Dr. Steve Whitham received the Rossmann Manatt Faculty Development Award

Dr. Steve Whitham received the 2019 Rossmann Manatt Faculty Development Award. The Rossmann Mannat award recognizes a College of Agriculture and Life Sciences or College of Human Sciences tenured faculty member who has demonstrated an exceptional level of creativity and productivity in scholarship, teaching, and service. In addition, the awardee must show a great promise of continuing those achievements. The award includes a monetary gift that can range from $5,000 to $10,000 depending on the endowment’s standing. Dr. Whitham plans to use the funds to develop new areas of research that include novel ways to phenotype plants and specifically edit plant genes for crop improvement. He plans to fund the cost of a graduate student to conduct experiments in the Environatron, and fund the cost of professional meetings for the student.

To read more about this story, click here. If you would like to find out more about the Environatron, click here.

Dr. Gary Munkvold Chosen as Fulbright Specialist

Dr. Gary Munkvold was chosen as a Fulbright Specialist. Dr. Munkvold spent about a month at the National University of Northwest Buenos Aires in Pergamino, Argentina, working on soybean disease research. During his time in Argentina, Dr. Munkvold gave presentations at the university and at soybean disease workshops in several locations around central Argentina. As a designated Fulbright Specialist, Dr. Munkvold could be assigned to other projects in the future, leading to even better international collaboration and learning opportunities for the Iowa State University Seed Science Center.

Fulbright Specialists are a diverse group of highly experienced, well-established faculty members and professionals who represent a wide variety of academic disciplines and professions. In order to be eligible to serve as a Fulbright Specialist, candidates must have significant experience in their respective professional field and be a U.S. citizen at the time of application. The Fulbright Specialist Program sends U.S. faculty and professionals to serve as expert consultants on curriculum, faculty development, institutional planning, and related subjects at academic institutions abroad for a period of 2 to 6 weeks. If you would like to learn more about the Fulbright Specialist Program, click here.

Iowa Nutrient Research Center Leaders Update Legislature

The Iowa Nutrient Research Center researchers presented to Iowa House Agriculture Committee members and interested citizens at the Capitol on Feb. 19. Four speakers whose projects have received support from the INRC represented Iowa’s three partnering regents’ universities. Presenters from ISU were Matt Helmers, center director and agricultural and biosystems engineering, who provided an overview of the center’s efforts during its first five years, and Dr. Alison Robertson, plant pathology and microbiology, who discussed research to enhance success with cover crops. From the University of Iowa – IIHR Hydroscience and Engineering, Keith Schilling spoke about INRC-supported studies on the nutrient filtering capacity of oxbows and road ditches. From the University of Northern Iowa, Laura Jackson, director of the Tallgrass Prairie Center, discussed research looking at economic and management factors related to planting prairie for water quality and other conservation purposes. Find out more here.
The Soybean Cyst Nematode Genome has been published

A team of mostly Iowa State University (ISU) researchers finally succeeded in assembling the soybean cyst nematode’s (SCN) DNA sequence. It took a team of plant pathologists and bioinformaticians to tackle this jigsaw puzzle. Some ISU members of this team include: Rick Masonbrink, Tom Maier, Usha Muppirala, Arun Seetharam, Parijat Juvalé, Andrew Severin, and Thomas Baum. Assembling SCN’s genome was not an easy task to tackle due to the repetitive nature of SCN’s DNA. The repetitive DNA greatly complicated the sequencing and assembly process; it was like putting together a jigsaw puzzle for which all the pieces are identical, but with only one solution. The genetics of the soybean cyst nematode presented challenges that kept scientists from assembling the full genome for years. The research team sequenced the genome first by sequencing smaller portions and then piecing those portions together into the full genome. About a third of the nematode’s 29,769 genes are repetitive, meaning many of the genes come in multiple copies. The research was published recently in the peer-reviewed journal BMC Genomics.

Now with the SCN genome assembled, scientists can use the SCNBase BLAST tool to compare a sequence on interest with a library or database of sequences. The SCNBase is a website designed as a centralized knowledge base for SCN researchers and producers. It contains genomics, genetics, population data along with tools to translate this information to practical applications. Access the SCNbase here.

New National Extension Education Project

Dr. Greg Tylka is co-leading a national farmer education effort called the SCN Coalition. The SCN Coalition project was launched in February 2018 with the goal of increasing the number of US soybean farmers who actively manage the soybean cyst nematode (SCN). Partners in the SCN Coalition include scientists from universities in 28 US states and Ontario, Canada. Soybean checkoff organization partners in the Coalition include the North Central Soybean Research Program, the United Soybean Board, and several state soybean promotion boards. Finally, industry partners in the Coalition include BASF, Bayer, Growmark, Pioneer, Syngenta, and Winfield United. The Coalition’s website is TheSCNCoalition.com. In December 2018, the national Corn+Soybean Digest magazine published a 32-page report on the SCN Coalition. The publication highlighted the results of a 15-year Iowa State research study and included numerous images and diagrams from Iowa State University as well as comments from Dr. Greg Tylka and Iowa farmers who have worked with Dr. Tylka and Greg Gebhart. The report is available online here.

