Global demand for food, feed and fiber will grow as the world population grows. One way to increase the availability of food for this growing population is to reduce food losses and wastage. In many developing countries losses of grain caused by insects during storage can reach up to 30%. Reducing these losses can substantially increase food availability. For example if we could reduce grain storage losses from 30% to 10% of the 5 million tons of cowpea annually produced in West and Central Africa, this would increase food supply by 1,000,000 tons. Such reductions in grain storage losses are achievable and can result in increases of income as well as improved food security for millions of smallholder farmers.

Reducing grain storage losses among smallholder farmers is far from simple. It is indeed a major challenge. This is due, in part, to the farmers’ limited access to knowledge and scarcity of effective, affordable, accessible storage technologies. Purdue Improved Crop Storage (PICS) bags offer a viable solution to the challenge of cowpea storage. With support from several donors, the Department of Entomology, in collaboration with other units and departments at Purdue, has spearheaded efforts to reduce grain storage losses across the globe. Activities include (1) technology development and testing, (2) training of extension agents as well as farmers, and (3) development of the supply chain to improve the availability of the PICS bags in rural areas of sub-Saharan Africa and Asia. Over the last 6 years, more than 2,700 extension agents and 2 million farmers have been trained in ten countries in West and Central Africa. Research implemented in several countries in sub-Saharan Africa and Asia has shown that PICS bags can be used for a wide range of stored commodities including maize, beans, rice, sorghum, millet, groundnuts, and chickpeas. Purdue University provided support in implementing on-station as well as on-farm research activities in more than 15 countries in sub-Saharan Africa and Asia. In 2013, 310 extension agents were trained in Afghanistan and Kenya in methods for disseminating the PICS bags among smallholder farmers to reduce grain storage losses.

Efforts to build the supply chain have generated interest in the PICS business among local private entrepreneurs in both sub-Saharan Africa and Asia. Manufacturers and vendors have also been trained in the use and income-generating opportunities offered by the PICS technology. Thirteen plastic manufacturers are now producing PICS bags in twelve countries.
Several faculty are taking advantage of sabbatical leaves to energize their programs with Jeff Stuart in Colombia, Cate Hill in Australia, and Clif Sadof in Spain. External grant support continues to grow. Dieudonné Baributsa and Larry Murdock recently received a $10 million award from the Gates Foundation to implement hermetic postharvest storage technology for a range of grain crops in addition to cowpea in Africa as confirmed in a Tweet from Bill Gates himself: “This $2 bag helps fight hunger & malnutrition. And helps farmers earn more too.” Our undergraduate student enrollment slipped below 30 this past year, but we have a plan to get this number back up quickly. Meanwhile, graduate student [45] and postdoc [10] numbers remain very strong. And to help our program activities, we’ve invested nearly $1 million in leveraged support to upgrade our research and teaching facilities in the past few years.

The season for reviews is upon us. At the end of 2013, I underwent an internal 5-year administrative review required of all Purdue administrators. The outcome was thorough, comprehensive and instructive, and it gives me some areas to work on. In the meantime, we’re preparing for a 5-year external review of the department which is scheduled for the fall. This is a chance to take stock of our efforts and accomplishments and make plans for the future. And to help us sort through the many competing priorities, we added new members to our Development Council – Mike Culy (BS ’79, MS ’82, PhD ’87); Jim Delaney (Purdue grad in Horticulture); Jody Green (MS ’04, PhD ’08); Ramona [Moni] Hayne (BS ’76) – as we seek input on our draft strategic plan and prepare for our 5-year review.

By the way, Mike Culy will receive the 2014 John V. Osmun Professional Achievement Award in Entomology this September. Our centennial may be behind us, but our focus is very much on the future. And to help us sort through the many new invasive species (e.g., brown marmorated stink bug and spotted wing drosophila); [2] managing pesticide resistance across pest species and commodities (e.g., corn rootworms and cockroaches); [3] pollinator health and systemic pesticides (e.g., honey bees and neonicotinoids); and [4] ants as the number one pest in urban markets.

Just as species targets change, so do department staff with departures for new opportunities, retirements, and new hires. Larry Murdock and Tom Turpin are in phased retirement for the next few years, but we also hired new faculty in forensic science (Trevor Stamper) and urban entomology (Ameya Gondhalekar), and requested new positions in microbiome-insect interactions and integrative insect physiology. There have been even more changes in our support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise. One change was to realign some support staff – too many to mention in detail – but they do present opportunities to bring in new expertise.
(rank 5) in Entomology who were all promoted in their respective AP ranks!

