacity on all student committees.

TEACHING

- 1974 Teaching Assistant, Insect Physiology, University of Agricultural Sciences, Bangalore, India. Developed and taught several laboratory exercises, particularly on insect hormones. Course had approximately 12 students. Also, I helped teach laboratory exercises on juvenile hormone during an All-India Workshop on Insect Juvenile Hormones.
- 1976-79 Teaching Assistant, Insect Physiology, Rutgers University, New Brunswick, NJ. Developed and taught laboratory exercises to approximately 12-15 graduate students/semester.
- 1977 Teaching Assistant, General Entomology, Rutgers University, New Brunswick, NJ. Developed and taught a few laboratory exercises to approximately 45 undergraduate students. Taught a few lectures.
- 1977 Teaching Assistant, Entomology Summer Camp for Teachers, Rutgers University, New Brunswick, NJ. Developed and taught laboratory exercises to approximately 20 in-service teachers.
- 1978-79 Teaching Assistant, Invertebrate Physiology, Rutgers University, New Brunswick, NJ. Developed and taught laboratory exercises to approximately 15-20 graduate students/semester.
- 1978-79 Teaching Assistant, General Biology, Rutgers University, New Brunswick, NJ. Taught recitation section for freshman biology course that had approximately 25 students. Recitations included offering lectures on topics covered by the professor, answering questions, and helping with homework assignments.
- 1982-97 Insect Physiology, Mississippi State University, Mississippi State, MS. Taught graduate course once a year for an average of eight graduate students per semester. Developed the lecture and laboratory content.
- 1995 General Entomology, Mississippi State University, Mississippi State, MS. Developed a computer-based (PowerPoint), multimedia, undergraduate course and taught to about 30 students. This included a laboratory.
- 1983-1997 Graduate seminar course on public speaking, Mississippi State University, Mississippi State, MS. This course was taught every semester and averaged about eight students from entomology and other departments. Students were taught photography (including darkroom processing) and computer techniques to develop effective visual aids. Student presentations were videotaped and critiqued to help them become more effective

speakers. Numerous students who took this course won awards for presentations at professional meetings.

- 1999 Graduate seminar course on public speaking, Kansas State University, Manhattan, KS. This course had 13 students from entomology and other departments. Students were taught digital photography/videography and computer techniques, including PowerPoint and Adobe Photoshop, to develop effective visual aids and poster presentations. Student presentations were critiqued to help improve effectiveness of speakers. Several students who took this course won a number of awards for presentations at professional meetings.
- 1999-2001 Insect Physiology, Kansas State University, Manhattan, KS. Taught graduate course during fall 1999, which had 23 students, and spring 2001, with 6 graduate students.

OTHER PROFESSIONAL ACTIVITIES

- Guest Editor of a special issue of **Archives of Insect Biochemistry & Physiology**.
- Guest Editor of a special issue of the **Journal of Insect Physiology**.
- Reviewed manuscripts for **Science, Proc. Natl. Acad. Sci., J. Insect Physiol., J. Chem. Ecol., Can. Entomol., J. Econ. Entomol., Ann. Entomol. Soc. Am., Environ. Entomol., J. Entomol. Sci., Evolution, J. Insect Behav., Physiol. Entomol., Southwestern Entomol., Pesticide Biochem. Physiol., Bull. Entomol. Res., Arch. Insect Biochem. Physiol., Florida Entomol., J. Arachnol., Comp. Biochem. Physiol., J. Kansas Entomol. Soc., Int. J. Insect Morphol. & Embryol., Phytoparasitica, Invert. Neurosci., Acta Zool. Sinica, J. Insect Foods and Feeds, and USDA-ARS and State Experiment Stations** publications. Average approximately 15 manuscripts/year.
- Reviewed grant proposals for **National Research Council/National Academy of Sciences, Competitive Research Grants Office/National Research Initiative (USDA), National Science Foundation, BARD Grants, Caribbean Basin Initiative Competitive Grants, Whitehall Foundation, State of Missouri Competitive Grants Program, Israel Science Foundation, New Zealand Foundation for Research, Science, and Technology, Biotechnology and Biological Sciences Research Council - United Kingdom, Danish National Research Foundation, and Hatch projects**. Average approximately six grant proposals/year.
- **Reviewer** of Distinguished Professor nomination, University of Kansas, 1988
- **Journal of Economic Entomology** Editorial Board member, 1990-95; Chair, 1994-95.
- **Program Chair**, 1991 Annual Meeting, Southeastern Branch, Entomological Society of America, March 1991, Orange Beach, AL.
- **Panelist**, Southern Regional Pesticide Impact Assessment Grants Program, 1991
- **Sabbatical Leave** with Dr. Wendell L. Roelofs, New York State Agriculture Experiment Station, Cornell University, Geneva, NY, 1992
- **Traveled** to Nigeria on USAID research project, 1993
- **Panelist** - External Evaluation Panel for USAID-Funded IPM-CRSP, 1995-2000
- **Traveled** to Jamaica (May 1996; July 1997) for on-site evaluation of research/training/ extension programs
- **Reviewer** of Insect Physiologist promotion packet, University of California, Riverside, 1996
- Member, **Publications Council**, Entomological Society of America, 1996-2001
- **Created and maintained** the Mississippi State University entomology department **homepage**; created and administered the departmental computer T-1 network, 1994-1997

- **Created and taught** a computer-based **multimedia course** in General Entomology, Fall 1995
- **Panelist**, National Research Initiative Competitive Grants Program - United States Department of Agriculture, May 5-9, 1997
- Published the first entomological scientific article available as an electronic reprint (<http://www.entsoc.org/reprints/a97806.pdf>) (**Ramaswamy, S. B.** and W. A. Monroe. 1997. Putative chordotonal organ in the fore coxae of adult *Callosobruchus maculatus* and *C. subinnotatus* (Coleoptera:Bruchidae). Ann. Entomol. Soc. Am. 90:806-809)
- **External Examiner**, M. Sc. thesis, Concordia University, Montreal, Quebec, 1997
- **Reviewer** of Insect Chemical Ecologist promotion to Professor, Ohio State University, 1997
- **Panel Manager**, Biologically Based Pest Management Program, National Research Initiative Competitive Grants Program - United States Department of Agriculture, 1997-98
- **Traveled** to Uganda (December 1998) for on-site evaluation of research/training/ extension programs and to International Center for Insect Physiology and Ecology Kenya (December 1998)
- **Member**, Organizing Committee, Seventh JH International Conference (August 29 to Sept 3, 1999), Jerusalem, Israel
- **Reviewer** of insect physiologist tenure and promotion to associate professor, Iowa State University, 1999
- **Reviewer** of entomologist tenure and promotion to associate professor, Rutgers University, 1999
- Member, Kansas State University **Provost's Advisory Group**, 1999-2000
- **Administrative Advisor**, NCR 125, Arthropod Biological Control, a north-central regional research group, 1999-2001
- **Chair**, NCA-15, north-central entomology administrators group, 1999-2000
- **Panelist**, National Research Initiative Competitive Grants Program - United States Department of Agriculture, May 22-26, 2000
- Member, **Karnataka Global Advisory Networking Group on Agriculture**, an advisory panel on biotechnology and agriculture for the Karnataka Government, India, 2000-2003
- Member, **Editorial Board, Journal of Insect Science**, an on-line entomological journal, 2000-2009
- **Reviewer** of insect behaviorist promotion to Professor, University of Missouri, 2000
- **Reviewer** of geneticist promotion to Professor, University of Texas Medical Branch-Galveston, 2000
- **Chair** - External Evaluation Panel for USAID-Funded IPM-CRSP, 2001-2005
- **Panelist**, EPA STAR (Entomology/Zoology) Grants Program - Environmental Protection Agency, February 2001
- **Reviewer** of insect physiologist promotion to William Neal Reynolds Distinguished Professorship, North Carolina State University, 2001
- **Traveled** to Galapagos and Ecuador (March 2001) for on-site evaluation of research/training/ extension programs
- **Panelist**, Entomology-Nematology Sub-Organismal Program, National Research Initiative Competitive Grants Program - United States Department of Agriculture, May 2001
- **Traveled** to Mali (July 2001) for on-site evaluation of research/training/extension programs
- **Reviewer** of insect toxicologist tenure and promotion to associate professor, Texas A&M University, 2001
- **Reviewer** of developmental geneticist promotion to Professor, University of North Carolina-Greensboro, 2001
- Member of **CSREES team** reviewing the Plant Sciences Unit (Agronomy, Entomology, Horticulture, and Plant Pathology departments) at the University of Missouri, September 30-October 4, 2001
- **Traveled** to CIMMYT (Mexico) (November 2001) for discussions on research programs

- **Reviewer** of insect behaviorist promotion to professor, Oklahoma State University, 2002
- **Panelist**, EPA STAR (Entomology/Zoology) Grants Program - Environmental Protection Agency, February 8, 2002
- Member of **CSREES team** reviewing the Entomology Department at Purdue University, February 17-20, 2002
- Member, **Editorial Board**, *BioScience*, a magazine published by American Institute for Biological Sciences, 2002-2012
- Member of **CSREES team** reviewing the Entomology Department at Iowa State University, May 6-8, 2002
- **Panel Manager**, Entomology-Nematology Organismal Program, National Research Initiative Competitive Grants Program - United States Department of Agriculture, May 2002
- **Traveled** to IRRI (Philippines) and ICRISAT (India) (June 2002) for discussions on research programs
- **Reviewer** of economic entomologist promotion to professor, Rutgers University, 2002
- **Reviewer** of invertebrate ecologist promotion to associate professor, Southern Illinois University, 2002
- **External examiner** on doctoral dissertation, Jorhat University, India
- Member of **CSREES team** reviewing the Entomology and Plant Pathology Department at Auburn University, May 12-16, 2003
- Member, **Editorial Board**, *Archives of Insect Biochemistry and Physiology*, 2003-2007
- **Reviewer** of insect physiologist promotion to associate professor and tenure, Mississippi State University, 2003
- **Reviewer** of biologist/ecologist promotion to associate professor and tenure, Fort Valley State University, 2003
- **Reviewer** of insect physiologist promotion to professor, Montana State University, 2003
- Member, **Editorial Board**, *Journal of Economic Entomology*, 2003-2009
- **Reviewer** of entomologist promotion to professor, King Saud University, 2004
- **Reviewer** of insect molecular biologist promotion to associate professor and tenure, Texas A&M University, 2004
- **Reviewer** of insect molecular biologist promotion to associate professor and tenure, University of Nevada-Reno, 2004
- **Reviewer** of insect physiologist promotion to professor and tenure, University of Kentucky, 2004
- **Panelist**, National Program 304 USDA-ARS CRIS Research Projects – Fundamental Biology and Ecology of insects and mites, Office of Scientific Quality Review, USDA, February 28-March 2, 2005
- **Member** of team reviewing Entomology Department at Louisiana State University, April 2-5, 2005
- **Reviewer** of insect physiologist promotion to Grade A+ (comparable to professor rank), Agricultural Research Organization, Israel, 2005
- **Reviewer** of insect molecular biologist promotion to associate professor and tenure, University of Missouri, 2005
- **Reviewer** of applied insect ecologist tenure and promotion to associate professor, Texas A&M, 2005
- **Reviewer** of insect physiologist promotion to professor, Montana State University, 2005
- **Reviewer** of insect physiologist promotion to professor, Iowa State University, 2005
- **Chair**, Steering Committee for USDA-CSREES Awardee Workshop on Biologically-Based Pest Management, Fort Lauderdale, FL, 2005
- **Member**, Executive Committee and Board of Directors, Indiana Crop Improvement Association, 2006-2009

