Spring 2024

The Pathogen

News for Alumni and Friends of the Department of Plant Pathology

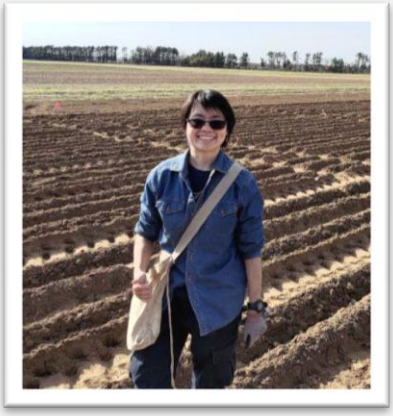
Another Award-winning Year for Our Department!

Faculty Awards

Page 10

Staff Awards

Page 8



Graduate Student Awards

Page 5

Department of Plant Pathology
University of Wisconsin-Madison
College of Agricultural and Life Sciences

In This Issue

Cover Photos and Credits

Faculty Awards photo:

From left: Dr. Leslie Holland, Dr. Paul Koch, Dr. Damon Smith, and Dr. Aurélie Mamisoa Rakotondrafara.

Photo by Michael P. King/UW–Madison CALS.

Staff Awards photo: Wisconsin Seed Potato Certification Program at the annual Wisconsin Seed Potato Improvement Association meeting in Antigo Wisconsin, 2023. Shown in top row left to right: Josie Spurgeon, Erin Harmelink, Niles Franc, James Meyer, Amanda Gevens; lower row: Dianna Kessler, Brooke Babler, Cole Lubinski.

Graduate Student Awards photos (left to right):

- PhD student Olee Hoi Ying Lam
- PhD student Afona Irabor
- PhD student Maxwell Chibuogwu
- PhD student Megan Dixon

Thank You to Our Generous Donors

UW Plant Pathology greatly benefits from the generous donations of our community including current faculty, staff, post-docs, and students, as well as alumni, emeriti, retirees, and friends. Because of these funds, we can support graduate research assistants and teaching assistantships in strategic ways, as well as the professional development of our students and staff through travel awards to conferences and meetings. The support also enables our students to run an annual Graduate Student Seminar Exchange Program with collaborating universities, and a weekly Students and Post-docs Seminar program which features themes of interest to the community.

Call for Content

Do you have ideas for news to be included in upcoming editions of *The Pathogen*? We'd like to hear your suggestions, ideas, and submissions.

Please contact Professor Amanda Gevens, gevens@wisc.edu with your insights.

Letter from the Chair

Dr. Amanda Gevens

Quick Stats

45	Graduate students supported
111	Peer-reviewed publications
4th	in CALS in extramural support
6	CALS Awards
13	Exit and Proposal Seminars
9	Faculty Seminars
9	Guest Speaker Seminars
20	News Items
2	New Faculty

The academic year of 2023-2024 was full and highly productive!

So full that we are continuing work on several projects this summer including the recruitment of a new faculty member in phytobacteriology.

We will also continue to update the alumni and program features in the Plant Pathology administrative suite area of Russell Laboratories.

Plant Pathology's Diseases of Economic Plants summer Course (PP559) is now on an every-even-summer schedule and will soon start under the direction of Assistant Professor of Fruit Pathology and Extensionist Leslie Holland with the collaboration of other faculty and staff in the Department.

We're thrilled to have Teaching Specialist Mr. Jack Mouradian supporting our department's teaching mission including PP559. Our community has long-valued this field-based course which famously featured the 'white whale' van for several years. The course continues to highlight agricultural and environmental plant-pathosystems in the 'wild' to introduce or affirm systems-level concepts in plant health.

High-touch, practical mentorship remains a priority. This year the Plant Pathology Department supported over 45 graduate students, and roughly the same number of undergraduate students, in research, instruction, and outreach endeavors.

The outcomes of our productive labs included over 111 peer-reviewed publications in 2023, numerous trade and technical reports, as well as professional and academic meeting abstracts, invited presentations, and proceedings.

Plant Pathology ranked fourth highest in the College in extramural support in 2023 reflecting the successful trajectory of our programs.

Our faculty, students, and staff are recipients of an exceptional number of awards and honors, indicating both the outstanding impact of our community's work, but also the dedication of our community to the civic process of nomination.

Please enjoy this newsletter which focuses on highlights spanning our missions of research, instruction, extension, and service during 2023 and 2024 (to date).

I gratefully acknowledge the work of our valued Russell Labs Administrative Hub Staff Members Ashley Bowman and Dixie Lang in assisting me in constructing this newsletter.

- Dr. Amanda Gevens, Plant Pathology Department Chair and Professor

Department Notes

There is great strength in our diversity in scholarship and community:

- Plant Pathology remains a department of great scholarship
- Research spans from on-farm problem solving to fundamental biology at cellular to global scales
- Local and national leader in gender diversity for over 50 years
- PP faculty have acted as facilitators in WISELI workshops and/or chaired JEDI committees and task forces at local and national levels dating back to the 1990's
- Faculty is 24% BIPOC
- Graduate student group is 45% BIPOC
- We prioritize inclusivity in decision-making processes across departmental committees

New Certificate Program

A new undergraduate certificate program in Organic Agriculture was founded in 2021 with its first graduate in Spring, 2022. This certificate is administered in Plant Pathology and associated with the UW Organic Collaborative in CALS.

Program Associates

Programs associated with Plant Pathology offer opportunities for deeper engagement in participatory and translational research, experiential learning, pedagogy, regulatory science, and community service.

- Wisconsin Fast Plants
- Wisconsin Seed Potato Certification Program
- "What's Eating My Plants" (WEMP)
- Plant Disease Diagnostics Clinic (PDDC)
- Turfgrass Diagnostic Lab (TDL)
- Wisconsin Institute for Discovery (WID)
- Center for Integrated Agricultural Systems (CIAS)
- Nutrient and Pest Management
- Women in Science and Engineering (WISELI)

Congratulations, Graduates!