Congratulations to Ian Kaplan and Mike Scharf, O. Wayne Rollins/Orkin Chair in Molecular Physiology and Urban Entomology! Ian has been granted tenure and promoted to Associate Professor, and Mike has been promoted to Professor.

Rick Foster and the CERIS staff helped develop a new mobile app called “Purdue Tomato Doctor.” Home tomato growers can obtain quick, expert advice right at their fingertips to keep their plants healthy and growing.

Mike Scharf was among a team of researchers who sequenced the genome of the Nevada dampwood termite, leading the way for development of non-chemical control strategies. This is the first termite species to have its genome sequenced.

Christian Osato, a professor and Hiroshima survivor, was interviewed for an in-depth article in the Purdue Exponent, citing his early years in Japan and losing his father to the atomic bomb. He and his family immigrated to the United States, settling in the Chicago area. The article is available here: <http://tinyurl.com/nwk7mgq>

The department’s External Five-Year Review is scheduled for October 2014.

Smith Hall renovations continue. We recently completed renovations in the insect systematics labs, turf grass pest management lab and field crops pest management lab. Now work is continuing with a remodel of the Forensic Science teaching labs. We will then move on to a common insect rearing room.

Staff searches are currently actively under way for several positions within the department: Administrative Manager, IT Specialist, Outreach Coordinator and Continuing Lecturer in Forensic Science.

Several faculty members have been on or are currently on sabbatical with Jeff Stuart in Colombia, Cate Hill in Australia and Cliff Sadof in Spain.

Gypsy moth, an invasive insect that feeds on foliage of trees, was detected on Purdue’s campus in the summer of 2013 by Grzegorz Buczkowski and confirmed by USDA APHIS’s Bobby Brown. An eradication program consisting of three aerial sprays was organized in attempt to preserve the campus trees as well as to avoid quarantine of the county. The first two sprays were applied targeting the caterpillar stage on May 19 and 23 using Btk. Btk is a bacterium, found in soil and on leaves, that produces protein crystals. When gypsy moth caterpillars ingest Btk, crystals form in the digestive tract, killing the insects by rupturing their stomachs. On June 26, the final application was made and consisted of dropping small, plastic flakes coated in the mating pheromone of gypsy moth. This is used in order to saturate the area with enough pheromone that gypsy moth males cannot locate females and prevents them from mating.

Departing Staff

Paula Layden retired in March after 10 years of service as Administrative Assistant for Steve Yaninek. Paula plans to work on the family farm with her husband, Mark, visit her grandchildren, and travel.

Vishal Lodha resigned in May after working for 8 years in the Entomology department as IT support.

Retirement

Tom Turpin joins Larry Murdock in phased retirement starting in July.

Awards

Bill & Melinda Gates Foundation

The Bill and Melinda Gates Foundation has awarded $10 million for PICS3 – the third phase of the PICS program – to expand usage of the hermetic storage bags into other areas and for other crops, such as corn, pigeon pea, mung bean, wheat, peanuts and common beans. Dieudonné Baributsa is the PI of this project. As Bill Gates tweeted recently: “This $2 bag helps fight hunger & malnutrition. And helps farmers earn more too.”

Sarah Cooper, a Jefferson High School senior doing research with Christian Krupe on the recommendation of her high school teacher Joe Ruhl, was recognized at both regional and state science fairs for her research on seed pesticides and the particle size of corn planter lubricants. In early March at the Lafayette Regional Science and Engineering Fair, Sarah placed second in the Environmental Sciences category and won two special awards: the Interdisciplinary Science Research Award and the Young Scientist of Promise Award. She also advanced to the State Science Fair competition at IUPUI last week where she was awarded the Student Award for Geoscience Excellence and the Purdue University College of Agriculture Award.

The 2013 OSA recipient, Tim Gibb receives his plaque from Steve Yaninek.

Tim Gibb, our insect diagnostian and identifier, was named the Outstanding Service Award recipient for 2013. The OSA reception for 2013 was held on Monday, December 16, 2013. In addition to testimonials from entomology and PPDL department personnel, department head Steve Yaninek presented Tim with an engraved plaque with a built-in clock to hang on his office wall, and he will receive a monetary pat on the back as well.