- **Member**, Executive Committee, Alliance for Animal Genomics, 2006-2009
- **Purdue Representative**, The Consortium for Plant Biotechnology Research, Inc., 2006-2009
- **Chair**, Indiana Wine Grape Council, 2006-2009
- **Member**, Board of Directors, Purdue Agricultural Alumni Seed Improvement, 2006-2009
- **Member**, North Central Regional Association of Experiment Station Directors Planning Committee, and NCRA representative to the national Bioeconomy Consortium of Directors of Experiment Stations, Extension Service, and State Departments of Agriculture, 2006-2009
- **Member**, Planning Committee and Communications Committee, Northcentral Bioeconomy Consortium, 2007-2009
- **Member**, Board of Directors, National Agricultural Biotechnology Council, 2006-2012
- **Member**, Advisory Committee, Animal Disease Diagnostic Laboratory, Purdue University, 2006-2009
- **Member**, United States Department of Agriculture Steering Committee on Honey Bee Colony Collapse Disorder, 2007
- **Reviewer** of molecular geneticist tenure and promotion to associate professor, Louisiana State University, 2007
- **Reviewer** of molecular entomologist promotion to Professor, University of Kentucky, 2007
- **Member**, Indiana Corn Marketing Council Board of Directors, 2007-2009
- **Member**, Selection committee, along with Indiana Lt. Governor Becky Skillman and Indiana State Department of Agriculture Director Andy Miller, for the 2008 AgriVision Award
- **Reviewer** of nomination for an honorary doctorate in molecular biology. Swiss Federal Inst. of Technol., Switzerland, 2008
- **Chair**, Expert Review Panel USDA-Agricultural Research Service, Biological Research Unit (BRU), Engineering Research Unit (ERU), Grain Quality and Structure Research Unit (GQSRU), 2008
- **Member**, Executive Committee, National Ag Biotech Council, 2008-2012
- **Invited panelist**, Agriculture and Biotechnology panel, National Science Foundation funded session on Leveraging University Research for Industrial Competitiveness and Economic Growth, scheduled for May 4 and 5, 2009, Arlington, VA
- **Interim Director**, Oregon Wine Research Institute, 2009-2010
- **Invited team member**, US Department of Defense Task Force for Business and Stability Operations (TFBSO) Iraq, visit to agricultural colleges in Iraq. December 2009
- **Member**, Board of Agriculture, Oregon Department of Agriculture, 2009-2012
- **Member**, Oregon Wheat Marketing Board, 2009-2012
- **Chair**, Executive Committee, National Ag Biotech Council, 2010
- **Member**, Board of Directors, Western Rural Development Center, 2009-2012
- **Member**, Review Panel, Entomology and Plant Pathology Programs, International Rice Research Institute, Los Baños, The Philippines, November 28-December 7, 2010
- **Member**, Panelist, Modern Agriculture: What's Next and Why? 2011 National Policy Conference: Lost In Translation—Deciphering The Discourse of Modern Agriculture. The Newseum, Washington, DC. May 12, 2011
- **Co-Chair**, Grand Challenges, President Obama's Second Term Agenda on Economic Growth, July-September 2013
- **Member**, United States Department of Agriculture Security Council, 2014-present
- **Ex Officio Board Member**, Foundation for Food and Agriculture Research, authorized by the United States Congress in the 2014 Farm Bill and signed into law by Pres. Barack Obama. October 1, 2014-Present

- **Member, Development Committee**, Foundation for Food and Agriculture Research. October 1, 2014-Present
- **Panel Moderator**, Future of Food, discussion at the CHS Annual Meeting of Cooperatives Owner/Operators, Fajardo, Puerto Rico, February 24, 2015
- **Panel Moderator**, Innovative Models for International Agricultural Research and Education: Fostering South-South Collaboration and International Research and Education Networks. 51st Annual Conference and 2015 Future Leaders Forum, Washington, DC, May 31-June 2, 2015
- **Member**, Deputies Policy Process. National Network of Manufacturing Initiatives. National Science and Technology Council, Subcommittee on Advanced Manufacturing. Executive Office of the President, Office of Science and Technology Policy. November 2, 2015 to present
- **Member**, Deputies Policy Process. Increasing Diversity in the STEM Workforce by Reducing the Impact of Bias. Executive Office of the President, Office of Science and Technology Policy and Office of Management and Budget. November 2, 2015 to present
- **Organizing Committee Member**, White House Water Innovation Roundtable. Executive Office of the President, Office of Management and Budget. October 19-December 15, 2015
- **Mentor for Food Systems Leadership Institute Fellow**. Sylvie Brouder, Purdue University, 2013-2015
- **Writing Team Member**. Advanced Manufacturing: A Snapshot of Priority Technology Areas Across the Federal Government. April 2016. Executive Office of the President, National Science and Technology Council, Washington, D.C. 20502
(<https://www.whitehouse.gov/sites/whitehouse.gov/files/images/Blog/NSTC%20SAM%20technology%20areas%20snapshot.pdf>)
- **Co-Chair**, Subcommittee on Food and Agriculture – National Science and Technology Committee. Executive Office of the President, Office of Science and Technology Policy and Office of Management and Budget. May 2016 to present
- **Inter-Agency Working Group and Writing Team Member**. A Strategy for Integrating Best Practices with New Science to Prevent Disease Transmission by *Aedes* Mosquito Vectors. December 2016. Executive Office of the President, National Science and Technology Council, Washington, D.C. 20502
(<https://www.whitehouse.gov/sites/default/files/microsites/ostp/NSTC/integratingbestpracticeswithnewsciencetopreventdiseasetransmissionbyaedemosquitovectors-final.pdf>)
- **Mentor for Food Systems Leadership Institute Fellow**. Pamala Morris, Purdue University, 2014-2016
- **Inter-Agency Working Group and Writing Team Member**. Reducing the Impact of Bias in the Stem Workforce: Strengthening Excellence and Innovation. November 2016. Executive Office of the President, National Science and Technology Council, Washington, D.C. 20502
(https://www.whitehouse.gov/sites/default/files/microsites/ostp/ostp-opm_bias_mitigation_report_20161129_final.pdf)
- **Mentor for Food Systems Leadership Institute Fellow**. Robert Houtz, University of Kentucky, 2015-2017
- **Host and Speaker for the documentary, “The Gateway Bug” screened at the Napa Film Festival** (<http://www.nvff.org/event/the-gateway-bug/>), November 7, 2017, Napa, California.
- **Mentor for Food Systems Leadership Institute Fellow**. Indrajeet Chaubey, University of Connecticut, 2019-present

RESEARCH INTERESTS

Integrative reproductive biology of insects, encompassing such areas as endocrine and ovarian physiology, chemical ecology, pheromones and sexual behavior and their regulation by hormones, structure and function of sensory receptors as related to host finding and mating in insects, and modification of insect behavior using natural products.

My research endeavors fall into the overall area of the reproductive biology of insects, *in toto*. These endeavors fall into three distinct areas, including chemical ecology, plant-insect interactions, and egg development. While this research has been conducted from a fundamental perspective, it has had significant worldwide practical application.

In the area of chemical ecology, my research has focused primarily on identifying sex pheromones (chemicals used by insects for communication and mating) and food odors. Additionally, we demonstrated the role of hormones, particularly, neuropeptides, and mating on sex pheromone competence of moths. We identified the sex pheromone of a few species of insects using chemical, behavioral, electrophysiological, and field studies. A pheromone blend optimized by us is used to monitor pests of cotton and other row crops in North and South America. We identified the sex pheromone for two species of beetles that are devastating pests of stored beans in the developing countries of Asia, Africa, and South America, and the pheromone is used to monitor these pests. We developed a pheromone trap that is used throughout the world for monitoring moth pests of crops and trees. Monitoring is an important component of pest management because it allows end users to keep track of insect numbers in the field or grain bins and alerts them before the problem becomes serious. By enabling end users to use insecticides only when necessary, the monitoring devices help reduce insecticide use and their negative impact on the environment.

We demonstrated the role of different sensory receptors on moths and sensory cues emanating from plants that enable moths to decipher whether a plant is a potential host for its larvae. For these studies, we relied on behavioral, electrophysiological, and chemical methods. Results from these studies can be used potentially to “design” plants to make them distasteful to insects. Another outcome of this research has been the development of a concept referred to as the “Push-Pull” strategy. In this strategy detailed knowledge of the insect’s sensory responses to plants have been used to either deter/repel feeding and egg laying on most plants in a crop or to stimulate/attract the same on a few plants in the crop. This allows a targeted release of natural enemies or treatment with pesticide, thus, encouraging reduced pesticide use while increasing its efficacy.

In the area of egg development, our research has demonstrated the process of egg development in moths and butterflies. These studies have relied on physiological, biochemical, molecular, immunological, and microscopic techniques. We demonstrated the role of hormones from specialized endocrine glands and from the brain in stimulating egg production. We also demonstrated the role of second messengers in the transduction of hormonal signals in egg development. Our discoveries explained the role of membrane receptors in the hormone signal transduction process and the concomitant female-protein synthesis in specialized tissue and its ultimate incorporation into eggs as yolk protein. An outcome of these studies has been to explain the fundamental role of hormones in reproduction. An interesting, applied outcome of this research is that we developed a monoclonal antibody-based system for monitoring two of the most devastating crop pests in the world (corn earworm and tobacco budworm), which was patented and a kit is sold in the cotton growing areas of

North and South America, saving producers millions of dollars in reduced pesticide costs and in protecting the environment.

A fourth area, unrelated to the above, has been to develop databases of pesticide use on various crops. This work has helped agencies such as the Environmental Protection Agency and the United States Department of Agriculture's National Agricultural Statistics Service to monitor and to prognosticate pesticide use.

COMPETITIVE GRANTS

- **Co-Principal Investigator:** Pheromone chemistry and development of pheromone sampling systems for eastern spruce budworm. CANUSA-East, U.S. Forest Service, USDA-SEA, Washington, DC. **\$36,500. 1980-1982.**
- **Principal Investigator:** Characterization of the sex pheromone of the tarnished plant bug, *Lygus lineolaris*. Albany International, Needham Heights, MA. **\$19,000. 1983-1985.**
- **Principal Investigator:** Development of female attractants for *Heliothis*. Mississippi Area Wide Cotton Insect Management Research. USDA-Cooperative Agreement. **\$1,800. 1984.**
- **Principal Investigator:** Genetics of pheromone chemistry, emission and behavior in the *Heliothis* complex. Research Initiation Grant from Office of Graduate Studies and Research. Mississippi State University. **\$4,787. 1984.**
- **Principal Investigator:** Sensory cues and receptors for oviposition by *Heliothis* (Noctuidae). Competitive Research Grants Office, USDA-SEA, Washington, DC. **\$77,800. 1985-1987.**
- **Principal Investigator:** Exogenous and endogenous control of pheromone production and reproduction in *Heliothis*. AFGRAD Program, African American Institute, United Nations Plaza, NY. **\$10,000. 1988.**
- **Co-Principal Investigator:** Acquisition of scanning electron microscope. National Science Foundation - Biological Instrumentation Program. **\$140,000. 1990.**
- **Principal Investigator:** Otilie Schillig Special Teaching Grant to develop macroscopy for Insect Physiology laboratories. Mississippi State University. **\$2,000. 1991.**
- **Principal Investigator:** Riceland Mosquito Management Program. USDA-SEA, Washington, DC. **\$45,000. 1992-93.**
- **Principal Investigator:** Oviposition marker and sex pheromones of *Callosobruchus maculatus* and *C. subinnotatus*. United States Agency for International Development, Office of Research. **\$150,000. 1992-96.**
- **Co-Principal Investigator:** Evaluation of oleoresin capsicum as an insecticide against beet armyworm. Kelsec, Inc. **\$7,000. 1994.**
- **Principal Investigator:** Insect identification and resistance management using a monoclonal antibody-based scouting tool. Mississippi Research Enhancement Program. **\$166,645. 1994-1997.**
- **Principal Investigator:** BUGS ON SCREEN: A multimedia approach to teaching General Entomology. Otilie Schillig Special Teaching Grants Program. **\$4,049. 1995.**
- **Principal Investigator:** Development of monoclonal antibodies against egg proteins of the moths, *Heliothis virescens* and *Helicoverpa zea*. Mississippi Research Consortium, Teaching Scholars Fellowship Program Grants. **\$4,700. 1995.**
- **Principal Investigator:** Development of a monitoring device for *Lygus* bugs. Cooperative Agreement, USDA-ARS. **\$15,000. 1996.**