2023-2024 Doctoral Graduates

Mariama Carter

Maxwell Chibuogwu

Megan Dixon (Microbiology - Barak Lab)

Shane Hansen

Daowen Huo

Afona Irabor

Jeysika Zayas-Rivera

2023-2024 M.S. Graduates

Bryce Alex

Kelly Debbink

John Hammel

Elizabeth Lane

Casey Trickle

2023-2024 Undergraduates in Plant Pathology

- Emily Florin ..... Organic Ag Certificate
- Lauren Stielow ..... Organic Ac Certificate
- Daniel Zhu ..... Plant Pathology BS
- Lilianna DeJong ..... Plant Pathology BS
- Cheyanne Mattie .... Plant Pathology BS and Organic Ag Certificate

Graduate Student Awards

Recipient: PhD student Olee Hoi Ying Lam

Award: Wisconsin Potato Industry Board Wisconsin Distinguished Graduate Fellowship

Time Period: 2024-2025

Advisors: Amanda Gevens in Plant Pathology and Phil Townsend in Forest and Wildlife Ecology

Olee will be presenting components of her doctoral research work in an oral presentation entitled, “Pre-symptomatic detection of early blight in potato crops using imaging spectroscopy” at the 2025 Grower Education Conference in Stevens Point.

Olee Hoi Ying

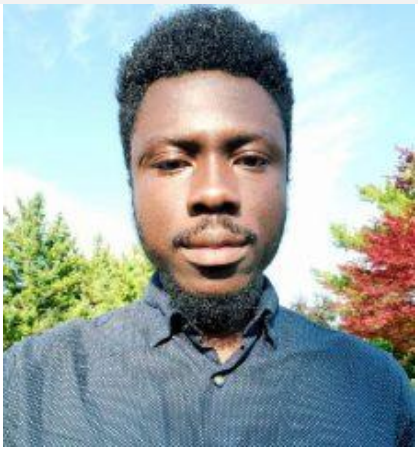
Recipient: PhD student Afona Irabor

Awards: 1st place winner in the Graduate Oral Research Division 1 Contest at the Minorities in Agriculture Natural Resources and Related Sciences (MANRRS) meeting in Chicago, IL.

Afona presented on the effects of winter cover crops on potato soilborne disease in Central Wisconsin.

2nd place award in the Soil Health community student oral competition at the Tri-Societies annual meeting in November, 2023.

Advisors: Matt Ruark (Soil Science) and Amanda Gevens



Afona Irabor

Recipient: PhD student Maxwell Chibuogwu

Awards: 2nd place winner in the Graduate Oral Research Division 1 contest at the Minorities in Agriculture Natural Resources and Related Sciences (MANRRS) meeting in Chicago, IL.

Maxwell presented on the metabolic fate of the mycotoxin deoxynivalenol in ensiled corn.

Advisor: Damon Smith

From left: Afona Irabor and Maxwell Chibuogwu

Graduate Student Awards

Recipient: Megan Dixon

Awards: - Research grant from the Office of Diversity, Inclusion, and Funding for in the Graduate School for professional development.

- Schreiber Foods Graduate Student Scholarship.

- 2023 International Association for Food Protection (IAFP) Student Travel Scholarship to attend the meeting in Toronto, Canada.

Advisor: Jeri Barak

Megan Dixon

Travel Scholarships

Congratulations to our Plant Pathology Student Travel Scholarship Winners of 2023!

- Bryce Alex
- Zoltan Banyai
- Madeline Bondy
- Courtney Cameron
- Mariama Carter
- Ana Vazquez Catoni
- Maxwell Chibuogwu
- Megan Dixon
- Shane Hansen
- Miette Hennessy
- Afona Irabor
- Nathan Kolbow
- Olee Hoi Ying Lam
- Elizabeth Lane
- Hailey Louw
- Aaron Lowenstein
- Evan Lozano
- Matthew Pereyra
- Eithan Pozas Rodriguez
- Jose Sanchez Gallego
- Peihan Shu
- Sydney Stroschein
- Kathleen Thompson
- Casey Trickle
- Austin VanDenTop
- Jeysika Zayas Rivera

Graduate Student Awards

CALS Award

Congratulations to “What’s Eating My Plants?” (WEMP) on their 2023 Equity and Diversity Award from the College of Agricultural and Life Sciences.

This award was established by the college’s Equity and Diversity Committee to recognize contributions to activities and programs that advance the academic and professional climate of diversity, respect, inclusion and equity in CALS.

"What's Eating My Plants" (WEMP) Officers at the 2023 CALS Awards Ceremony
From left: graduate student Jeysika Zayas-Rivera, CALS Dean Glenda Gillaspy, graduate student Megan Dixon, graduate student Jose Sanchez Gallego.

From the eCALS article about the award:

WEMP is a student organization founded by graduate students in the plant pathology department with the goal of bridging the gap between the university and the greater Madison community.

Since its founding, WEMP’s mission has been to increase scientific accessibility and literacy for underserved K-12 students. They have created platforms for individuals from various backgrounds to come together, participate in meaningful discussions, and learn from one another, covering topics such as industrial use of genetically- modified organisms, Mayan farming practices and careers in agricultural sciences.

WEMP is a student organization founded by graduate students in the plant pathology department with the goal of bridging the gap between the university and the greater Madison community.

Since its founding, WEMP’s mission has been to increase scientific accessibility and literacy for underserved K-12 students. They have created platforms for individuals from various backgrounds to come together, participate in meaningful discussions, and learn from one another, covering topics such as industrial use of genetically- modified organisms, Mayan farming practices and careers in agricultural sciences.

This has led to a heightened understanding of agricultural sciences and greater engagement with scientific diversity, inclusion and equity initiatives.

What sets this group apart is their intentional focus on promoting diversity within the group and their ability to collaborate with local K-12 schools, organizations and social media to maximize their impact. Their diverse membership provides a variety of perspectives, experiences, and ideas, resulting in innovative and impactful initiatives.

Staff Awards and Recognition

Recognition

UW-Madison CALS *Grow Magazine* (Spring, 2024) featured **Dr. Brian Hudelson** and his outreach building block kits as well as “What’s Eating My Plants?” (pictured: **Maxwell Chibuogwu**) in the article Emissaries of Science (pg. 20). Check it out for yourself: https://grow.cals.wisc.edu/departments/features/emissaries-of-science.

Dr. Brian Hudelson*

Maxwell Chibuogwu**

CALS Grow Magazine Cover showing a Lego model of a tomato afflicted with blossom end rot, a disorder caused by a calcium deficiency.**

Building block model under construction.**

* Photo by Dr. Amanda Gevens.