Entomology faculty members Matt Ginzel, Cate Hill, Ian Kaplan and Christian Krupe are among those awarded state-funded grants. The initiative is called AgSeed. Grzesiek Buczkowski was also a Co-PI on an AgSEED proposal.
Dr. Michael Culy (BS ’79, MS ’82, PhD ’87), started as an IPM coordinator and research agronomist for Pioneer Hi-Bred, then moved to Dow AgroSciences, where he has had an accomplished career with leadership responsibilities in field research and product development. He is an engaged professional in the discipline and a leader in our professional society. Working with students and future professionals has been a particular passion. He has served on the Purdue Entomology Development Council, and is a member of the graduate faculty in entomology at the University of Nebraska. Dr. Culy is an active member of the Entomological Society of America where he has served on various committees and held leadership responsibilities as President of the North Central Branch and as a member of the Governing Board.
mune system of *Manduca sexta* (Lepidoptera: Sphingidae).”

**Ulianova Gomez** was awarded a scholarship to attend a two-week long summer course in Insect Chemical Ecology (ICE 14) that was conducted on the Penn State campus in June, 2014. The course featured guest lectures by, and discussions with, 22 different chemical ecology experts from around the world. ICE 14 is a continuation of the highly successful ICE short course series that began at the Swedish Agricultural University at Alnarp in 2003 and now rotates annually between Penn State, SLU Alnarp, and the Max Planck Institute for Chemical Ecology in Jena, Germany.

**Tim Anderson** has received two awards for his collections-based research. The Ernst Mayr Grant from the Museum of Comparative Zoology at Harvard University provided travel funds for Tim to continue his research and encourage publication of his studies. He was also awarded $1600 from the Collection Study Grant Program to support his visit to the American Museum of Natural History in New York City.

**NSF awards**

**Kira Nixon** was selected for funding from the Indiana Vegetable Growers Association for her proposal of “Neonicotinoid impact on honey bees (*Apis mellifera*) in cantaloupe production.” Kira will present a written report of the project and a presentation at the Board of Directors meeting at the end of the year.

**MASI research grants**

Two undergraduates have been awarded MASI (Molecular Agriculture Summer Institutes) grants for summer research. **Ben Savage** (studying with **Matt Ginzel**) and **Julia Snyder** (studying with **Jennifer Zaspel**) were each awarded funds to support their research.

**Graduations**

**SPRING 2014**

- **Hossam Abdel Moniem**, PhD
- **Parker Denny**, BS
- **Nathan Fishburn**, BS
- **Lindsay Kolich**, MS
- **Dan Martin**, MS
- **Caryn Michel**, BS
- **Brooke Richards**, BS
- **Jeff Trembacki**, BS

**Congratulations to Carmen Blubaugh and Michael Garvey** who recently received competitive awards from the National Science Foundation.

Carmen obtained a Doctoral Dissertation Research Improvement Grant to help support her research activities, while Michael got an NSF Graduate Research Fellowship which provides three years of support for graduate studies.

Carmen and Michael are both in **Ian Kaplan’s lab**.

**Indiana Vegetable Growers Association**

**Weddings**

**Tim Anderson**, PhD student with Jen Zaspel, and his wife, Katy, were married June 15, 2013 in Stevens Point, WI.

**Kira Albright**, MS student with Rick Foster, became Mrs. Steve Nixon on September 28, 2013 at her parents’ home in Logansport, IN.

**Development Update**

**Margaret and John Weeks Scholarship Match**

The late Margaret Weeks, an Indianapolis school teacher, wanted to help students interested in agriculture as a profession. Her $1.9 million bequest helped establish the Margaret and John Weeks Scholarship Challenge Match, which matches new donations dollar for dollar. Since November, 30 donors have added to existing endowments or started new scholarships with the Weeks Scholarship Challenge.

“Scholarship gifts are made by alumni and friends who share our enthusiasm for a Purdue Agriculture education,” Eric Putman said. “We are tremendously appreciative of every single scholarship decision and are especially pleased at the growing number of scholarships available to every student in the College of Agriculture.”