- **Principal Investigator:** A gonadotropic imperative for polyandry in the higher Lepidoptera. National Research Initiative Competitive Grants Program, USDA. **\$77,515. 1996-1998.**
- **Co-Principal Investigator:** Comparative neuroendocrine control of reproduction in moths. National Institutes of Health- MBRS (SCORE) Program, NIGMS. **\$360,000. 1996-1999.**
- **Principal Investigator:** Identification of the sex pheromone of *Lygus lineolaris* (Miridae). Cotton Incorporated. **\$86,035. 1997-1999.**
- **Principal Investigator:** Color laser printer outputs to enhance efficacy of delivered entomological information in the classroom or outside. Kansas State University Ag Telefund Special Projects Grant. **\$3,000. 1998.**
- **Principal Investigator:** Model to study mating-induced allatotropism in Lepidoptera. National Research Initiative Competitive Grants Program, USDA. **\$100,000. 1998-2000.**
- **Principal Investigator:** A monoclonal antibody-based identification kit for *Cotesia flavipes*. United States Agency for International Development. **\$199,334. 1998-2001.**
- **Principal Investigator:** Support for Wheat Research. USDA-ARS Cooperative Agreement. **\$150,000. 1998-2000.**
- **Co-Principal Investigator:** Development of wheat straw composition boards and composites with enhanced aesthetic and performance properties. Wheat Research Center, Kansas State University. **\$7,400. 1999-2000.**
- **Co-Principal Investigator:** Meeting travel-grant for students and postdoctorates to attend the Seventh International Conference on the Juvenile Hormones on August 29-September 3, 1999. National Science Foundation. **\$14,000. 1999.**
- **Co-Principal Investigator:** Acquisition of Low-Vacuum Scanning Electron Microscope for Biological, Physical, Chemical, and Engineering Research and Training. National Science Foundation. **\$176,190. 1999.**
- **Co-Principal Investigator:** Neuroendocrine control of reproduction in moths. National Institutes of Health-MBRS (SCORE) Program, NIGMS. **\$350,724. 1999-2003.**
- **Co-Principal Investigator:** Biology and management of corn borers in Kansas. Kansas Corn Commission. **\$18,800. 2000-2001.**
- **Co-Principal Investigator:** Investigations on the soybean stem borer in Kansas. Kansas Soybean Commission. **\$73,200. 2000-2002.**
- **Principal Investigator:** Proposal to create butterfly conservatory and insect zoo at Kansas State University. City/University Projects Fund. **\$78,000. 2001-2004.**
- **Principal Investigator:** Consortium for Integrated Management of Stored Product Insect Pests. USDA-CSREES-RAMP. **\$2,029,829. 2000-2005.**
- **Co-Principal Investigator:** Wheat on-farm storage profile. USDA-CSREES-PMC and North Central Pest Management Center. **\$35,257. 2001.**
- **Principal Investigator:** *Heliothis virescens*: Model for signal transduction of allatotropism in moths. National Research Initiative Competitive Grants Program, USDA. **\$130,000. 2001-2003.**
- **Principal Investigator:** Kansas Pesticide Use Survey and Crop Profile Development, USDA-CSREES-PMC and North Central Pest Management Center. **\$85,949. 2001-2002.**
- **Principal Investigator:** Pesticide Usage Survey and Crop Profile Development in the Northern and Central Plains (Kansas, Nebraska, North Dakota, and South Dakota). USDA-CSREES-PMC and North Central Pest Management Center. **\$90,000. 2002-2003.**
- **Co-Principal Investigator:** Infection decisions by insect-parasitic nematodes. Integrative Animal Biology and Neuroscience, National Science Foundation. **\$200,000. 2003-2005.**

- **Principal Investigator:** Implementation of a monitoring program to reduce pesticide applications at certified seed stock facilities. Environmental Protection Agency. Food Quality Protection Act (FQPA) Strategic Ag Initiative. **\$24,370. 2003-2004.**
- **Principal Investigator:** Monoclonal antibody-based diagnostic kit for distinguishing between larvae of *Heliothis virescens* and *Helicoverpa zea*. USDA-SIMRU. **\$188,673. 2003-2006.**
- **Principal Investigator:** Signal transduction from juvenile hormone to ion pump in moth ovaries. NIH-K-INBRE Program of the National Center for Research Resources. **\$51,100. 2005.**
- **Principal Investigator:** Consortium for Integrated Management of Stored Product Insect Pests: Integrated Management of Storage Pests from the Farm to the Table. USDA-CSREES-RAMP. **\$1,800,000. 2005-2009.**

PATENT

Heliothis virescens-specific and *Helicoverpa zea*-specific monoclonal antibodies and insect identification method. United States patent issued May 22, 2001; patent number 6,235,485. The patent was licensed to AgDia, Elkhart, IN, who developed field-identification diagnostic kit and marketed in the cotton-belt of the United States and in South America.

PUBLICATIONS (*Refereed publications)

My Google Scholar H index is 32 and i10 index is 84.

I am listed in the top 2% of Global scientists in the subfield, according to a Stanford University study (<https://tinyurl.com/5xbx9s9e>).

I have also written numerous blogs on various topics over the last several years, available at:

- <http://blogs.oregonstate.edu/sonny/>
- <https://nifa.usda.gov/newsroom/blogs>
- <https://www.nwccu.org/the-beacon/>

Ramaswamy, S. B. and A. P. Gupta. 1978. Effect of juvenile hormone on mating behavior of female German cockroach, *Blattella germanica* (L.) (Dictyoptera:Blattellidae). J. N. Y. Entomol. Soc. 86:315-16.

Khoo, B. K., **S. B. Ramaswamy**, N. C. Respicio and A. J. Forgash. 1978. Induction of multiple progeny emergence of the Gypsy moth parasitoid, *Brachymeria intermedia* (Nees) (Hymenoptera:Chalcididae) by Dimilin. J. N. Y. Entomol. Soc. 86:240.

Ramaswamy, S. B. 1983. Book Review. Management of Insect Pests with Semiochemicals: Concepts and Practice. Edited by E. R. Mitchell. Plenum Press, New York. J. Am. Chem. Soc. 105:2932.

Navasero, R. C. and **S. B. Ramaswamy**. 1987. Host plant surface characteristics influencing oviposition behavior of *Heliothis virescens* (F.) (Lepidoptera:Noctuidae). J. Elect. Microsc. Tech. 6:312.

Ramaswamy, S. B. 1988. Introduction. Proceedings of Symposium on Host Finding and Feeding in Adult Phytophagous Insects. J. Insect Physiol. 34:v.

- Reed, J. T. and **S. B. Ramaswamy**. 1995. Laboratory evaluation of pepper (Oleoresin Capsicum) extracts for control of beet armyworm and tobacco budworm. Proc. Beltwide Cotton Conference, San Antonio, TX, January 1995.
- Jia, F. and **S. B. Ramaswamy**. 2003. Crop Profile for Cotton in Kansas.
<http://www.pmcenters.org/CropProfiles/index.cfm>.
- Jia, F. and **S. B. Ramaswamy**. 2003. Crop Profile for Dry-Beans in Kansas.
<http://www.pmcenters.org/CropProfiles/index.cfm>.
- Jia, F. and **S. B. Ramaswamy**. 2003. Profile for Range/Pasture in Kansas.
<http://www.pmcenters.org/CropProfiles/index.cfm>.
- Jia, F. and **S. B. Ramaswamy**. 2004. Crop Profile for Alfalfa in the Northern and Central Plains (KS, NE, ND, and SD). <http://www.pmcenters.org/CropProfiles/index.cfm>.
- Jia, F. and **S. B. Ramaswamy**. 2004. Crop Profile for Barley in the Northern and Central Plains (KS, NE, ND, and SD). <http://www.pmcenters.org/CropProfiles/index.cfm>.
- Jia, F. and **S. B. Ramaswamy**. 2004. Crop Profile for Oats in the Northern and Central Plains (KS, NE, ND, and SD). <http://www.pmcenters.org/CropProfiles/index.cfm>.
- Jia, F. and **S. B. Ramaswamy**. 2004. Crop Profile for Pecan in the Northern and Central Plains (KS, NE, ND, and SD). <http://www.pmcenters.org/CropProfiles/index.cfm>.
- Kadir, S., F. Jia, S. Bhadriraju, C. Reed, F. Arthur, and **S. B. Ramaswamy**. 2005. Crop Profile for On-Farm Stored Wheat in Kansas. <http://www.ipmcenters.org/cropprofiles/docs/KSstoredwheat.html>
- Jia, F., **S. B. Ramaswamy**, Y. Park. 2005. GenBank Accession AY909577. *Helicoverpa zea* cadherin mRNA, partial cds. <http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?db=nucleotide&val=59543898>
- Jia, F. and **S. B. Ramaswamy**. 2005. GenBank Accession AY909578. *Helicoverpa zea* cadherin-like mRNA, partial sequence. AY909578.1 GI:59543921.
<http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?db=nucleotide&val=59543921>
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http://www.ncbi.nlm.nih.gov/entrez/viewer.fcgi?list_uids=59543944&db=nucleotide&dopt=gbwithparts
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- Ramaswamy, S. B.** 2018. [Are you ready?](#) The Beacon, Volume 1, Issue 2. November 2018.
- Ramaswamy, S. B.** 2019. [Raison d’Etre for Higher Education: Promoting Economic and Social Mobility of Students](#). The Beacon, Volume 1, Issue 3. March 2019.
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- Ramaswamy, S. B.** 2019. [Student Success as a Moral Imperative](#). The Beacon, Volume 2, Issue 2. September 2019.
- ***Ramaswamy, S. B.**, A. P. Gupta and H. G. Fowler. 1980. External ultrastructure and function of the *spiculum copulatus* (SC) of the German cockroach, *Blattella germanica* (L.) (Dictyoptera:Blattellidae). *J. Exp. Zool.* 214:287-292.
- ***Ramaswamy, S. B.** and A. P. Gupta. 1981. Sensilla of the antennae and labial and maxillary palps of *Blattella germanica* (L.) (Dictyoptera:Blattellidae): their types and locations. *J. Morphol.* 168:269-279.

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- ***Ramaswamy, S. B.**, R. T. Roush, and W. F. Kitten. 1985. Release and recapture probabilities of laboratory-adapted and wild-type *Heliothis virescens* (F.), (Lepidoptera:Noctuidae) in pheromone-baited traps. *J. Entomol. Sci.* 20: 460-464.
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- ***Ramaswamy, S. B.**, and R. T. Roush. 1986. Sex pheromone titers in females of *Heliothis virescens* (F.) from three geographic locations (Lepidoptera:Noctuidae). *Entomol. Gener.* 12: 19-23.
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ORAL PRESENTATIONS

I have presented numerous voluntary and invited papers at professional meetings and symposia in addition to serving as a moderator and organizer of symposia and workshops. I have also presented seminars and lectures in Australia, Canada, Japan, Netherlands, Switzerland, France, Hungary, England, Italy, Israel, Jordan, Nigeria, Brazil, Uganda, Mexico, Puerto Rico, Philippines, and India.

Over the years I have presented hundreds of seminars and lectures at the University of Kansas, Kansas State University, University of California-Riverside, Rutgers University, Cornell University, Pennsylvania State University, North Dakota State University, Texas A&M University, Oregon State University, University of Massachusetts, Virginia Polytechnic Institute, North Carolina State University, Auburn University, Mississippi State University, University of Maryland-Baltimore County, University of Idaho, Washington State University, Louisiana State University, Michigan State University, Oklahoma State University, University of Nebraska, Purdue University, University of Arkansas, Lincoln University, Fort Valley State University, Kentucky State University, Tennessee State University, Alcorn State University, University of Maryland-College Park, University of Maryland-Eastern Shores, Langston University, Iowa State University, University of Vermont, University of New Hampshire, University of Buffalo, Tuskegee University, University of Missouri, Georgia Institute of Technology, University of Arizona, Tohono O'odham College, Fond du Lac Tribal & Community College, University of Minnesota, Northwest Indian College, North Carolina A&T University, South Dakota State University, Sisseton Wahpeton College, California Polytechnic University—San Luis Obispo, University of Illinois, Clemson University, University of Puerto Rico-Mayaguez, University of Wisconsin, Georgetown University, George Washington University, Massachusetts Institute of Technology, University of Florida, University of Kentucky, University of Delaware, Montana State University-Bozeman, New Mexico State University, Southwest Indian Polytechnic Institute, Prairie View A&M University, Washington University-St. Louis, Danforth Plant Sciences Institute, University of Arkansas-Pine Bluff, University of Maine, Columbia University, University of Connecticut, Tufts University, University of California-Davis, West Virginia University, Boise State University, Portland State University, University of Montana-Missoula, University of Alaska-Fairbanks, University of Nevada-Las Vegas, Brigham Young University, Montana State University-Billings, Chief Dull Knife College, Little Big Horn College, Salish Kootenai College, Umpqua Community College, Chemeketa Community College, Gonzaga University, Whitworth University, Eastern Washington University, North Idaho College, Lewis-Clark State College, Spokane Falls Community College, Idaho State University, Warner Pacific University.