** Photos by Michael P. King.

Staff Awards and Recognition

Awards

Brooke Babler, Associate Program Director of the Wisconsin Seed Potato Certification Program, won a well-deserved Researcher of the Year Award from the Wisconsin Potato and Vegetable Growers Association in honor of her outstanding work.

Diana Kessler, Inspector with the Wisconsin Seed Potato Certification Program won a well-deserved Industry Leadership Award from the Wisconsin Seed Potato Improvement Association in honor of her outstanding work.

Thanks To...

Hedi Baxter Lauffer for her career contributions to Wisconsin Fast Plants.

Hedi retired during 2024 after many years of service as the Director of Teaching and Learning with Fast Plants.

Faculty Awards and Recognition

Congratulations to Faculty

Dr. Paul Ahlquist

- For continuing to hold the Endowed Steenbock Professorship in Microbiological Sciences (2016-2026) at UW and the Endowed John and Jeanne Rowe Chair in Virology at the Morgridge Institute.

Dr. Caitilyn Allen

- As ON Allen Distinguished Phytobacteriology Chair in Plant Pathology
- For receipt of the UW Madison Student's Choice Honored Instructor Award, Spring, 2023

We thank you for all of your outstanding contributions to research, instruction, outreach, mentoring/professional development, and administration over an extraordinarily productive and successful career.

Planned retirement: June 30, 2024. We are honored to offer Emeritus status to Dr. Allen effective upon retirement!

Dr. Jeri Barak

- Successful Post Tenure Review in Fall, 2023.

Dr. Amanda Gevens

- Receipt of the Fritz Friday Chair of Vegetable Research
- Post Tenure Review successfully completed in Fall, 2023

Dr. Leslie Holland

- 40 under 40 award, Fruit and Vegetable Industry News
- CALS Alfred Toepfer Faculty Fellow Award
- Researcher of the Year Award, WI State Cranberry Growers Association
- Travel Award, NSF Root and Shoot Research Coordination Network

Dr. Mehdi Kabbage

- Promoted to full professor.

Faculty Awards and Recognition

	**Dr. Paul Koch**	• CALS Pound Extension Award • Promotion from associate to full professor
	**Dr. Richard Lankau**	• Promoted to full professor.
	**Dr. Aurelie Rakotondrafara**	• 2024 Chancellor's Distinguished Teaching Award • 2024 Robert R. Spitzer Teaching Excellence Award
	**Dr. Erin Silva**	• Clif Bar Endowed Chair in Organic Agriculture and Outreach • Promoted to full professor in effect August, 2023 • Vilas Mid-Career Award, 2024
	**Dr. Damon Smith**	• Patents: 4 soybean variety PVP disclosures to WARF (Sauk, Marathon, Columbia, and Rock) • Vilas Mid-Career Faculty Award 2022-2024 • Donald Peterson Farm Technology Transfer Award, 2024 • LEAD21 participation, 2022-2023
	**Dr. Claudia Solis-Lemus**	• NSF Career Award, 2022-2027.

Faculty Awards and Recognition

Photo at left:

From left: Dr. Leslie Holland, Dr. Paul Koch, Dr. Damon Smith, and Dr. Aurélie Mamisoa Rakotondrafara.

Photo by Michael P. King/
UW–Madison CALS

Professor Emeritus Paul Williams won the CALS Distinguished Service Award in 2023.

Photo at left: Dr. Paul Williams with CALS Dean Glenda Gillaspy.

Photo by Michael P. King/
UW–Madison CALS

Congratulations to Affiliate Faculty

	**Dr. Jean-Michel Ane**	• Named a Fellow with the American Association for the Advancement of Science.
	**Dr. Russell Groves**	• National Spudman Impact Award for his positive impact and leadership in advancing potato production

Faculty Awards and Recognition

Congratulations to Dr. Jo Handelsman

NATIONAL ACADEMY OF SCIENCES

Dr. Jo Handelsman

Dr. Jo Handelsman has been elected as a Member of the National Academy of Sciences. This is a highly prestigious award that recognizes scientists for their distinguished and continuing achievements in original research.

Membership is a widely accepted mark of excellence in science and is considered one of the highest honors that a scientist can receive.

Jo is a Vilas Research Professor and Howard Hughes Medical Institute Professor, served as a science advisor to President Barack Obama as the associate director for science at the White House Office of Science and Technology Policy between stints on the faculty at UW–Madison and Yale University.

She holds 23 patents, is a molecular biologist with more than 250 scientific publications. Her scholarship includes transformative studies in microbial communication and metagenomics, as well as contributions to science education and diversity in science. She received the Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring in 2011.

UW-Plant Pathology has had the honor of celebrating 7 National Academy of Sciences members during its life from 1910-current.

Our members have included:

Jo Handelsman..... 2023

Paul Ahlquist..... 1993

Luis Sequiera..... 1980

Arthur Kelman..... 1976

A.J. Riker 1951

J.C. Walker 1945

L.R. Jones 1920

Faculty Awards and Recognition

Retirement of Dr. Caitilyn Allen

Dr. Caitilyn Allen

Dr. Allen earned a Ph.D. in Plant Pathology under the direction of George Lacy at Virginia Tech University; her dissertation focused on genetics of virulence in soft rot bacteria (now *Pectobacterium spp*). She then spent two years as a postdoctoral researcher at the Laboratoire de Biologie Moleculaire Microbienne at INSA in Lyon France, where she identified regulators and transporters involved in virulence of *Dickeya dadantii*.

Returning to the U.S. she joined the team of Professor Luis Sequeira at University of Wisconsin-Madison to study the bacterial wilt pathogen *Ralstonia solanacearum*, first as a postdoc and then as Research Scientist. In 1992 she joined the UW-Madison faculty with a joint appointment in Plant Pathology and Women's Studies, where she taught a course on Biology and Gender for 13 years before accepting a sole appointment in Plant Pathology. In 2014 she was appointed Ethel and O. N. Allen Professor of Phytobacteriology.

During her 32 years on the UW faculty Dr. Allen's research lab sought to understand virulence mechanisms and improve detection of bacterial wilt pathogens in the *R. solanacearum* species complex (RSSC). The RSSC was a deeply engaging group, the source of many discoveries and puzzles still unsolved. She learned that the most interesting results came from studying *R. solanacearum* not in culture but in interaction with its plant hosts. Among many examples, this approach revealed that *R. solanacearum* uses a global regulator to switch from catabolizing many diverse resources in saprophytic life to producing costly virulence factors during pathogenesis.