There are still funds left in the Weeks Scholarship Match. If you would like more information about the matching opportunity please contact Eric Putman at 765-494-8672 or eaputman@prf.org.

**New Development Council Members**

The Department of Entomology Development Council met this spring to provide feedback on our draft strategic plan and welcome three new members - **Jody Green** (MS ’04, PhD ’08), **Ramona (Moni) Hayne** (BS ’76) and **Jim Delaney** (Purdue Alum in Horticulture). The other members present were **Paul Cammer** (PhD ’86), **Mike Culy** (BS ’78, MS ’80, PhD ’87), **Kathy Heinsohn** (PhD ’98), **Eric Putman**, **Kevin Steffey** (BS ’72), **Tom Turpin**, **Steve Yannick**, and **Al York**. Undergraduate recruitment was the main topic of discussion.
Butterflies to Praying Mantids: My Journey at Purdue

Mahsa Fardisi (MS ‘11)

I grew up in Shiraz, which is one of the most beautiful cities in Iran. Shiraz is the capital city of the Fars province and is home to 1.5 million people. It is located in the southwest of Iran with a dry climate completely different, but as beautiful as West Lafayette. Shiraz is known as the city of wine, poets, literature, and flowers. The best season to visit Iran is spring so that you can only smell flowers in the air.

I always enjoyed nature and outdoor activities and I am passionate about animals, but I never knew that one day I would become an entomologist. In 2002, I was admitted to Shiraz University School of Agriculture, which is one of the most prestigious universities in Iran and in the Middle East. During four years of studying Agricultural Economics, I took a course of general entomology, which fascinated me about the insect world. Catching insects with my friends for our insect collections was the most fun part of the course.

I was determined to continue my education abroad and I knew Purdue was the best place for me. Since there is no U.S. embassy in Iran, I had a great opportunity to visit Istanbul, Turkey to get my visa. After this start of my journey, I came to Purdue University in December 2008 to pursue my Master’s degree under Dr. Linda Mason’s supervision. From the first day, West Lafayette became my second home. At the beginning, I had some difficulty speaking English, but as time passed, my English improved and still continues to improve thanks to my lab mates and office mates. I studied insect flight behavior in stored-product insect pests and after I got my Master’s I didn’t have a doubt that I would want to go further. Besides working on my project about livestock feed susceptibility to insect infestation during my PhD, I had many other opportunities such as teaching, volunteering for many community service projects at the Department of Entomology and Purdue University, and presenting my research at many extension meetings and conferences.

If someone were to ask me about my favorite insect six years ago, I would say butterflies; but after rearing insects for departmental outreach activities, praying mantids became my first choice. My favorite events were the Indiana State Fair and Bug Bowl, which are two major outreach events representing science and the fun aspect of entomology. It was very exciting to meet little kids and their families and encourage them to learn about insects.

Pursuing my degree at Purdue was a big change in my life, but I was supported by family and friends. I can’t thank my advisor, Dr. Mason, enough for all her support and all she taught me. I am also grateful for my aunt and her husband Minoo and Jamal Faghihi and my parents Nahid Behinain and Naser Fardisi for their support. I am thankful for all these years at Purdue and lastly, I would like to thank all of the people in the Department of Entomology for being my friends and second family.

~Mahsa Fardisi~
been posted as YouTube videos at: Dougbug Hort Videos at: <http://tinyurl.com/7qvsc>.

We have 2 granddaughters in, unfortunately, Lawton, OK and other “kids” just got married and one will in May.

James E. Cilek (BS ’74) has accepted a position as department head of Testing and Evaluation at the U.S. Navy Entomology Center of Excellence in Jacksonville, Florida.

James F. Dill (PhD ’79) was elected to the Maine House of Representatives in 2010 and re-elected in 2012. In June of this year he won the Democratic primary seat for Senate District 5 and will face Wanda Lincoln in the November election.

Alberto Fereres (MS ’88) and his family live in Madrid, Spain and he travels often to meetings all over the world. He keeps about 10 people in his lab at ICA-CSIIC, Madrid and keeps working with insect vectors of plant viruses and plant pathogenic bacteria. His training at Purdue was an excellent background for developing his research program and career. Alberto has collaborations in Brasil, Chile, USA, UK, France, and Australia and his lab has an international reputation on insect-virus interactions and insect feeding behavior.