Wageningen Agricultural University - The Netherlands, University of Agricultural Sciences - Bangalore, India, Indian Institute of Sciences - Bangalore, International Crop Research Institute for the Semi-Arid Tropics - Hyderabad, India, Kyoto University, Tokyo University, Sankyo Chemical Company, Kyoto, Japan, Abia State University - Nigeria, University College - London, Oxford University, USDA Biological Control Labs, France, Swiss Federal Institute of Technology, Zurich, Makerere University, Kampala, Uganda,

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Scientific Presentations, Invited Lectures, Panel Discussions, Keynote and Plenary Lectures

- 1978 Effect of juvenile hormone on mating behavior of female *Blattella germanica*. Entomological Society of America Eastern Branch Meetings, New York, NY.
- 1980 Pheromone release rate in spruce budworm males. Entomological Society of America National Meetings, Atlanta, GA.
- 1981 Behavioral responses of adult male and female spruce budworms to female emitted and synthetic sex pheromone. Entomological Society of America National Meetings, San Diego, CA.
- 1982 Effects of DDT on sodium/calcium exchange in nerve tissue. Entomological Society of America National Meetings, Toronto, Canada.
- 1983 *Heliothis virescens* sex pheromone components: 2, 3, 4, 7 or ? Entomological Society of America National Meetings, Detroit, MI.
- 1984 Pheromones: Alcohol enhanced activity. Invited Paper, Mississippi Entomological Association Meetings, Mississippi State, MS.
- 1984 Responses of wild-type and backcross *Heliothis* males to virgin females and synthetic pheromone. Entomological Society of America National Meetings, San Antonio, TX.
- 1985 Current research on pheromones of agricultural pests in Mississippi. Invited Paper, First Mississippi Entomological Symposium, Jackson, MS.
- 1985 Sensory modalities used by *Heliothis virescens* during close range host-plant discrimination. Entomological Society of America Meetings, Hollywood, FL.
- 1985 Histological and histochemical changes during ovarian maturation in *Lygus lineolaris*. Entomological Society of America Meetings, Hollywood, FL. (with W. K. Ma).
- 1986 Host finding by moths: Sensory modalities and behaviors. Symposium paper, Entomological Society of America National Meetings, Reno, NV.
- 1986 Reproductive physiology and pheromone behavior in *Lygus lineolaris*. Invited paper in informal conference on *Lygus*. Entomological Society of America National Meetings, Reno, NV.
- 1987 How sweet it is! Responses of chemoreceptors in *Heliothis virescens*. Entomological Society of America National Meetings, Boston, MA.
- 1987 Electrophysiological and behavioral studies on tarsal chemoreceptors of *Heliothis virescens*. XVII Anniversary International Chemoreceptor Workshop on Insects. Worcester, MA.
- 1987 Formation of vitelline membrane and chorion in the tarnished plant bug, *Lygus lineolaris*. Entomological Society of America National Meetings, Boston, MA. (with W. K. Ma).

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- 1987 Hierarchy of ovipositional preference by *Heliothis virescens* (F.). Entomological Society of America, Southeastern Branch Meetings, Jackson, MS. (with R. C. Navasero).
- 1988 Tarsal chemoreceptors in *Heliothis virescens*: responses to sugars, salts and plant extracts. XVIII International Congress of Entomology, Vancouver, B.C., Canada.
- 1988 Nocturnal behavior of *Heliothis virescens*: Oviposition, feeding, and calling. Entomological Society of America National Meetings, Louisville, KY.
- 1989 Physiological and morphological correlates of oviposition and feeding behavior in *Heliothis virescens*. 7th International Symposium on Insect/Plant Relations. Budapest, Hungary.
- 1989 Juvenile hormone triggers choriogenesis in *Heliothis virescens* (Lepidoptera:Noctuidae). Entomological Society of America National Meetings, San Antonio, TX.
- 1989 Larval performance of *Heliothis virescens* (F.) (Lepidoptera:Noctuidae). Entomological Society of America National Meetings, San Antonio, TX. (with N. E. Cohen).
- 1989 Irreversible learning in *Microplitis croceipes*. Entomological Society of America National Meetings, San Antonio, TX. (with J. P. Kaas and G. W. Elzen).
- 1990 Time budget of parasitoid *Microplitis croceipes* on spring host plants. Entomological Society of America, Southeastern Branch Meetings, Orlando, FL. (with J. P. Kaas and G. W. Elzen).
- 1990 Physiological correlates of feeding and oviposition behavior of *Heliothis virescens* in response to bitter compounds. XX Anniversary International Chemoreceptor Workshop on Insects. Kauai, Hawaii.
- 1990 Physiological and behavioral responses of chemoreceptors in *Heliothis virescens*. Entomological Society of America National Meetings, New Orleans, LA.
- 1990 Impact of bitter compounds on feeding behavior of larval *Heliothis virescens*. Entomological Society of America National Meetings, New Orleans, LA. (with N. E. Cohen).
- 1991 Exogenous factors affecting oocyte maturation by *Heliothis virescens*. Entomological Society of America, Southeastern Branch Meetings, Orange Beach, AL. (with N. E. Cohen).
- 1991 Pheromonotropic and pheromonostatic factors affecting pheromone production in *Heliothis virescens*. Entomological Society of America National Meetings, Reno, NV.
- 1991 *Heliothis virescens* oviposition on cotton affected by plant age, damage, water stress, and conspecific eggs. Entomological Society of America National Meetings, Reno, NV. (with R. C. Navasero-Ward).

- 1992 Oviposition and larval preference in *Heliothis virescens* (F.) (Lepidoptera:Noctuidae). Entomological Society of America, Southeastern Branch Meetings, Savannah, GA. (with R. C. Navasero-Ward).
- 1992 Morphological and physiological correlates of feeding and oviposition behaviors in *Heliothis virescens* (Lepidoptera:Noctuidae). Invited symposium speaker, 68th Annual Meeting, Kansas Entomological Society, Lawrence, KS, April 1992.
- 1992 Feeding and oviposition by *Heliothis virescens*: From behavior to physiology (& what can we do about it?). Invited symposium speaker, Annual Meeting, Lepidopterists Society, East Lansing, MI, June 1992.
- 1992 Pheromonotropism and pheromonostasis in moths. Invited symposium paper, XIX International Congress of Entomology, Beijing, China. (with G. N. Mbata).
- 1992 Activity of PBAN in *Heliothis virescens*. Entomological Society of America National Meetings, Baltimore, MD. (with Y. Qiu).
- 1992 The elusive PBAN in the hemolymph. Entomological Society of America National Meetings, Baltimore, MD.
- 1992 Half-sib analysis of larval feeding performance of three *Heliothis virescens* populations. Entomological Society of America National Meetings, Baltimore, MD. (with R. P. Porter).
- 1993 Ultrastructure of putative pheromone glands in *Callosobruchus subinnotatus* and *C. maculatus*. Entomological Society of America National Meetings, Indianapolis, IN.
- 1994 Role of the ventral nerve cord in pre- and post-mating pheromone production in heliothine moths. I International Symposium on Insect Pheromones. Mar. 6-11, 1994. Wageningen, The Netherlands.
- 1994 Mating and oviposition behavior of tobacco budworm. 1994 Advanced Insect, Disease, and Weed Workshop. Mississippi State University Cooperative Extension Service.
- 1994 A preliminary report on the sex pheromone of *Callosobruchus maculatus*. 23rd Annual International Chemoreceptor Workshop on Insects, Sanibel, FL.
- 1994 Postcoital neuronal control of pheromone production in *Heliothis virescens*. Entomological Society of America National Meetings, Dallas, TX.
- 1994 Sex pheromone biology of *Callosobruchus maculatus*: Production, behavior, and electroantennogram responses. Entomological Society of America National Meetings, Dallas, TX. (with S. Shu).
- 1994 Male effected control of oogenesis in female *Heliothis virescens*. Entomological Society of America National Meetings, Dallas, TX. (with Y. Park).

- 1994 Electrophoretic comparison of egg and hemolymph proteins in *Heliothis virescens* and *Helicoverpa zea*. Entomological Society of America National Meetings, Dallas, TX. (with F. Zeng).
- 1995 Confocal microscopy of gustatory receptors of heliothine moths. 24th International Chemoreceptor Workshop on Insects. Cozumel, Mexico.
- 1995 Dynamics of juvenile hormone-mediated reproduction in moths and butterflies. Symposium paper, Entomological Society of America National Meetings, Las Vegas, NV.
- 1996 Mating and oviposition behavior of *Callosobruchus subinnotatus*: A cycling pattern? 70th Annual Meeting, Southeastern Branch, Entomological Society of America, Biloxi, MS. (with G. N. Mbata).
- 1996 Hemolymph juvenile hormone titers in the southwestern corn borer. 70th Annual Meeting, Southeastern Branch, Entomological Society of America, Biloxi, MS. (with S. Shu and Y. I. Park).
- 1996 Characterization of vitellogenin production in the moth, *Heliothis virescens*. 70th Annual Meeting, Southeastern Branch, Entomological Society of America, Biloxi, MS. (with F. Zeng).
- 1996 Juvenile hormone in *Heliothis virescens*. 70th Annual Meeting, Southeastern Branch, Entomological Society of America, Biloxi, MS. (with Y. I. Park and S. Shu).
- 1996 Budworm/bollworm sex pheromones: From behavior to physiology. Advanced Cotton Pest Management Workshop, Mississippi Cooperative Extension Service, Mississippi State University, March 28-29, 1996.
- 1996 Egg maturation in moths and butterflies: Multiple answers to biological problems. Invited Sigma Xi Lecture to honor Dr. Howard Smith, University of Idaho, Moscow, ID. April 28, 1996.
- 1996 Sex pheromone of *Callosobruchus subinnotatus* and *C. maculatus*: Production site, Chemistry, Physiology, and Behavior. Invited paper for presentation at the Symposium on Stored Product Insects. 20th International Congress of Entomology, Florence, Italy.
- 1996 Sensilla of antennae, maxillary and labial palps, and tarsi of *Callosobruchus subinnotatus* and *C. maculatus* (Coleoptera:Bruchidae) . 20th International Congress of Entomology, Florence, Italy. (with G. Mbata and S. Chinta).
- 1996 Juvenile hormone-mediated egg maturation in *Diatraea grandiosella*. Entomological Society of America National Meetings, Louisville, KY. (with S. Shu and Y. Park).
- 1996 Vitellogenin production in the pupae of *Diatraea grandiosella*. Entomological Society of America National Meetings, Louisville, KY. (with F. Zeng and S. Shu).
- 1996 *Heliothis virescens*: Male accessory gland and testes and female egg maturation. Entomological Society of America National Meetings, Louisville, KY. (with Y. Park).
- 1996 Exogenous and endogenous factors affecting egg maturation in *Heliothis virescens*. Entomological Society of America National Meetings, Louisville, KY.

- 1997 The physiological underpinnings of reproduction in moths. Invited paper at the Symposium on Horizons in Plant Sciences, *Insect Behavior and Reproduction: Regulation by Hormones*. Swiss Federal Institute of Technology, Zurich, Switzerland. May 26-28, 1997.
- 1997 Detection of vitellogenin production in pupal hemolymph of *Diatraea grandiosella* by ELISA. Entomological Society of America National Meetings, Nashville, TN. (with F. Zeng and S. Shu).
- 1997 Comparative responses of normal and active males of *Callosobruchus subinnotatus* to blends of sex pheromone. Entomological Society of America National Meetings, Nashville, TN. (with G. Mbata and S. Shu).
- 1997 Sex pheromone production and responses in *Callosobruchus subinnotatus*. Entomological Society of America National Meetings, Nashville, TN. (with S. Shu and G. Mbata).
- 1997 Aspects of oogenesis and influence of juvenile hormones in the codling moth, *Cydia pomonella*. Entomological Society of America National Meetings, Nashville, TN. (with T. Webb, S. Shu and S. Dorn).
- 1997 Characterization of lipophorin from hemolymph of the German cockroach, *Blattella germanica*. Entomological Society of America National Meetings, Nashville, TN. (with V. Sevala, S. Shu and C. Schal).
- 1997 Male-effected gonadotropism in female *Heliothis virescens*. Entomological Society of America National Meetings, Nashville, TN. (with Y. Park and S. Shu).
- 1997 Mechanisms underlying the mating-stimulated egg production in *Heliothis virescens*. Entomological Society of America National Meetings, Nashville, TN.
- 1998 Faculty development: Perspectives of a new department head. Kansas State University, Department Heads Workshop.
- 1998 A really great way to distinguish between bollworm and tobacco budworm eggs. Advanced Pest Management Short Course, Mississippi Cooperative Extension Service, Mississippi State University.
- 1998 Endocrine underpinnings of reproduction in the Lepidoptera. First Annual Karl Maramarosch Distinguished Alumnus Seminar, Rutgers University.
- 1998 Managing faculty and the curriculum. Kansas State University, Heads and Deans Workshop.
- 1998 Of leps and eggs: Endocrinology of egg development in moths and butterflies. F. S. Arant Spring Soiree. Auburn University. May 22, 1998.
- 1998 Sex pheromone of *Callosobruchus subinnotatus*. XXVII International Chemoreception Workshop on Insects. Jackson, New Hampshire.
- 1998 Tobacco budworm or cotton bollworm: Monoclonal antibodies to distinguish the two. Entomological Society of America National Meetings, Las Vegas, NV.
- 1998 Putative cues used by the parasitoid, *Pteromalus cerealellae*, to locate bruchid hosts. Entomological Society of America National Meetings, Las Vegas, NV. With G. N. Mbata.