The unexpected observation that *R. solanacearum* is a facultative anaerobe led to a thread of studies showing that this innovating bacterium uses nitrate for practically everything: to breathe, to eat, and to sense and disrupt plant defense signaling pathways. Growing the pathogen in *ex vivo* xylem sap from healthy and infected plants showed that *R. solanacearum* manipulates its host in ways that increase sap nutrient content and decrease antimicrobial compounds.

In parallel, the Allen lab worked with ornamental and potato growers and regulators to improve strategies for detection and exclusion of quarantine pests in the RSSC.

She was a lead organizer of the International Bacteria Wilt Symposia, which has met every four years since 1992. Professor Allen published more than 100 research papers and co-edited two books on bacterial wilt. However, her most satisfying and lasting accomplishment was mentoring nine postdocs and 32 graduate students (22 Ph.D., 10 M.S.) and over 150 undergraduate independent researchers. Fourteen of her former mentees currently hold faculty positions.

Dr. Allen was elected a Fellow of the American Association for the Advancement of Science and the American Phytopathological Society. She was awarded the *Palmes Academique* by the government of France, where she spent three sabbaticals teaching and collaborating with French bacteriologists.

Classroom and mentor teaching formed the center and foundation of Dr. Allen's career. She found inspiration in teaching introductory courses for non-biology majors, upper-level courses on molecular plant-microbe interactions and especially classes in tropical plant pathology that included a field trip to Guatemala. Her teaching excellence was recognized with multiple campus and national awards.

Apart from research and teaching, Professor Allen worked to increase the diversity of the science workforce. She cofounded UW's Women in Science and Engineering Residential Program and served as its faculty director for the first five years. She was an active member of the UW Women Faculty Mentoring Program, which she directed for 5 years. Her campus service also included three years as department chair and two terms on the Biological Sciences Divisional (Tenure) Committee.

Dr. Caitilyn Allen teaches Plant Pathology 123 (Plants, Parasites and People).
Photo by Michael P. King/
UW–Madison CALS.

From left, Dr. Jeri Barak, Dr. Caitilyn Allen and Dr. Rick Lankau, pose for a portrait in a King Hall greenhouse where tomato plants grow as part of their study.
Photo by Michael P. King/
UW–Madison CALS

A lane between treatments at the Wisconsin Integrated Cropping Systems Trial (WICST). Photo by Anders Gurda.

Notes from the Organic Collaborative

As with most fledgling things planted in fertile soil, with care, and given the time and space to grow, the UW Organic Collaborative continues to thrive on the CALS acreage. We're happy to have the opportunity to provide updates on what the UW Organic Collaborative is up to as our contribution to this new newsletter, with particular focus on the undergraduate and graduate programs.

With the fall 2021 GROW issue, the UW community near and far was introduced to the UW Organic Collaborative. By charting UW-Madison's long history with organics, we can more fully contextualize our current position as one of the strongest organic programs in the country. The Collaborative allows all of the good organic work happening at UW to be brought together into a more visible whole. This increases impact with stakeholders and increases recognition as a Center of Excellence with potential donors and funders.

One large component of the intellectual tilth within CALS is, as always, our students. Since its inception three years ago, the Certificate in Organic Agriculture has enrolled groups of eager students and, with a newly revamped recruitment strategy, we're working to improve on our year-over-year enrollment numbers. As consumer, industry, and society engagement with organic agriculture expands, the Certificate in Organic Agriculture provides undergraduate students excellent opportunities for learning on a variety of levels, including hands-on experiences. While the certificate focuses on the production and processing approaches that define organic agriculture, students can also explore other dimensions including economic, environmental, health, food systems, and policy. This interdisciplinary certificate can help UW students from various majors to develop employment opportunities in organic agriculture businesses (farm to fork), policy, public and non-governmental agency work, individual wellness and health initiatives, and sustainable development efforts. Check out these videos highlighting the certificate and some of our core courses.

Notes from the Organic Collaborative

Of the core courses, the Seminar in Organic Agriculture (previously colloquium) got the biggest recent makeover from its pre-certificate model, with changes designed to meet the needs and interests of students as we move into the next decade. This redesign includes lots of interaction with players at every point in the organic supply chain, from farmers to industry brands. The course was built to provide students with the experiences, tools, and resources to successfully launch their careers, whether in the organic industry or in another field. The first couple crops of students taking the course have been incredibly engaged and we can't wait to take their feedback and build an even stronger, impactful course for future students. Sofia Weinstein, a recent alumni with dual degrees in Plant Path and AAE had this to say about the course: "I've absolutely loved my time in 372. The best way to learn about organic agriculture is from farmers themselves and it's been so great to hear from so many. It's also created one of the closest-knit academic communities that I've been a part of in all my time at UW. Whenever I come home from school, my roommates always ask how my day was and when I tell them about a 372 field trip or speaker they say, 'I can't believe this is your life. I want to be in that class too!'"

The five graduate students funded through the UW Organic Collaborative continue to thrive, some within the same programs, and others in their chosen careers, having received their degrees and moved on from UW. Check out this series of videos highlighting each student and their research projects on the UW Organic Collaborative YouTube Channel. Ari Abbrescia, Plant Pathology Master's student (co- advised by Dr. Amanda Gevens and Dr. Russ Groves) is one of the students funded by this opportunity. Having graduated in 2023, Ari recently started working as the state Organic Transition Specialist for the UW Division of Extension. We couldn't be more proud of Ari and can't wait to see how the skills gained at UW- Madison continue to benefit organic farmers around Wisconsin. Check out this press release with more information about Ari and her new position.

The Ellison Lab seeding cannabis plants in the Walnut Street Greenhouse.

The UW Organic Collaborative is also excited about the new website that we've built. The new design fixes previous issues related to load speeds and UW Brand-allignment. We've also improved our resource libraries – a one-stop shop that has nearly every journal article, print resource, video, or media asset related to organic agriculture that's come out of UW.

Stay tuned for various events and an internationally-focused conference organized by the UW Organic Collaborative in the coming academic year!

Thank you all for your support as the UW Organic Collaborative gains momentum, and don't hesitate to reach out to Erin Silva (emsilva@wisc.edu) or Katie Peterman (peterman2@wisc.edu) with questions or for ways to become involved.