Congratulations to PLPM 2019-2020 Brown Graduate Fellowship Recipients!

Valeria Velasquez-Zapata and Pulkit Kanodia were awarded the Brown Graduate Fellowship for 2019-2020. They are one of twelve students from across Iowa State University (ISU) to receive the award of $10,000. The Brown Graduate Fellowship is to be used to strategically advance ISU research in the areas of study that are governed by the Valentine Hammes Family and Leopold Hammes Brown Family Trust. These include science, agriculture, and space science. Valeria is a Bioinformatics and Computational Biology graduate student working on the molecular interactions of cereal crops and fungal pathogens using barley and powdery mildew as a model system. Pulkit is a Genetics and Genomics graduate student working on plant responses to viral infections and environmental stresses by studying their protein synthesis regulation upon infection. Both Students are housed in the Plant Pathology and Microbiology Department. We look forward to see where these two talented PLPM graduate students journey takes them.

To read the complete story and learn more about the accomplishments of these students, click here.
Jeni Bungert Retires

Jeni Bungert, administrative specialist and grant co-ordinator in the Department of Plant Pathology and Microbiology (PLPM) at Iowa State University, decided to retire on Friday, January 4, 2019. Faculty, students, postdocs, and staff were sad to see Jeni leave. On the morning of January 4, different members of the PLPM family joined Jenny and her sister on a farewell party in the main office. The PLPM department is grateful for all Jeni’s valuable contributions, for all the long nights during grant proposal writing, and for making all the paper work a little bit less chaotic. We would like to wish Jeni the best of luck and we hope she enjoys fully her retirement.

New Students

New graduate student joins Tylka research program

Monica Pennewitt joined the Tylka research program in January 2019. She was born and raised in Ohio and attended The Ohio State University, graduating with a BS degree in plant pathology in December 2018. While at OSU, Monica worked with Drs. Terry Niblack and Anne Dorrance on soybean cyst nematode. Monica will study the effects of deploying novel SCN resistance genes on the virulence of SCN populations for her MS degree research at ISU.

Recent Publications


Gleason lab hosts a visiting scholar from Pakistan

Muhammad Farooq Aslam (aka Farooq), a visiting scholar from Pakistan, arrived on January 22 for a 6-month stay in the Gleason lab. He is a PhD candidate at Pir Mehr Ali Shah (PMAS) Arid Agriculture University in Rawalpindi. The subject of his PhD research is management of postharvest fungal diseases of loquat (Eriobotrya japonica) fruit. In our Department, his goal is to sequence key genes in his collection of isolates from loquat orchards in Pakistan, and identify the pathogens based on DNA and morphological evidence.

Miller Lab hosts visiting scholars from Europe

Dr. Allen Miller is hosting a Professor from Tekirdang University in Turkey, Dr. Havva Ilbagi. She is a visiting scientist who is here to learn RNAseq methods to detect and discover viruses in cereal crops in Turkey and Iowa. Dr. Miller is also hosting a master’s student from France, Marie-Dominique Jolivet. Marie-Dominique will be working in the Miller lab for five months as part of her studies in the International Joint Degree Master’s Program in Agro-Biomedical Science in Food and Health at the University of Bordeaux. In addition to her studies at ISU and Bordeaux, she spent four months each at Tsukuba University in Japan, and National Taiwan University in Taipei. In Miller’s lab she is investigating the novel xrRNA structure in barley yellow dwarf virus RNA that allows a mysterious noncoding subgenomic RNA to accumulation via degradation of viral genomic RNA by a host exonuclease.

Resource Announcements

Library enters agreements with Open Access publishers

The University Library has established agreements with several Open Access (OA) publishers that will allow for coverage of Article Processing Charges (APCs) for Iowa State corresponding authors. Agreements have been reached with the publishers Hindawi, Public Library of Science (PLoS), and Copernicus. Negotiations are underway with several other pure OA publishers, including eLife, PeerJ, and MDPI.

The Library is committed to advancing the sharing of knowledge created at Iowa State. Support for OA publishing sits alongside other scholarly communication initiatives in the library, such as the Digital Repository, Digital Press, and newly launched data repository, DataShare.