- 1998 Profile of JH esterase activities in relation to JH titers in *Heliothis virescens*. Entomological Society of America National Meetings, Las Vegas, NV. With S. Shu et al.
- 1998 Production and characteristics of monoclonal antibodies specific to tobacco budworm and cotton bollworm. Entomological Society of America National Meetings, Las Vegas, NV. With F. Zeng.
- 1999 Does juvenile hormone control egg production in the codling moth, *Cydia pomonella*? VII International Conference on Juvenile Hormone, Jerusalem, Israel. With Tracey Webb, Shengqiang Shu, and Silvia Dorn.
- 1999 Endocrine mechanisms underlying the mating-Stimulated Egg Production in the moth, *Heliothis virescens*. VII International Conference on Juvenile Hormone, Jerusalem, Israel.
- 1999 *Choristoneura fumiferana* entomopoxvirus prevents metamorphosis by modulating juvenile hormone and ecdysteroid titers. VII International Conference on Juvenile Hormone, Jerusalem, Israel. With Palli et al.
- 1999 Movement of first generation European and Southwestern corn borer moths into two Bt corn fields from surrounding fields. Entomological Society of America National Meetings, Atlanta, GA. With L. Buschman et al.
- 2000 Competing in the international arena. Invited speaker. 2000 NCB-ESA-BCE Symposium: Vision Beyond the Classroom for Graduate Students to Succeed. Annual meeting, North Central Branch-Entomological Society of America. Minneapolis, MN.
- 2000 Dispersal of European and Southwestern corn borer moths in Bt cornfields. Annual meeting, North Central Branch-Entomological Society of America. Minneapolis, MN. With L.L. Buschman et al.
- 2000 Dispersal of European and Southwestern corn borer moths within and between cornfields. XXI International Congress of Entomology, Iguassu Falls, Brazil. August 2000. With L. L. Buschman et al.
- 2000 Factors influencing egg maturation and longevity in *Heliothis virescens*. XXI International Congress of Entomology, Iguassu Falls, Brazil. August 2000.
- 2000 Soybean stem borer in Kansas: life history, sampling, and severity of recent infestations. XXI International Congress of Entomology, Iguassu Falls, Brazil. August 2000. With R. A. Higgins et al.
- 2000 Putative cues used by *Pteromalus cerealellae* to locate its bruchid host. Entomological Society of America National Meetings, Montreal, Canada. With G. Mbata et al.
- 2000 Immunocytochemical localization and quantification by ELISA of Manduca sexta allatotropin-like neuropeptide in *Heliothis virescens*. Entomological Society of America National Meetings, Montreal, Canada. With A. Rachinsky et al.

- 2000 Studies of the dispersal and movement in maize of southwestern corn borer (SWCB), *Diatraea grandiosella* Dyar, (Lepidoptera: Pyralidae) marked with Rubidium and Cesium. Entomological Society of America National Meetings, Montreal, Canada. With J. Qureshi et al.
- 2000 Antennal morphology of the soybean stem borer, *Dectes texanus* (Coleoptera: Cerambycidae). Entomological Society of America National Meetings, Montreal, Canada. With D. Crook et al.
- 2000 Dispersal of dye-marked southwestern corn borer moths within a corn field and across a wheat stubble field. Entomological Society of America National Meetings, Montreal, Canada. With L. Buschman et al.
- 2001 Signal transduction in the stimulation of juvenile hormone biosynthesis by allatotropin in *Heliothis virescens*. Entomological Society of America National Meetings, San Diego. With A. Rachinsky et al.
- 2001 Foliar application of trace elements Rubidium and Cesium to mark southwestern corn borer, *Diatraea grandiosella* Dyar (Lepidoptera: Pyralidae) for dispersal studies in corn. Entomological Society of America National Meetings, San Diego. With J. Qureshi et al.
- 2001 Reproductive developmental biology and mating behavior of the soybean stem borer *Dectes texanus texanus* (Coleoptera: Cerambycidae). Entomological Society of America National Meetings, San Diego. With D. Crook et al.
- 2002 Dispersal of dye-marked southwestern and European corn borers for resistance management in bt-corn. International Plant Research to Insects Annual Meeting, Baltimore. With Qureshi et al.
- 2002 Southwestern corn borer cannibalism and corn stalk girdling: expressions of competition for the best site to survive the winter. 57th Annual Meeting, North Central Branch, Entomological Society of America, East Lansing, MI. With Buschman et al.
- 2002 Chemical ecology of *Oryzaephilus surinamensis* (L.) (Coleoptera: Silvanidae): Mating behavior and response to food. 57th Annual Meeting, North Central Branch, Entomological Society of America, East Lansing, MI. With Suryavanshi et al.
- 2002 Movement of southwestern and European corn borer (Lepidoptera: Crambidae) moths from refuge fields into large Bt-corn fields. 57th Annual Meeting, North Central Branch, Entomological Society of America, East Lansing, MI. With Qureshi et al.
- 2002 Show me the money: Keys to developing a competitive proposal. Invited Symposium. Entomological Society of America National Meetings, Ft. Lauderdale.
- 2002 The role of allatotropin in the juvenile hormone-mediated gonadotropism in moths. Invited Symposium. Entomological Society of America National Meetings, Ft. Lauderdale.
- 2002 Success after Graduate School. Invited Informal Conference. Entomological Society of America National Meetings, Ft. Lauderdale.
- 2002 Entomopathogenic nematodes as potential biological control agents of stored-product pests. Entomological Society of America National Meetings, Ft. Lauderdale. With Ramos et al.

- 2002 Evaluation of diet-incorporated rubidium chloride and cesium chloride to mark moths of *Diatraea grandiosella* (Lepidoptera: Crambidae) for mark-recapture studies. Entomological Society of America National Meetings, Ft. Lauderdale. With Qureshi et al.
- 2002 Cannibalism and corn stalk girdling appear to be expressions of competition for the best site for the southwestern corn borer to survive the winter. Entomological Society of America National Meetings, Ft. Lauderdale. With Buschman et al.
- 2003 Of bugs and budgets: On being a department head at a landgrant university. Academic Chairperson's Conference. Orlando, FL.
- 2003 Additive effects of juvenile hormone combinations in *Heliothis virescens*. 58th Annual Meeting, North Central Branch, Entomological Society of America, Madison, WI. With Tucker et al.
- 2003 Oil-soluble dyes in larval diet of southwestern corn borer (Lepidoptera:Crambidae) as adult markers for dispersal studies. 58th Annual Meeting, North Central Branch, Entomological Society of America, Madison, WI. With Qureshi et al.
- 2003 Putative role for juvenile hormone transfer during copulation from male to female in *Heliothis virescens*. Entomological Society of America National Meetings, Cincinnati. With Pszczolkowski et al.
- 2003 Effects of male allatectomy on subsequent mating and egg output in *Heliothis virescens*. Entomological Society of America National Meetings, Cincinnati. With Tucker et al.
- 2003 Dynamics of host-insect carbon dioxide release during entomopathogenic nematode infection. Entomological Society of America National Meetings, Cincinnati. With Ramos et al.
- 2003 Attraction of face fly (*Musca autumnalis* De Geer) to volatiles from *Euonymus* spp. Entomological Society of America National Meetings, Cincinnati. With Yan et al.
- 2003 Dispersal of marked and feral Adult *Ostrinia nubilalis* Hübner (Lepidoptera: Crambidae) in large irrigated Bt-corn fields and its role in Bt-corn resistance management. Entomological Society of America National Meetings, Cincinnati. With Qureshi et al.
- 2003 The travels and travails of the intrepid Monarch butterfly. Invited lecture, 50th Anniversary Celebration of Rutgers University-Cook College graduate programs.
- 2004 Ovarial patency in *Heliothis virescens*: pharmacological analysis of subcellular mechanisms. 59th Annual Meeting, North Central Branch, Entomological Society of America. Kansas City, MO. With Pszczolkowski et al.
- 2004 Dispersal of lesser grain borer, *Rhyzopertha dominica* (F.). 59th Annual Meeting, North Central Branch, Entomological Society of America. Kansas City, MO. With Ching'Oma et al.
- 2004 Developing a user-friendly database for pesticides. XVTH International Plant Protection Congress, Beijing, P. R. China. With Jia.

- 2004 Signal transduction in the corpora allata of adult *Heliothis virescens*. 2004 International Congress of Entomology, Brisbane, Australia. August 2004. With A. Rachinsky et al.
- 2004 Pharmacological analysis of ovarian patency in *Heliothis virescens*. VIII International Conference on Juvenile Hormone. Lake Tahoe. With M. Pszczolkowski et al.
- 2004 The involvement of adenylate cyclase in transduction of the signal from a terpenoid hormone in a moth. Merck-Merial National Veterinary Scholar Symposium at Auburn University. With Peterson et al.
- 2004 I have submitted my grant proposal. What happens next? A look at the review process. Invited symposium lecture. Entomological Society of America National Meetings, Salt Lake City.
- 2004 Volatile chemicals produced by hosts parasitized with the entomopathogenic nematode *Steinernema riobrave*. Entomological Society of America National Meetings, Salt Lake City. With Christen et al.
- 2004 Male-produced aggregation pheromone of sawtoothed grain beetle, *Oryzaephilus surinamensis*. Entomological Society of America National Meetings, Salt Lake City. With Ochieng et al.
- 2004 Flight activity of the lesser grain borer near certified seed facilities. Entomological Society of America National Meetings, Salt Lake City. With Toews et al.
- 2004 Influence of host infection status on attraction of entomopathogenic nematodes. Entomological Society of America National Meetings, Salt Lake City. With Ramos et al.
- 2004 Temporal and spatial distribution of Lesser Grain Borer, *Rhyzopertha dominica* (Fabricius), flight activity in an agricultural landscape. Entomological Society of America National Meetings, Salt Lake City. With Ching'oma et al.
- 2005 Infection preferences of an entomopathogenic nematode, *Steinernema riobrave*, in two host species. 60th Annual Meeting, North Central Branch, Entomological Society of America. West Lafayette, IN. With Christen et al.
- 2005 Beetle immigration into foundation seed warehouses. 60th Annual Meeting, North Central Branch, Entomological Society of America. West Lafayette, IN. With Toews et al.
- 2005 *Steinernema riobrave* as a potential biological control for stored product insect pests. 60th Annual Meeting, North Central Branch, Entomological Society of America. West Lafayette, IN. With Ramos et al.
- 2005 Infection preferences of an entomopathogenic nematode, *Steinernema riobrave*. Annual Meeting of the Society of Invertebrate Pathology. Anchorage, AK. With Christen et al.
- 2005 The road to identifying the juvenile hormone membrane receptor: pharmacological studies on ovarian patency in *Heliothis virescens*. IVth International Conference on Arthropods, Bialka Tatrzenska, Poland, EU. With Pszczolkowski.