Looking Back: Seminars, 2023-2024

Exit Seminars and Proposal Seminars

Presenter	Topic
Matthew Pereyra	Evaluating Forecasting Methods for Timing of Potato Pesticide Applications
Shane Hansen	Protecting the Potato Tuber from Start to Finish: Optimizing the Use of Liquid Seed Treatments and Exploring the Use of UV-Light in Storage
Elizabeth Lane	Soil Microbes Ability to Decompose Different Organic Matter, Enzyme Activity and Nitrate Leaching in Sandy Soils in Potato Fields
Kelly Debbink	Integrated Disease Management in Organic Field Crops
Bryce Alex	A Single Amino Acid Substitution at Potential Phosphorylation Site in HCPro Reverses Nytbr Defense Response to PVYO and PVYN
Mariama Carter	Let's Stick Together: Mechanisms of Host Attachment and Biofilm Formation in *Ralstonia Pseudosolanacearum*
Megan Dixon	How Xanthomonas Foliar Disease Influences the Fate of Salmonella Enterica
Peihan Shu	Investigating Molecular Mechanisms of Mycovirus' Hypovirulence on Fungi and Potential Disease Control
Maxwell Chibuogwu	Integrated Management and Understanding of Gibberella Diseases and Deoxynivalenol Accumulation Produced by *Fusarium Graminearum* in Silage Corn, Zea Mays.
Daowen Huo	Targeting Oxalic Acid Production in *Clarireedia Jacksonii* for Dollar Spot Control in Amenity Turfgrass
Jeysika Zayas-Rivera	Identification and Characterization of Novel Sources of SCN Resistance and the Development of Tools for Soybean Research
Afona Irabor	Enhancing Potato Soil Health in the Central Sands of Wisconsin
Casey Trickle	Exploring the Spatiotemporal Dynamics and Phenology of the Cranberry False Blossom Phytoplasma and its Leafhopper Vector, *Limotettix Vaccinii*

Faculty Speakers

Presenter	Topic
Dr. Dennis Halterman	Building a Robust Defense: Unearthing the Mechanisms of Potato Disease Resistance
Dr. Jo Handelsman	A Lifetime of *Bacillus Cereus*: From Field Pathology to THOR, a Model Microbial Community
Dr. Caitilyn Allen	The Secret Lives of Plant Pathogenic *Ralstonia*

Looking Back: Seminars, 2023-2024

Faculty Seminars

Presenter	Topic
Dr. Mehdi Kabbage	Progress in Understanding the *Sclerotinia Sclerotiorum* Pathosystem
Dr. Damon Smith	Practical, Research-based Plant Disease Advisories for the 21st Century
Dr. Erin Silva	Addressing “Wicked Problems” – Finding Transdisciplinary Solutions to Food Systems Crises
Dr. Andrew Bent	Attaching Mechanisms to Loci: Soybean Resistance to Soybean Cyst Nematode
Dr. Amanda Gevens	Advancing Early Blight Management in Wisconsin Potatoes
Dr. Paul Ahlquist	Structural Biology Insights into RNA Virus Replication and Control

Guest Speakers

Presenter	Topic	Institution
Dr. Bill Underwood	Paralleling Fundamental and Applied Research to Improve Sunflower Resistance to *Sclerotinia Sclerotiorum*	U.S. Department of Agriculture
Dr. Phil Brannen	Pathology Challenges Associated with Growing Grapes in the Deep South	University of Georgia
Dr. Sameer Deshpande	Sparse Regression and Graphical Modeling with the Spike-and-Slab LASSO	UW Statistics
Dr. Jessica Hite	Fighting Antimicrobial Resistance by Integrating Microbial Ecology and Evolution	UW Epidemiology
Judson Vanwyk	Life Cycle Transcriptomics of a Homothallic Cultivated Morel, Morchella Rufobrunnea	Exchange Student Program – Michigan State University
Dr. Benjamin Rush	Something’s Funny: Humor for Better Communication, Teamwork, and Resiliency	UW Wisconsin Institute for Discovery and Radiology
Dr. Charlie Mo	Anti-phage Defense Systems in Bacteria	UW Bacteriology
Dr. Sean Schoville	Spatiotemporal Genomic Analyses and Insights into Pest Evolution	UW Entomology
Dr. Ian Small	Phenotyping Plant Diseases and Advances in Precision Crop Protection	University of Florida

Committees – 2023-2024

Standing Committees

Curriculum	Barak, Chibuogwu, Hochmuth, Laabs, Lankau, Mouradian, Rakotondrafara
Graduate Affairs	Gluck-Thaler, Holland, Kabbage, Laabs, Lozano, Shu, Solis-Lemus
Lectures and Seminar	Rakotondrafara, Rodriguez
Long-range Planning	Koch, Bent, Gevens (ex officio), Lankau
Smith Merit Review	Allen, Barak, Gevens (ex-officio), Silva
Promotions and Post-tenure Review	Allen, Barak, Bent, Gevens, Silva, Smith
Publicity, Nominations, and Development	Holland, Rakotondrafara, Silva
Representatives on Russell Labs IT Advisory	Koch, Huo
Qualifying Exam	Allen, Bent, Kabbage, Lankau
Space, Equipment, and Safety	Koch, Lorenz, Silva, Smith, VanDenTop
Equity and Diversity	Ferrer Orgaz, Chen, Koch, Rakotondrafara, Solis Lemus

Ad Hoc Committees

Solis Lemus Mentoring/Oversight	Allen, Lankau, David Baum (Wisconsin Institute of Discovery)
Holland Mentoring/Oversight	Smith, Rouse, Guedot (Entomology)
DiGennaro Mentoring/Oversight	Allen, Ane (Bacteriology Plant and Agroecosystem Sciences)
Lankau Gluck-Thaler Mentoring/Oversight	Kabbage, Keller, Pringle (Botany Bacteriology)
Hallway Improvement Committee	Barak, Bowman, Gevens, Hochmuth, Hudelson, Laabs

Other Service Committees

Associate Chair	Lankau
Authorized Signatures on Documents	Allen, Barak, Bent, Kabbage, Lankau, Smith
Complaint or Harassment Contacts	Hochmuth, Laabs, Mouradian, Solis-Lemus
Diversity Representative to CALS	Lankau
Faculty Senate	Smith (Senator), Koch (Alternate)
Friday @ Four	Kabbage

Committees – 2023-2024

Other Service Committees

Plant Pathology Undergrad Advisors ..... Allen, Barak, Gevens, Kabbage, Koch, Lankau, Rouse

Plant Pathology Graduate Council Advisor ..... Allen

Plant Pathology Undergraduate Club Advisor .... Kabbage

Voting Academic Staff ..... Halterman, Mouradian

WSPCP Director..... Gevens

Plant Pathology Graduate Council Representation

Chairperson..... Maxwell O. Chibuogwu

Social ..... Austin VanDenTop

Secretary..... Daowen Huo

Student and Postdoc Seminars Organizer ..... Peihan Shu, Eithan Pozas Rodriguez

Treasurer..... Evan Lozano

Committees are established annually in August. Thank you to all those who have served on standing and Ad Hoc committees and participated in other service assignments during 2023-2024.Your work is appreciated!