2019 National Plant Diagnostic Network Meeting

Interested in diagnostics? The 2019 NPDN National Meeting will be on April 15-18th in Indianapolis, IN, at the Crowne-Plaza-Downtown Union Station. The national meeting will feature a community of plant diagnosticians, extension specialists, regulatory officials, and policymakers from different university, government, and industry affiliates. On the first meeting day, attendees will have the opportunity to participate in pathogen identification workshops. The main meeting sessions on Tuesday and Wednesday will feature topics on the value of diagnostics, impacts of revised taxonomy, and the continuing improvement of diagnostic techniques through validation and verification. The final day will feature tours of local crop protection and NPDN partners in the Indianapolis area.

Find out more here.
Detecting soybean sudden death syndrome using remote sensing

Muhammad Mohsin Raza, a graduate research assistant at Iowa State University in the Plant Pathology and Microbiology department, discusses his research project in this video. “Soybean sudden death syndrome is a disease of major economic importance in the North and South Americas regarding yield losses. Monitoring soybean health and detecting SDS at initial crop stages is essential to facilitate sustainable, environment-friendly, and cost-effective management practices in grower’s fields. However, SDS is difficult to detect at the onset and demands regular intensive crop scouting which is labor-intensive, time-consuming, and often requires destructive sampling.” To watch the complete video, click here.

Quantifying soybean yield losses due to sudden death syndrome (SDS)

Sudden death syndrome is one of the major yield-limiting diseases of soybean and has spread widely across soybean producing states in the U.S. Every year, farmers suffer substantial yield losses due to this disease. Because of the limited understanding of the impact of SDS on soybean yield, it makes it difficult for farmers to decide whether or not to apply management tactics. At Iowa State University, we have quantified soybean yield losses due to SDS at different spatial scales to understand how SDS influences soybean yield in commercial soybean fields. Our initial findings reveal that, in severe disease conditions, SDS can cause up to 40% yield losses, especially when symptoms develop early. Learn more here.

PLPM Seminar Series

Dr. William Graves

On Tuesday, January 15, 2019 Dr. William Graves, Dean of the Graduate College at Iowa State University, gave an overview of his duties as Dean in a presentation with the title “The best administrative job on campus: Graduate College Dean”. During his presentation, Dr. Graves talked about several resources available to graduate students, postdoctoral fellows, and new training projects for new faculty. If you would like to learn more about the different resources available from the graduate college, click here. To watch Dr. Graves seminar video, click here.

Dr. Greg Tylka

On Tuesday, January 22, 2019 Dr. Greg Tylka, professor in the Department of Plant Pathology and Microbiology at Iowa State University, presented part of his lab research in a seminar titled: “Effects of seed treatments on soybean cyst nematode biology, population densities, and soybean yield”. One of the highlights of Dr. Tylka’s seminar was their observations on Nematode-protected seed treatments. If you would like to see the table of results from the nematode-protected seed treatment, click here.
Dr. Dior Kelley

On Tuesday, February 5, 2019 Dr. Dior Kelley, assistant professor in the Department of Genetics, Development and Cell Biology at Iowa State University, presented her current research in a seminar titled: “Deciphering auxin-driven root development”. Dr. Kelley presented some of her unpublished data on auxin signaling modules used to control diverse developmental processes in Arabidopsis.

If you would like to learn more about Dr. Kelley’s research, click here.

Dr. Roger Wise

On Tuesday, February 12, 2019 Dr. Roger Wise, Affiliate Professor in the Department of Plant Pathology and Microbiology at Iowa State University, presented part of his research in a seminar titled: “Regulation of immunity during infection of barley with the powdery mildew pathogen”. Some of the research in Dr. Wise’s lab focuses on high-throughput functional analysis of important agronomic genes in barley. If you would like to learn more about all the projects in the Wise lab, click here.

Dr. Sarah Nusser

On Tuesday, February 19, 2019 Dr. Sarah Nusser, Vice-President for Research at Iowa State University (ISU), talked about different resources at ISU available for researchers in a seminar titled: “The future of research”. Some of the highlights of her presentation include funding opportunities, changes in policies, and some of her duties as the Vice-President of Research.

If you would like to watch Dr. Nusser’s seminar presentation, click here.

Dr. Hernan Garcia-Ruiz

On Tuesday, February 26, 2019 Dr. Hernan Garcia-Ruiz, assistant professor from University of Nebraska, presented some of his latest research in a seminar titled: “Antiviral silencing in plants”. Dr. Garcia-Ruiz’s research focuses on the interconnection between RNA replication and RNA silencing mechanisms in viruses using yeast and plants as model systems in combination with genomic and bioinformatics approaches.

To watch Dr. Hernan Garcia Ruiz’s seminar presentation, click here.