- 2005 Pharmacology of umami taste perception in a caterpillar. International Chemoreceptor Workshop, Sardinia, Poland. With Pszczolkowski et al.
- 2005 Effects of L-aminophosphono and D-aminophosphono acids on feeding in neonate codling moth *Cydia pomonella*. Kopec Memorial Meeting, Warsaw, Poland. With M. Pszczolkowski et al.
- 2005 Consortium for Integrated Management of Stored Product Insect Pests (CRIS project No. KS9527): Risk Avoidance and Mitigation Program. Invited presentation. USDA-CSREES Awardee Workshop on Biologically-Based Pest Management, Fort Lauderdale, FL, December 14, 2005
- 2005 Dispersal of Lesser Grain Borer, *Rhyzopertha dominica* (Fabricius), flight activity relationship with weather. Entomological Society of America National Meeting, Ft. Lauderdale. With Ching'oma et al.
- 2005 Symbiotic bacteria (*Xenorhabdus* sp.) and its role in the infection process of *Steinernema riobrave*. Entomological Society of America National Meeting, Ft. Lauderdale. With Christen et al.
- 2005 Pharmacological studies on ovarian patency in *Heliothis virescens*: the role for calcium. Entomological Society of America National Meeting, Ft. Lauderdale. With Pszczolkowski et al.
- 2005 A role for intracellular calcium stores in ovarian patency and reproduction in the moth, *Heliothis virescens*. Merck-Merial National Veterinary Scholar Symposium at Auburn University. With Olson et al.
- 2006 Role for calcium in ovarian patency in *Heliothis virescens*. Merck-Merial National Veterinary Scholar Symposium at Louisiana State University. With Rine et al.
- 2006 Photoperiod and developmental biology of *Rhyzopertha dominica*. Entomological Society of America National Meeting, Indianapolis. With Jia et al.
- 2006 OK, you have hired a woman. What's next? Invited Symposium: Women Shaping History in Entomology: Roles and Challenges They Face. Entomological Society of America National Meeting, Indianapolis.
- 2007 Purdue: A global leader in biofuels research. Invited presentation in the general session. Indiana Horticultural Congress, Indianapolis.
- 2007 Leading the agricultural research enterprise in the 21st Century. Invited keynote address for the Annual Workshop of the Experiment Station at the University of Tennessee Institute of Agriculture, Knoxville, TN.
- 2007 The making of a successful university and industry collaboration: Successful strategies in developing the agreement. Invited panel moderator and presenter. 2007 University-Industry Consortium Spring Meeting. Rochester, NY.
- 2007 Purdue's response to sustaining the bioeconomy. Invited panelist and presenter. 2007 Northcentral Mini Land-grant Annual Meeting. Lincoln, NE.

- 2008 Juvenile hormone in reproductive physiology and behavior of Lepidoptera: Intra- and inter-organismal co-ordination. Invited symposium presentation with M. Psczcolkowski. International Congress of Entomology, Durban, South Africa.
- 2008 Spatial distribution and movement of lesser grain borer, *Rhyzopertha dominica* F. With G. Ching'oma et al. International Congress of Entomology, Durban, South Africa.
- 2008 University-Industry agreements: A land-grant university perspective. Invited presentation: The Larry L. Larson Symposium: Legal and Collaborative Challenges Between Industry, Universities, and IR-4 That Impact Product Development Success. Entomological Society of America National Meeting, Reno, NV.
- 2009 Putative signaling pathways in *Heliothis virescens* ovarian patency. Invited symposium presentation with M. Psczcolkowski. Entomological Society of America National Meeting, Indianapolis.
- 2009 Keynote Lecture. *The Nexus Between Research and Extension to Address Global Challenges*. National Meeting of the National Association of County Agricultural Agents. Portland, OR. September 21, 2009.
- 2010 The role of (Agricultural) education and discovery in enhancing competitiveness: Lessons from US Land Grant Colleges. International Deans' Forum on Global Challenges of the 21st Century. Nanjing Agricultural University, Nanjing, People's Republic of China.
- 2012 The importance of animal sciences for the National Institute of Food and Agriculture. Federation of Animal Science Societies. Food Safety, Animal Drugs, and Animal Health Committee. Annual Spring Symposium with the Agencies. Washington, DC. May 21, 2012.
- 2012 Vision for the National Institute of Food and Agriculture. President's Council of Advisors on Science and Technology (PCAST). Washington, DC. May 25, 2012.
- 2012 Panelist. *Enhancing Business/University Regional Workforce Projects Through Sector-Based Federal Collaborations – Cyber security, Agriculture, Energy, Aerospace, Water, IT Innovation through Revolution: Building Meaningful Business, Government, and University Partnerships Preparing the NextGen Workforce*. Business-Higher Education Forum. Eisenhower Executive Office Building – Indian Treaty Room, Washington, DC. June 12, 2012.
- 2012 Panelist. *Universal Access to Affordable Healthy Food. How can we make it easier for all Americans to get healthier food and eliminate domestic malnutrition?* Washington Post Future of Food: Food Security in the 21st Century. Washington, DC. June 14, 2012.
- 2012 Keynote Lecture. *Global Challenges in the "New Economy" and Land Grant Universities of the 21st Century as a Model for Research and Education Responses*. Great Plains Land Grant Summit, 150th Anniversary of the Morrill Act. North Dakota State University. June 12, 2012.
- 2012 Keynote Lecture. *Sesquicentennial of the Land Grant Act - 150th Anniversary of the Passage of the Morrill Land-Grant Act*. North Central and Northeast Joint Summer Session. Burlington, July 8-10, 2012

- 2012 Keynote Lecture. *Global Context of NIFA Challenges and Perceptions*. Joint Annual Meeting of the Animal Science Societies. Phoenix, AZ. July 18, 2012.
- 2012 Panelist. *Renewing and Reframing the Partnership with USDA*. Joint Summer Meeting of the Committees on Organization and Policy. Savannah, GA. July 25, 2012.
- 2012 Keynote Lecture. *The New Economy, Global Challenges, and Small Farms*. National Small Farms Conference, Memphis. September 19, 2012.
- 2012 Keynote Lecture. *NIFA and the Life Sciences*. Life Sciences Symposium, University of Nebraska 150th Anniversary of the Morrill Act. Lincoln, NE. September 25, 2012.
- 2012 Keynote Lecture. *Priorities and Challenges for Food and Health Research: Directions of the NIFA Extramural Grant Programs*. Health Foods, Healthy Lives Symposium. University of Minnesota, Minneapolis. October 1, 2012.
- 2012 Keynote Lecture. *Celebration of Land Grant Research*. University of Kentucky 150th Anniversary of the Morrill Act. Lexington, KY. November 15, 2012.
- 2012 Keynote Lecture. *Feeding 9 Billion: Challenges and Opportunities of Producing and Delivering Food to the Global Table in a Flatter, Hotter, and More Crowded 2050*. Increasing Future Food Production: Challenges and Opportunities for the New Era. Rehovoth, Israel. December 3, 2012.
- 2013 Keynote Lecture. *Setting the Table for a Hotter, Flatter, More Crowded Earth*. 2013 Texas A&M AgriLife Conference General Session. College Station, TX, January 8, 2013.
- 2013 Library Issues Forum Lecture. *The Role of Land-Grant Universities in Addressing Food as a Public Health Issue*. George H. W. Bush Library, Texas A&M University. College Station, TX. January 8, 2013.
- 2013 Keynote Lecture. *A Role for Weed Scientists to Address Societal Challenges*. Weed Science Society of America. Baltimore. February 4, 2013.
- 2013 Keynote Lecture. *On Leadership*. Food Systems Leadership Institute. Columbus, OH. February 20, 2013.
- 2013 Forum Lecture. *Food and Public Health: How Agriculture Can Help*. Cornell University. Ithaca, NY. March 7, 2013.
- 2013 Keynote Lecture. *Setting the Table for a Hotter, Flatter, More Crowded Earth*. Crop Protection EXPO, Dow AgroSciences. Zionsville, IN. March 20, 2013.
- 2013 Keynote Lecture. *Food, Water, and the Bioeconomy*. National Meeting of the American Chemical Society National Meeting. New Orleans, LA, April 8, 2013.
- 2013 Keynote Lecture. *Feeding the World in the Context of Global Challenges*. 17th Biennial Research Symposium. Association of 1890s Research Directors. Jacksonville, FL. April 9, 2013.

- 2013 Keynote Lecture. *Societal Challenges and Food, Feed, Fiber, Fuel, Shelter for 9 Billion*. 150th Anniversary Gala of the University of Massachusetts. Amherst, MA. April 25, 2013.
- 2013 Keynote Lecture. *Cultural Transformation and Cooperative Extension Service in the Urban Context*. National Urban Extension Conference. Kansas City. May 6, 2013.
- 2013 Keynote Lecture. *Feeding 9 Billion: A Role for the Educational Pipeline*. International Food and Agribusiness Management Association (IFAMA) Annual Conference—The Road to 2050: The Talent Factor. June 18, 2013.
- 2013 Keynote Lecture. *Priorities for the Horticultural Sciences: From the Local to the Global*. William A. (Tex) Frazier Lecture, Annual Meeting of the American Society of Horticultural Science. Palm Desert, CA. July 22, 2013.
- 2013 Keynote Lecture. *The Nexus Between Food, Water, and the Bioeconomy*. American Society of Agricultural and Biological Engineers. Kansas City. July 23, 2013.
- 2013 Lecture and Panelist: *Extension A Model for Life Sciences Communication? Sustainable Infrastructure for Life Science Communication*, National Academies. Washington, DC. December 9, 2013.
- 2014 Keynote Lecture. *Extension In The 21st Century*. Centennial Convocation Celebrating 100 Years of Smith-Lever Act and the Cooperative Extension Service. Extension Committee on Organization and Policy, Association of Public and Land-grant Universities. Washington, DC. March 26, 2014.
- 2014 Panelist. *Scientific Partnerships for Solving the Global Health Crisis*. International Conference on One Medicine-One Science. University of Minnesota, Minneapolis, MN. April 28, 2014.
- 2014 Plenary Lecture. *The Nexus Between Food and Health*. Food Animal Domestication and Human Advancement, International Conference on One Medicine, One Science. Minneapolis. April 28, 2014.
- 2014 Keynote Lecture. *Rising to the Challenge of the Next Century*. Cooperative Extension Centennial Convocation. Washington, DC. May 7, 2014.
- 2014 Keynote Lecture. *Setting The Table for A Hotter, Flatter, More Crowded Earth: Insects on the Menu?* Food and Agricultural Organization and Wageningen University. Ede, Holland. May 14, 2014.
- 2014 Lecture and Panelist. *Crowdsourcing To Address Wicked Problems*. Government-University-Industry Research Roundtable, National Academies. Washington, DC. June 3, 2014.
- 2014 Keynote Lecture. *The Internet of Agricultural Things*. National Science Foundation Cyber-Physical Systems Principal Investigators Annual Meeting. Arlington, VA. November 6, 2014.
- 2014 Invited Symposium Lecturer. *Celebrating the 100th Anniversary of the Entomologist in the Cooperative Extension Service*. P-IE/MUVE Section Symposium. Entomological Society of America Annual Meeting. Portland, OR.

- 2014 Keynote Lecture. *Can Plants Do Everything?* North Carolina Agricultural Biotechnology Summit. November 18-19, 2014. Raleigh, NC.
- 2015 Keynote Lecture. *Role of Hispanic Serving Institutions in Addressing the 9 Billion Problem.* February 2, 2015. Hispanic Serving Institutions California Collaborations Conference. Santa Barbara, CA.
- 2015 Keynote Lecture. *Future of Food. Your CHS Experience.* Annual Conference of Cooperatives Owner/Operators. Fajardo, Puerto Rico. February 24, 2015.
- 2015 Keynote Lecture. *Lessons From George Washington Carver to Deal With a Hotter, Flatter, More Crowded Earth.* George Washington Carver Lecture Series. Promoting Global Food Security and Sustainability Through Scientific Innovation in Agriculture. Tuskegee University, Tuskegee, AL. April 8, 2015.
- 2015 Keynote Lecture. *Sustainability and The Bioeconomy.* Earth Day and Sustainability Symposium, Kennedy Space Center, Cape Canaveral, FL. April 22, 2015.
- 2015 Keynote Lecture. *Innovations.* Feeding The Planet Summit. George Washington University, Washington, DC. April 23, 2015.
- 2015 Keynote Lecture. *Climate Change and Agriculture: A Global Challenge.* 1st Annual Symposium on Climate Change, American Society of Agricultural and Biological Engineers. Chicago, IL. May 4, 2015.
- 2015 Plenary Lecture. *The Potential Role of Rural Policy in the Water, Food, Energy, Climate Nexus. The Water-Food-Energy-Climate Nexus: An Emerging Challenge for Rural Policy.* Organization for Economic Cooperation and Development Rural Conference. Memphis, TN. May 18, 2015.
- 2015 Keynote Lecture. *Solving the Nine Billion Problem: It's The Message Stupid.* ACE 2015: Annual Meeting of the Association for Communications Excellence. Charleston, SC. June 9, 2015.
- 2015 Keynote Lecture. *Big Data and The Future of Agriculture.* Soil, Big Data, and The Future of Agriculture, United States Study Centre, University of Sydney. Canberra, Australia, June 25, 2015.
- 2015 *Nutritional Security as an Existential Threat.* Providing a Secure Food Supply for 9.6 Billion People. SOLVE Conference, Massachusetts Institute of Technology, Boston, MA. October 5-8, 2015.
- 2015 Plenary Lecture. *Synergy of Science and Communications to Sustainably Solve the Nine Billion Problem: It's The Message, Stupid.* Joint Annual Meeting of the Entomological Society of America, Crop Science Society of America, Agronomy Society of America, and Soil Science Society. Minneapolis, MN. November 15, 2015.
- 2015 Keynote Lecture. *Population, Public Health, and Partnership.* Little Beans, Big Opportunities: Realizing the Potential of Pulses to Meet Today's Global Health Challenges. Conference of The