Students celebrating the end of Spring Semester 2024 in Russell Labs Plant Pathology Library. Left to right: Julia Wild, Smita Shrestha, Olee Hoi Ying Lam, Afona Irabor, and Madalyn Frank.

UW Plant Pathology in the News – Fall, 2023

Quotes

Person Quoted	Media	Date	Topic/Notes
Dr. Jo Handelsman	*Door County Pulse*	8/30/23	Connecting Climate Change and the Soil-Loss Crisis
Dan Cornelius, J.D.	*Badger Herald*	9/19/23	Center for Integrated Agricultural Systems Partners with Indigenous Communities, Supports Local Indigenous Food Sovereignty
Dr. Claudia Solis-Lemus	*Badger Herald*	9/27/24	Art Exhibit Showcases Data Science Art, Promotes Data Science Careers
Dr. Amanda Gevens	Wisconsin Public Radio	10/5/23	Heat Slows Harvest of Wisconsin Potato Crop, Farmers Worry About Rot
Dr. Claudia Solis-Lemus	*Badger Herald*	10/6/23	WID Symposium Highlights Latinx Scientists
Dr. Jo Handelsman	*The Daily Cardinal*	10/26/23	The Fight for America's Dairyland to Title a State Microbe
Dr. Erin Silva	*The Badger Herald*	11/7/23	Film Shows Mayan Culture, Science is Key for Environmental Issues
Dr. Paul Koch	WKOW-TV	11/8/23	Mulching Leaves: a Healthier Choice for Your Lawn and the Environment Pictured: O.J. Noer Turfgrass Research and Education Facility
Dr. Erin Silva	Wisconsin Public Radio	11/9/23	Head of the EPA Tours Horseradish Farm to Tout Investments in Climate-smart Practices
Dr. Leslie Holland	Futurum Careers	11/7/23	How Can We Improve Cranberry Production
Austin Hall, Student	*The Badger Herald*	12/8/23	Cheese-making Organism May Become State Microbe, Researchers Say

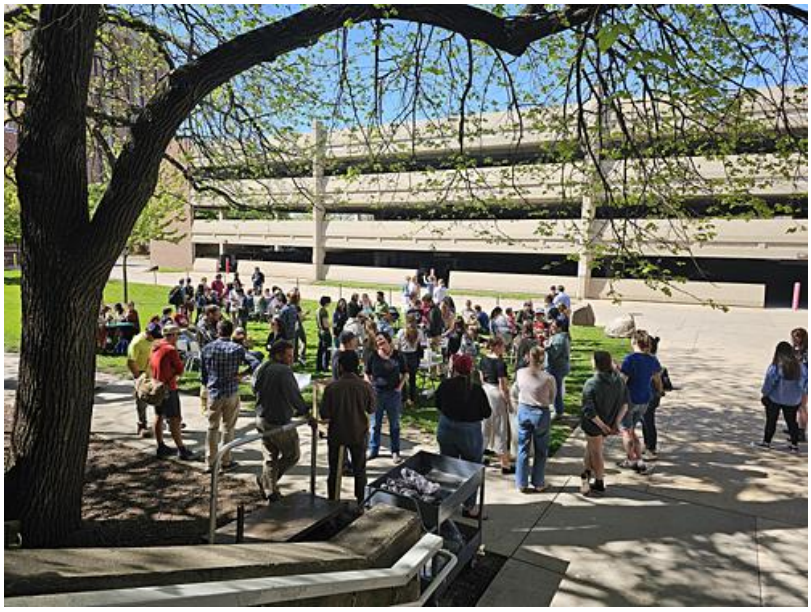
Interviews

Person Interviewed	Media	Date	Topic/Notes
Dr. Paul Koch	TM Milwaukee	9/11/23	UW Turf Day with Grass Court Tennis and Golf Course Techniques Mentioned: O. J. Noer Turfgrass Research and Education Facility
Dr. Leslie Holland	*Mid-West Farm Report*	9/17/23	Fruit Crop Pathologist Talks Disease Pressure

UW Plant Pathology in the News – Spring, 2024

Quotes

Person Quoted	Media	Date	Topic/Notes
Dr. Erin Silva	*Milwaukee Journal Sentinal*	2/15/24	Wisconsin Lost 10 of Farms, 30 of Dairies in Years, U.S. Agriculture Census Shows
Dr. Amanda Gevens	*Spudman*	Feb. 2024	PEI Potato Wart Mitigation Efforts Present a Growing Concern to U.S.
Dan Cornelius, J.D.	*Wisconsin State Journal*	3/4/24	Indigenous Foodways Cass has UW-Madison Students Eating Like it's 1491
Dr. Amanda Gevens	*Spudman*	3/12/24	Technology Provides New Weapons in Battling Blight
Dr. Paul Koch	*Peninsula Pulse*	4/19/24	How Green of a Lawn Do You Need to Have?
Dr. Paul Koch	*Green Bay Press-Gazette via Milwaukee Journal Sentinel*	5/1/24	How Much Do You Know About No Mow May? Here's Some Surprising Facts about the Pollinator-friendly Movement.
Dr. Erin Silva	*Wisconsin Agriculturist*	4/29/24	Control Weeds, Improve Soils with Cover Crops



Communities of the Departments of Forest and Wildlife Ecology, Entomology, and Plant Pathology celebrate the end of the academic year at the 2024 Spring Equity and Diversity Committee sponsored picnic in our Russell Labs 'back yard.'

Welcome, New Faculty!