Recently, he contributed to a book chapter on aphid behavior and the transmission of noncirculative viruses that will be published soon by APS. For more information on Alberto’s research program visit: <http://tinyurl.com/n4akns6>.

Rob Wiedenmann (PhD ’90), ESA Past President, testified before the House Appropriations Subcommittee on Interior, Environment, and Related Agencies to request robust fiscal year 2015 funding for the U.S. EPA and the U.S. Forest Service.

Luke Jacobus (BS ’00; PhD ’06) has been named a fellow in the Indiana Academy of Science. Only three people were elected in 2014.

Jody Green (MS ’04, PhD ’08) started J.M. Green Consulting in February 2013, worked on some projects with pest manage-ment companies and local homeowners, identified pests of structural concern, wrote technical bulletins, advised on treatment options, and presented at the Kansas Pest Control Association meeting. She is currently looking for some more projects or something full-time in the pest management industry.

Jody has many fond memories of the entomology students during her time at Purdue. Her cohorts were a particularly close group and spent a lot of out-of-class and lab together including Bug’n’Brew, gardening in the village, intramural flag football (where she met her husband), camping trips, spelunking trips, Voyager canoe races on the Wabash, and the many races the students ran together (in costume, no less).

During her last year at Purdue, Jody began running with fellow grad students as something healthy to do between working and social events. Since graduating she has completed 8 marathons. Her organizational and leadership skills acquired from helping Dr. Gary Bennett with the annual Purdue Pest Management Conference from 2001-2008 have been among her greatest assets. She is very active in the Omaha running community, advising race planning committees and recruiting volunteers for local events. Her daughter, Taia, just turned 4 years old and gets a kick out Mama Jode, the bug expert and Daddy, the food scientist, also a graduate of Purdue.

Tyler Janovitz (BS ’06) is a Medical Scientist Training Program Fellow at the Weill Cornell-Rockefeller-Sloan-Kettering Tri-Institutional MD-PhD program.

Jessica Bird (BS ’07) received an MS from the University of Florida and is now a Museum Technician in the Department of Entomology at the National Museum of Natural History, Smithsonian Institution.

Jungkoo Kang (MS ’07) is now a Post-doctoral Research Associate at the University of Groningen/University of Wisconsin-Madison working on Mathematical Modeling and Computer Simulation.

Venu Margam (PhD ’09) moved from KAUST, Saudi Arabia to Hyderabad where he joined E.I. Dupont India Pvt. Ltd as a Research Scientist in their Regulatory Sciences-Entomology division.

Jacob Shreve (BS Biology ’09; MS Entomology ’12) has been accepted in Indiana University’s School of Medicine and will begin their MD program in the fall.

Stephanie Hathaway (BS ’12) is in North Carolina working as a technician/beekeeper in Dr. Susan Fahrbach’s lab at Wake Forest University.

Elaina Grott, (BS ’13) and her bike are so close she gave it a name. And why not? Grott and “Black Beauty” completed a 4,265-mile journey across the United States during the summer of 2013. Grott graduated with a degree in Entomology and headed to South Carolina to start her career with Bartlett Tree Service. She offered to share blog entries and photographs of her epic ride that took her from South Carolina to California in 81 grueling and blissful days – the url is listed below: <http://tinyurl.com/nbts4qp>.

In Memoriam

John C. Deal, Jr. (BS’41) died last November 12 in New Smyrna Beach, Florida.

William Fischang, Professor Emeritus, passed away on May 24 in Jefferson, New Hampshire.

Robert Bruce Cummings (BS ’57; MS ’64) died last September in LaPorte, Indiana.

Amy Aulbach Thurman (BS ’94) passed away in her home at the end of January in Hartford City, Indiana.
Calendar

July 2014
19 Butterfly Encounter

August 2014
1-17 State Fair
8 Purdue Day at State Fair

September 2014
26 The John V. Osmun Award ceremony

October 2014
14 Insectaganza
26-30 External Department Review

From the editor
With each issue of Entomology @ Purdue we keep you up to date on what's happening in the Department of Entomology and with Alumni. Won't you please take a moment to help keep us up to date with you?

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Please include your name, address, degree, major and year of graduation. Digital photos (.jpg or .tif) are preferred. Photos received by mail will be returned upon request.
To update your contact information online, go to:
<www.purdueinsects.org>

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