- Sackler Institute for Nutrition Science, New York Academy of Sciences. November 19, 2015.
- 2016 Keynote Lecture. *Smarter Farming with Smart Systems: Drones and More*. Annual Conference of the North American Raspberry and Blackberry Association. March 4, 2016. Williamsburg, VA.
- 2016 Keynote Lecture. *Nutritional Security in the Context of Societal Challenges*. 2016 NATIONAL AG DAY program, March 15, 2016. National Press Club, Washington, DC.
- 2016 Keynote Lecture. *It's The Message, Stupid*. 2016 Conference of Minorities in Agriculture and Natural Resource Related Sciences. March 31, 2016. Jacksonville, FL.
- 2016 Keynote Lecture. *Nexus: Food, Energy, Water*. 2016 World Green Energy Symposium, April 7, 2016. Washington, DC.
- 2016 Keynote Lecture. *Mcfadden Redux: 21st Century Challenges and Breeding*. Second Annual Edgar S. McFadden Symposium, April 17, 2016. San Antonio, TX.
- 2016 Invited Panel Lecture. *Bias in Reviews and Decisions by Funding Agencies: The National Institute of Food and Agriculture*. American Association for the Advancement of Science Forum on Implicit Bias in Peer Review of Publications and Grants. April 28, 2016. Washington, DC.
- 2016 Invited Panel Lecture. *Smart Systems for 21st Century Food Systems: Cyberphysical Systems and Big Data*. Computing Community Consortium's Symposium on Computing Research: Addressing National Priorities and Societal Needs. Opportunities in Agriculture, Environment, Disaster. May 9, 2016. Washington, DC.
- 2016 Karl Maramorosch Distinguished Lecture. *Perfect Storm to Nutritional Security*. Rutgers University. April 27, 2016. New Brunswick, NJ.
- 2016 Plenary Lecture. *Public Service for Public Good*. Asian-American Government Executives Network Workshop – Leadership in Transition. June 16, 2016. Arlington, VA.
- 2016 Keynote Lecture. *Quia Partes Pollinators*. 3rd International Conference on Pollinators. July 18, 2016. State College, PA.
- 2016 Keynote Lecture. *Future of Food and Agriculture: Convergence to Singularity*. National Press Foundation. July 24, 2016. St. Louis, MO.
- 2016 Keynote Lecture. *Future of Food and Agriculture. National Institute of Food and Agriculture's Role*. Food Tank webinar. August 11, 2016.
- 2016 Keynote Lecture. *Collaborations to Solve Global Challenges*. A Grand Challenge Agenda for Entomology: Improving The Human Condition with Insect Science. Entomology Leadership Summit. Entomological Society of America. September 27, 2016. Orlando, FL.
- 2016 Keynote Lecture. *Perfect Storm to Nutritional Security: Insects on the Menu?* International Congress of Entomology. September 27, 2016. Orlando, FL.

- 2016 Keynote Lecture. *Food and Agriculture Data Science*. Data Science in Agriculture Summit. October 10, 2016. Chicago.
- 2016 Panel Lecture. *Nutritional Security in the Global Context*. Food Self-Sufficiency v. Food and Nutrition Security. USDA-USAID 2016 International Food Assistance and Security Conference: Working Together to Address Issues that Transcend Borders. World Food Prize Satellite Event. October 11, 2016. Des Moines, IA.
- 2016 International Keynote Address. *Transformative Innovations to Achieve Nutritional Security*. Financial Times-JBS Future of Food Summit: The Innovations and Technologies Transforming the Way We Produce and Consume Food. December 6, 2016. São Paulo, Brazil.
- 2017 Panel Lecture. *Strengthening Partnerships for Impact*. The Future of Food. The Andrew J. Young Foundation, World Bank Agriculture Global Practice, Neighborhood Associates Corporation. January 9, 2017. World Bank, Washington, DC.
- 2017 Keynote Address. *The Agriculture/Food System: Global Status and Challenges that Impact Public Health*. Symposium: Food Systems, Nutrition and Health in a Changing Environment: A Workshop to Build Connections to Address Global Priorities. American Society for Nutrition Experimental Biology Scientific Sessions. April 21, 2017. Chicago.
- 2017 Keynote Address. *21st Century Food Systems and Education*. Annual Conference, National Agriculture In The Classroom. June 22, 2017. Kansas City.
- 2017 Lecture. *Transformative Innovations For 21st Food & Agriculture Systems*. Workshop on Innovation and Technology in Agriculture and the Environment. Massachusetts Institute of Technology. June 23, 2017. Cambridge, MA.
- 2017 Panelist. *Challenges and Opportunities for North American Universities to Address the Global Food Security Crisis*. 2017 Association of Public and Land Grant Universities Council on International Initiatives. July 18, 2017. Kananaskis Village, Alberta, Canada.
- 2017 Keynote Address: *An Ounce of Prevention: 21st Century Food Systems*. 2nd International Resource Recovery Conference. August 5-9, 2017. New York, NY.
- 2017 Keynote Address: *21st Century Tools for Nutritional Security: Controlled Environment Agriculture*. 3rd Annual American Vertical Farming Summit. September 21-23, 2017. Washington, DC.
- 2017 Keynote Address: *Partnership As A Verb: Paths to Achieve Nutritional Security*. 7th Annual FDA Foods and Veterinary Medicine Science and Research Conference. October 17, 2017. College Park, MD.
- 2017 Keynote Address: *Public Engagement to Address Grand Challenges in Entomology: A Federal View*. Entomological Society of America. November 5, 2017. Denver, CO.
- 2017 Discussant: *2018 Farm Bill: Ensuring US Leadership in Agricultural Research and Development*. Center for Strategic and International Studies. November 13, 2017. Washington, DC.
(<https://www.csis.org/events/2018-farm-bill-ensuring-us-leadership-agricultural-research-and->

development)

- 2017 Keynote Address: *The World is Our Agbiosciences Stage – Innovations for Food Systems*. Indiana Agbiosciences Summit. November 28, 2017. Indianapolis.
- 2018 Discussant: *Shaping the Future: Federal Research Funding Perspective*. Elsevier Research Solutions Global Sales Conference. February 5, 2018. Atlanta.
- 2018 Panelist: *Innovation and the Fight Against Superbugs*. Pew Charitable Trusts and Infectious Disease Society of America. With NIAID's Anthony Fauci, CDC's Anne Schuchat, and BARDA's Gary Disbrow. Capitol Hill. Washington, DC. March 2, 2018.
- 2018 Plenary Speaker: *A New Paradigm: Challenges and Opportunities in a Dynamic Political Landscape*. A Grand Challenge Agenda for Entomology: Improving the Human Condition with Insect Science. Invasive Species Summit. Vancouver, BC. November 10, 2018.
- 2018 Keynote Speaker: *21st Century Extension in the Age of Google, Drones, Smart Systems, and Big Data. Program Symposium. From Researcher to Stakeholder: Using Extension to Cross Borders in a Changing World*. Joint Annual Meeting of the Entomological Society of America, Entomological Society of Canada, and Entomological Society of British Columbia. Vancouver, BC. November 12, 2018.
- 2019 Keynote Lecture: *The Vision Thing*. Ag Innovation Forum 2019, The Agricultural Business Council of Kansas City. February 14, 2019.
- 2019 Invited Lecture: *On Leadership*. Food Systems Leadership Institute Cohort 14 Summer Session. Pismo Beach, CA. June 17, 2019.
- 2019 Invited Lecture: *Future Farm Bills: Is It Time to Advocate Beyond Nutrition?* 2019 Food and Nutrition Conference and Expo. Academy of Dietetics and Nutrition. Philadelphia, PA. October 29, 2019.
- 2019 Invited Lecture: *Pesticide Commercialization in the Context of Global Nutritional Security*. Section Symposium: INsectide TArgets and Resistance (INSTAR) Summit. Annual Meeting of the Entomological Society of America. St. Louis, MO. November 17, 2019
- 2020 Workshop Panelist. *New Realities for Accreditors and Postsecondary Systems*. Council on Higher Education Accreditation Annual Conference. January 27, 2020
- 2020 Panelist. *Balancing Flexibility and Quality in Distance Learning: What is Accreditation Doing?* Council on Higher Education Accreditation Webinar. April 29, 2020
- 2020 Keynote Lecture. *Extension: The Power to Change Lives. Back to the Future of Extension in the age of Google, AR/VR/AI, Drones, Smart Systems, Big Data*. Epsilon Sigma Phi Annual Conference. October 6, 2020
- 2020 Panelist. *Continuity and Sustainability: Building A Student-Ready, Future-Proof Institution*. Civitas Learning Virtual Leadership Summit. October 14, 2020

2020 Panelist. Institutional Liability, Clinical Programs and Quality. Council on Higher Education Accreditation Webinar. October 20, 2020

COMMITTEE AND ADMINISTRATIVE ACTIVITIES

Mississippi State University (1982-1997)

Department of Entomology & Plant Pathology

- Member, Graduate Student Requirements Committee, 1982-1983
- Member, Graduate Admissions Screening Committee, 1984-1987; 1988-1989; 1990-1993
- Member, Search Committee for Genetics Position, 1988
- Member, Committee on Instruction, 1989-1991
- Member, Search Committee for Genetics Position, 1992
- Member, Computer Committee, 1993-1998
- Member, Awards Committee, 1993-1996
- Organizer, MSU entomology department seminars, 1982-1997
- Coach, MSU entomology department Linnaean games team, 1985-1988, 1994-1997
- Created and maintained MSU entomology and plant pathology department home page on World Wide Web, 1994-1997

University

- Faculty Advisor, Entomology Club, 1983-1984
- Organizer, Interdepartmental drive to obtain specialized books for University Library, 1984
- Invited lecturer in Animal Behavior course (Biological Sciences) and University Honors Program, 1986-1987
- Instructor, Summer Scholars Program for Exceptional High School Students, 1986
- Chairman, Experiment Station Research Task Force, 1986-1987
- Member, Search Committee for Associate Vice President for Research, 1986
- Member, Growth Chamber Technical Advisory Subcommittee, 1987-1988
- Coordinator, Research Project Management Subcommittee, 1988-1989
- Chairman and Organizer, Symposium on Impact of Biotechnology in Agriculture and Veterinary Medicine, 1988
- Member, University Committee to review the Office of Research and Sponsored Programs, 1990
- Panelist, Mississippi State University Minority Affairs Committee Forum, 1990
- Member, Student Development Services Committee, Southern Association of Colleges Self-Study, 1992
- Evaluator, International Teaching Assistants' Workshop, MSU, 1995-1997
- Member, Graduate Faculty Council, 1995-1998
- Member, Academic Review Board, MSU, 1995-97
- Member, Faculty Housing Appeals Panel, MSU, 1995-1998
- Member, "University College" Task Force, MSU, 1996
- Member, Biotechnology Advisory Committee, MAFES, 1996
- Member, Search Committee, Theater Position, Department of Communication, MSU, 1996-1997

- Member, MAFES Annual Meeting Planning Committee, 1996
- Member, Faculty Senate, Division of Agriculture, Forestry, and Veterinary Medicine, MSU, 1996-1999
- Member, Instructional Technology Committee, College of Agriculture and Life Sciences, MSU, 1996-2000
- Faculty Advisor, India Association of Mississippi State University, 1987-1992, 1996-1997

Kansas State University (August 1, 1997 to January 4, 2006)

Department

As department head, I served in an ex-officio capacity on all departmental committees

- Envisioned and planned creation of Butterfly Conservatory and Insect Zoo. Designed Insect Zoo, which has been named a must-see destination in several media outlets and the design was selected for the 2003 Education Award by the Board Certified Entomologists
- Facilitated creation of Student Learning Outcomes and Assessment Instruments in response to the Northcentral Accreditation Committee's recommendations