Peter DiGennaro

My program is rooted in molecular plant nematology. I utilize genomic, genetic and biochemical tools to elucidate the mechanisms by which nematodes cause plant disease and impact crop yield.

My research is largely focused on the root-knot nematode (RKN, *Meloidognye* spp.) due to the genomic tools available and the agricultural impact of this nematode within the state and world-wide. RKN invade plant roots, migrate intracellularly, and form feeding sites known as Giant Cells from plant parenchyema cells. My research aims to identify and characterize the nematode signaling molecules involved in this intimate symbiosis as well as the host responses to nematode parasitism.

Degree	Institution	Major Field	Granted
Ph.D.	N.C. State University	Functional Genomics	2013
B.S.	University of New York at Geneseo	Biochemistry	2007

Emile Gluck-Thaler

I am a mycologist, plant pathologist, and evolutionary biologist fascinated by the ecological genetics and evolutionary genomics of plant-microbe interactions. The long-term goals of my lab are to understand why variation in plant-microbe interactions exists and how adaptive genomic variation emerges. We do this by building new computational tools and integrating molecular experiments with evolutionary analyses of large sequencing datasets.

My lab's ongoing work investigates how differences in microbial genome structure arise and how they impact plant health. For example, we recently discovered and described a new superfamily of giant mobile elements in fungi called Starships. Starships are different from the vast majority of eukaryotic mobile elements because they transpose fungal genes as "cargo". Starship activity causes the gain and loss of genes, including those implicated in pathogenicity and mutualism, giving them vast potential to impact fungal ecology and mediate plant health outcomes. A major focus of my research program centers on using mobile elements like Starships to investigate the origins of variation in species interactions and to generate new knowledge for improving the resilience of agro-ecosystems.

Degree	Institution	Major Field	Granted
Ph.D.	The Ohio State University	Plant Pathology	2019
B.S.	McGill University, Canada	Life Sciences, Microbiology Specialization	2014

In Memoriam

Dr. Luis Sequeira

Dr. Luis Sequeira

Dr. Luis Sequeira, Emeritus J. C. Walker Distinguished Professor of Plant Pathology and Bacteriology at the University of Wisconsin-Madison, passed away in July of 2021. He was born in San José, Costa Rica. He entered Harvard University where he completed his B.A. (cum laude), M.A., and Ph.D. degrees in biology. In his Ph.D. thesis, entitled "Studies on *Omphalia flavida*, the agent of the American leaf spot disease of coffee," he demonstrated for the first time that auxin inactivation by an enzyme of a fungal plant pathogen could lead to a damaging premature leaf drop and defoliation of coffee trees.

From 1953 to 1960, Dr. Sequeira was in charge of research on banana diseases for the United Fruit Company at a small research station in Coto, Costa Rica. During this period, he was introduced to the Moko disease caused by *Ralstonia solanacearum*, which became the focus of research throughout his career. In tracing the origins of an epidemic of this wilt disease, he established the information needed to lead to controls for the disease. He also designed experiments indicating that the continued use of oil sprays for control of the Sigatoka disease of bananas would lead to marked declines in yields.

Following a study leave at North Carolina State University, he joined the Department of Plant Pathology at the University of Wisconsin-Madison in 1960, and initiated an innovative and highly productive research program initially involving studies on the control of lettuce diseases and the disease physiology of R. solanacearum. His studies enhanced the understanding of interactions between bacterial pathogens and host cells. As a result of an analysis of the molecular biology of virulence in R. solanacearum, the use of RFLP emerged as a means of reevaluating the taxonomy and evolution of R. solanacearum. For many years, his laboratory was a major world center for research and training in bacterial disease physiology.

Research achievements in both applied and basic areas have brought Dr. Sequeira international recognition. He released three cultivars of lettuce resistant to corky root disease. He collaborated with others to produce interspecific hybrids of potato from which a bacterial wilt-resistant cultivar was developed.

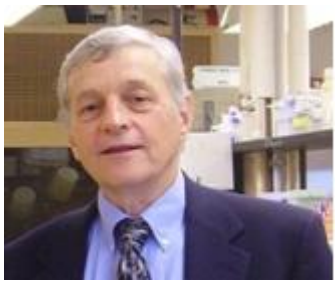
Dr. Sequeira's career also has been distinguished by outstanding contributions in teaching. As a reflection of his skill as a teacher, Sequeira's course in disease physiology became an integral unit in the training of graduate students at the university. He currently shares teaching responsibilities for "Plants, Parasites, and People," a plant pathology course for nonscience majors. In the course of his career, he has made a major commitment in service to The American Phytopathological Society. As president of APS, he initiated program changes and activities that will have lasting influence on future generations of plant pathologists. He served as editor-in-chief for Phytopathology. He was instrumental in the inception of and served as the first editor-in-chief for *Molecular Plant-Microbe Interactions*. As the chief scientist for the USDA Competitive Research Grants Office (1987–1988), he had a major influence on the effectiveness of this program and increased funding particularly in biotechnology research.

In Memoriam

Among many honors, Dr. Sequeira has received the highest awards of APS (the Fellow Award and the Award of Distinction) and was elected to membership in the National Academy of Sciences and the American Academy of Microbiology. Other honors include honorary president, Phytopathological Association of Costa Rica, E. C. Stakman Award, and member of the Linnean Society of London.

As an emeritus professor, Dr. Sequeira continued his commitment to agricultural sciences. He served as director of the APS Office of International Programs and was recently elected to the council of the National Academy of Sciences, and he has served as the chair of academy's Section 62, Plant, Soil and Microbial Sciences, in Class VI, Applied Biological and Agricultural Sciences.

Dr. Thomas L. German



Dr. Thomas L. German

Thomas L. German passed away in August of 2023. He was born in Aurora, IL, and raised in Eau Claire, WI. He received a B.S. degree in zoology (1963) at University of Wisconsin (UW), Madison and a degree in secondary education (biology and chemistry) from UW, Eau Claire (1965). He taught high school biology in Milwaukee (1966–1968), after which he completed his M.S. degree in biological sciences at Michigan State University, East Lansing, MI, in less than one year (1968). German's fascination with viruses led to his Ph.D. degree in plant pathology (UW Madison, 1974).