College/University

- Mentor on demand, McNair Scholars Program, Kansas State University, 1997-2005
- Mentor on demand, Summer Undergraduate Research Opportunities Program, Kansas State University, 1997-2005
- Member, Agriculture Placement Contacts Committee, 1997-2005
- Member, USDA-ARS Research Leader Search Review Panel, 1997
- Member, Search Committee, Interim Vice Provost for Research, April/May 1998
- Member, Search Committee, Interim Associate Dean, Graduate School, April/May 1998
- Member, Professional Advisory Committee, College of Agriculture and K-State Research and Extension, 1999-2001
- Administrative Mentor for Bob Zeigler, Head, Department of Plant Pathology, Kansas State University, 1999
- Member, Kansas State University Graduate School Task Force, 1999-2000
- Member, Kansas State University Plant Biotechnology Center Advisory Board, 1999-2005
- Chair, Department Heads' Committee to Study Criteria for Promotion and Tenure, College of Agriculture, Kansas State University, 1999-2000
- Member, Kansas State University Faculty Senate, 2000-2001; withdrew in 2001
- Member, Kansas State University Faculty Senate on Technology, 2000-2001
- Member, Search Committee for Associate Director for Affirmative Action, July 2000
- Facilitated publication of the book, *Insects in Kansas*
(<http://www.oznet.ksu.edu/library/entml2/samplers/S131.asp>)
- Member, K-State Task Force on Digital Libraries, 2000-2001
- Member, Search Committee for Associate Director of Experiment Station, April-June 2001
- Chair, K-State Research and Extension Annual Conference Organizing Committee, 2000-2001
- Chair, Search Committee for Safety Coordinator, K-State Research and Extension, September-December 2001
- Member, K-State Research and Extension Self-Service – RETORIC – Committee, 2001-2005

- Member, Executive Safety Advisory Committee, K-State Research and Extension, 2002-2005
- Member, Planning Committee, National Agricultural Biosecurity Center Consortium funded by USDA-APHIS, 2002
- Member, Presidential Outstanding Department Head Awards Committee, Kansas State University, 2003
- Facilitated publication of the “*Butterflies in Kansas*” wheel, published by the Thomas County, KS Master Gardeners, 2002
- Member, Search Committee for KSU Grain Science and Industry department head, 2003-2004
- Mentor on demand, Veterinary Research Scholars Program, Kansas State University, 2003-2005
- Member, Advisory Board, ADVANCE National Science Foundation Institutional Transformation Project
- Member, College of Agriculture Website Advisory Committee, 2004-2005
- Chair, College of Agriculture Promotion and Tenure Review Committee, 2004
- Member, K-State Research and Extension Publications Policy Task Force, 2004
- Member, Development Committee for K-State Research and Extension Faculty/Staff Self-Service Activity/Reporting System, 2004-2005
- Administrative Mentor for Kristina Boone, Interim Head, Department of Communications, Kansas State University, 2004
- Administrative Mentor for Virgil Smail, Head, Department of Grain Science and Industry, Kansas State University, 2004
- Administrative Mentor for Angela Powers, Director, School of Journalism, Kansas State University, 2004
- Member, Search Committee for Associate Dean for Academic Affairs, College of Agriculture, 2004
- Chair, College of Agriculture Promotion and Tenure Workshop and Mentoring for New Faculty Committee, 2004-2005
- Chair, University Distinguished Professors Committee, Provost’s Excellence in Scholarship Lecture Series, 2004-2006
- Chair, Search Committee, Head of Department of Plant Pathology, Kansas State University, 2005
- Member, Provost’s Special Task Force to Propose and Develop New Faculty Teaching Workshops, 2005

Purdue University (January 1, 2006-July 31, 2009)

University

- Member, Vice President for Research Task Force for Creating Centers, 2006-2007
- Member, Executive Board, Cancer Center, Purdue University, 2006-2009
- Member, Executive Board, Discovery Park Energy Center, Purdue University, 2006-2009
- Member, Executive Board, Discovery Park Center for the Environment, Purdue University, 2006-2009
- Member, Task Force on K-12 Engagement, 2006-2007
- Member, Design and Planning Committee for BSL3 facility, 2007-2009
- Chair, Agriculture – 2008 United Way Campaign

College of Agriculture

- Chair of ad hoc committee to renovate conference room, 2006
- Member, Search Committee, Associate Dean and Director, International Programs in Agriculture, 2006
- Chair of organizing committee to organize a symposium in September 2007 on genomics and land-grant mission, 2006-2007
- Chair, Agriculture Dean's Team Award Committee, 2007
- Chair, College of Agriculture A/P Advancement Committee, 2006-2008
- Member, Search Committee, Associate Dean and Director, Cooperative Extension Service, 2007
- Member, Administrative Advisory Committee, Illinois-Indiana Sea Grant Consortium, 2006-2009
- Chair, College of Agriculture Web Committee, 2007-2008
- Mentor for Sara Egan, a student in the College of Agriculture, for her Leadership Certificate, 2007-2009
- Member, Design and Planning Committee for Life Sciences Building to house Department of Animal Sciences and Laboratory Animal Facility, 2008-2009

North Central Regional Association of Agricultural Experiment Station Directors

- Member of Review Committee, National Science Advisory Board for Biosecurity Code of Conduct for Dual Use Research protocol, 2006
- Member, committee to develop the North Central Bioeconomy Consortium, 2006.
- Administrative Advisor, NCDC210: A Regional Effort to Maintain the Health and Survival of the Honey Bee, the Most Important Pollinator, 2006-2012; conceptualized and facilitated the development of an ca. \$4 M multi-institutional, Coordinated Agricultural Project grant funded by USDA-CSREES and the creation of an eXtension Community of Practice
- Administrative Advisor, NCERA 209: Biosecurity Communications Research and Practices
- Member, writing committee for new funding initiatives from the US Congress

Oregon State University (August 1, 2009-2012)

- Dean Representative, Oregon State University President's Cabinet, 2010-2012
- Member, University Budget Committee, 2009-2012
- Member, Provost's Workgroup for Interdisciplinary Programs, 2010
- Member, Provost's Workgroup for Mentoring, 2010-2011

North Central Regional Association of Agricultural Experiment Station Directors

- Administrative Advisor, NCDC210: A Regional Effort to Maintain the Health and Survival of the Honey Bee, the Most Important Pollinator, 2006-2012

Association of Public and Land Grant Universities Administrative Heads Section

- Chair-elect, 2010-2012
- Chair, 2010-2011

PROFESSIONAL SOCIETIES

- Judge, Linnaean Games, Entomological Society of America, National Meetings, 1984

- Member, Editorial Committee, S-59 *Heliothis* Management Workshop, 1985
- Member, Program Committee, Entomological Society of America, Southeastern Branch, 1988-1991
- Member, Committee on Retrieval of Scientific Information, Entomological Society of America, 1988-1991
- Member, Campus Activities Committee, Sigma Xi (MSU Chapter), 1985-1986
- Member, Admissions Committee, Sigma Xi (MSU Chapter), 1987-1988
- Member, Executive Committee, Sigma Xi (MSU Chapter), 1987-1989
- Chairman, Community Affairs Committee, Sigma Xi (MSU Chapter), 1988-1989
- Member, Special Entomological Society of America Committee to develop liaison with the Archives of Insect Biochemistry and Physiology, 1989
- Judge, Linnaean Games, Entomological Society of America, Southeastern Branch, 1989
- Chairman, Program Committee, Entomological Society of America, Southeastern Branch, 1990-1991
- Member, Coordinating Committee, MSU Chapter American Association of University Professors, 1990-1995
- Member, *Journal of Economic Entomology* Editorial Board, Entomological Society of America, Section B (Physiology, Biochemistry, Toxicology, and Molecular Biology) Representative, 1990-1995
- Ex-Officio Member, Program Committee, Entomological Society of America, Southeastern Branch, 1991-1992
- Panelist, Peer Panel to Review Proposals - Southern Regional Pesticide Impact Assessment Program, 1991
- Member, President's Committee to Study Entomological Society of America Annual Meeting, 1991-1992
- Chairman, Section B, Entomological Society of America, Nominating Committee, 1991
- Member, Section B, Entomological Society of America, Symposium Committee, 1992-1994
- Member-at-Large, Executive Committee, Entomological Society of America, Southeastern Branch, 1993-1996
- Judge, Student Papers Competition, Entomological Society of America, Annual Meeting, 1993
- Member, Section B, Entomological Society of America, Awards Committee, 1993-1995
- Member, Meeting Location/Time Committee, Entomological Society of America, Southeastern Branch, 1994-1995
- Member, Entomological Society of America President's Committee on Human Diversity, 1994-1997
- Chair, *Journal of Economic Entomology* Editorial Board, Entomological Society of America, 1994-1995
- Creator and Contributing Editor, MindBugger Crossword Puzzles, Entomological Society of America Newsletter, 1995-1997
- Member, Local Arrangements Committee, Entomological Society of America, Southeastern Branch, 1994-1996
- Member, Publications Council, Entomological Society of America, 1996-2000
- Created a listserv for Section B: Insect Physiology, Biochemistry, Toxicology, and Molecular Biology, ESA, 1996
- Member, Strategic Planning Committee, Entomological Society of America, Southeastern Branch, 1996-1997

- Member, ESA President's Committee on the Internet and the World Wide Web, 1996
- Member, ESA's Electronic Publications Implementation Committee, 1996-1999
- Chair, Subcommittee to create electronic journal (Entomological Techniques) for the ESA, Electronic Publications Implementation Committee, 1996-1999
- Secretary, Publications Council, 1998
- Secretary, Section B (Physiology, Biochemistry, Toxicology, and Molecular Biology), Entomological Society of America, 2001
- Member, Meeting Time and Location Committee, North-central Branch, ESA, 2001-2002
- Chair, Section B (Physiology, Biochemistry, Toxicology, and Molecular Biology), Entomological Society of America, 2002-2003
- Chair, Meeting Time and Location Committee, North-central Branch, ESA, 2003-2004
- Chair, Local Arrangements Committee, North-central Branch, ESA, 2003-2004
- Counselor, Entomological Foundation, 2005-2009
- Member, Standing Committee on Fellows, Entomological Society of America, 2007
- Member, ESA President's Committee on Awards and Honors, Entomological Society of America, 2007-2010
- Process Coach, Entomological Foundation's Judging Panel for the International Congress on Insect Neurochemistry and Neurophysiology (ICINN) Student Recognition Award in Insect Physiology, Biochemistry, Toxicology, or Molecular Biology, 2008

OTHER ACTIVITIES

Starkville, MS (1982-1997)

- Judge, Regional Science Fairs, 1983-1992
- Advisor, Area Schools Science Fair Projects, 1983-1992
- Member, Starkville PTA, Playgrounds Improvement Committee, 1986-87
- President, Plantation Homes (Starkville) Homeowners Association, 1988-89
- Habitat for Humanity volunteer
- Vice President, Starkville Suzuki Association, 1989-90
- President, Starkville Suzuki Association, 1990-91
- Member, Starkville PTA, Fundraising Committee, 1991-92
- Coach, Odyssey of the Mind, Rosa Stewart School, Starkville
- Initiated the Mississippi State University India Association involvement in "Adopt-A-Highway" Program
- Geneva, NY community playground construction, 1992
- Member, International Fiesta Executive Committee, World Neighbors Association, Starkville, MS, 1992-97
- Master of Ceremonies, International Fiesta, Starkville, MS, 1993-97
- Advisor, Science Fair Project - ISEF Finalist, student from Mississippi School for Mathematics and Science, 1993
- Judge, International Science and Engineering Fair, Biloxi, MS, 1993
- Member, Teacher Appreciation Committee, Armstrong Junior High PTA, Starkville, 1993-94
- Created the International Student radio program on the Mississippi State University radio station, WMSV, 1992

- Research Director, research conducted by high school student from Mississippi School for Mathematics and Science, 1993-94
- Vice President for Business, Starkville Community Theater, 1994-96
- Master of Ceremonies, Blue Marble Festival, 2nd Biennial Mississippi Children's Arts Festival, April 1995
- Visiting Science Lecturer at Armstrong Junior High School, 1995-97
- School Days on the Farm, Mississippi State University, 1995-97
- Starkville Community Theater renovation
- Treasurer, Starkville Community Theater, 1996-97

Manhattan, KS (1997-2006)

- Stage construction, Manhattan Arts Center and Theater
- Member, Board of Directors, Kansas State University Theater Board, 1999-2005
- Member, Board of Directors, Greystone Homeowners Association, 1999-2005
- Mentored Naomi Nevitt, Los Angeles, CA high school student for science project on mosquito repellents and attractants, 1999-2000
- Created the South Asia Hour radio program on the Kansas State University radio station, 91.9 KDBB, 2002
- Member, Board of Directors, Manhattan, KS Habitat for Humanity, 2001-2004