Throughout his scientific career, German reached for excellence, focusing on asking the best scientific questions and tirelessly working toward understanding very difficult problems. The excellence of his publications across many years speaks volumes, as does his choice to focus on tospoviruses, whose genome is multipartite with negative sense and ambisense strands, characteristics preventing creation of infectious clones and use of reverse genetics. German has worked on the cutting edge of virology to answer fundamental questions about virus infection and vector/virus relationships. His early studies on the localization of viral RNA in Pea enation mosaic virus-infected vesicles presaged very contemporary work on viral-membrane-bound replication factories. He further elucidated the properties of the viral RNA, including excellent micrographs, a very significant and difficult accomplishment at the time. German's interest in plant and animal viruses led to several post-doctoral projects with leaders in virology, including William Dawson (1974–1975), Timothy Hall (1976–1979), Richard Marsh (1980–1983), and Gus de Zoetan (1983–1985). Among his early accomplishments was research with the scrapie agent that resulted in procedures ultimately used to discover prions. In a milestone discovery for understanding viral polymerases, he revealed highly active template-specific RNA-dependent RNA polymerase from barley leaves infected with Brome mosaic virus.

In 1985, German joined the faculty of the Department of Plant Pathology, University of Hawaii, where he led a robust research and teaching program in plant virology that set new standards of excellence for that institution. His discoveries there launched current exciting work being done internationally on tospoviruses and their thrips vectors and laid the foundation for understanding the viral etiology of mealybug wilt of pineapple, a previously intractable problem for the pineapple industry globally. In 1990, he was recruited to UW Madison as an assistant professor and director of the Wisconsin Seed Potato Certification Program (WSPCP), a program he directed until July 2000. In 1995, German advanced to full professor and was elected as chair of the

In Memoriam

Dr. Thomas L. German

Department of Plant Pathology (1995–1998), while he continued to serve as director of WSPCP. In recognition of his cross-disciplinary understanding and leadership in plant virus/insect interactions, German was appointed as a faculty member in the UW Department of Entomology in 2000. He served as chair of the Department of Entomology from 2002 to 2005, becoming the first person in the College of Agriculture and Life Sciences at UW Madison to be elected (not merely appointed) to a chair position in two different departments. In 2010, he was appointed professor emeritus and continues to conduct research and contribute to the campus. German has been an exemplary educator and extraordinarily successful mentor of 11 graduate students, a host of post-doctoral researchers, and many assistant professors. Without question, German's guidance as a major professor has produced the up and coming leaders in tospovirology, plant virus/insect vector interactions, and molecular virology (e.g., Anna Whitfield, Scott Adkins).

At the heart of his success as an educator is his gift for taking complex concepts and making them accessible to diverse groups of people with different levels of understanding. The many invited presentations and media interviews he has done on a wide range of topics are testimony to the respect he has earned internationally. Beyond this, his reputation as a thoughtful, compassionate, and fair individual resulted in many invitations to serve on review teams for departments, research stations, tenure and promotion committees, and grant panels. He has generously served the academy and the professions of virology and entomology in many capacities. German has an extraordinary ability to balance robust teaching and intensive administrative duties, while advancing fundamental research and contributing substantially to applied research and outreach. He has been a leader in understanding the interactions between Tomato spotted wilt virus (TSWV) and thrips vectors. Since 1990, German's research has been cited nearly 1,200 times in refereed articles around the globe, e.g., his article on Tospovirus biology and diagnosis has been cited nearly 200 times, on multidisciplinary approaches to management nearly 110 times, and his milestone discovery that TSWV replicates in its thrips vector has been cited more than 114 times. The latter finding completely altered the context in which we study tospoviruses, impacting our views on all topics from management to host plant resistance to evolution of virus/vector relationships.

German's ability to bring together and facilitate diverse teams of scientists is the hallmark of his leadership. This skill became evident at the first Tospovirus/Thrips Workshop held in the mid-1980s. His leadership and clear communication contributed significantly to the development of a workshop series that ultimately grew into an International Thysanoptera/Tospovirus group that continues to meet every three to four years. These meetings have grown from 15–20 scientists mostly from the United States to more than 100 scientists from nearly 70 countries. German served on the program organizing committee for the largest of these meetings (Asilomar, 2005). His legacy of leadership and excellence continues as his students have assumed much of the leadership of this international group. German has been a selfless collaborator in the international tospovirus arena for 25 years, contributing clear and frequent communication among the leaders of tospovirus research. Without his sustained excellence and leadership, many of the accomplishments in understanding tospovirus biology and vector relationships that have come to bear in recent years would not have been possible.

In Memoriam

Dr. Thomas L. German

Please consider honoring Tom with a contribution to the University of Wisconsin Foundation **Dr. Thomas L. German Student Support Fund – 112680009**. This fund was established to honor Emeritus Professor Dr. Thomas L. German. The fund supports the professional development of graduate and undergraduate students

in the University's Departments of Entomology and Plant Pathology. Students of Entomology will be eligible for the award from the fund in even years (starting 2024) and students of Plant Pathology will be eligible for the award in odd years (starting 2025).

The URL for the fund is: https://supportuw.org/giveto/DrGermanFund

We appreciate your consideration of support to this fund in honor of Tom, his science, his leadership, his mentorship, and his friendship.

Dr. Albert Ellingboe

Dr. Albert Ellingboe

Dr. Albert Ellingboe, an internationally recognized authority on the genetics of plant host-parasite interactions, died on April 10, 2024. He was 93. Over a career that spanned more than 40 years at several institutions, Ellingboe became famous as an astute, independent thinker who challenged dogma, such as the gene-for-gene relationship and the concept of horizontal vs vertical resistance, which he viewed as hypotheses to be tested rather than established wisdom. He criticized the tendency of scientists to over-interpret results from correlations and challenged his colleagues to think critically.

To this end, he was the first, or among the first, in the late 1970s to advocate for a molecular genetic approach to supplement classical genetics; he assembled a research team to do this; and was instrumental behind-the-scenes in the first cloning of an avirulence gene by Staskawicz et al.

A colleague reflecting on the era says "Al really stimulated other people's thinking in important ways". Ellingboe later showed with the rice blast system that the gene-for-gene relationship depends on one or more modifier genes and hence the concept, though appealing, considerably oversimplifies reality.

Albert Harlan Ellingboe was born on April 3, 1931 at his parents' farm in Lakeville, MN. Growing up on the farm set the stage for his career in agriculture, love of the land, and his enduring fascination with tractors.

Following initial studies at Mankato State University, he transferred to the University of Minnesota. He was befriended by the eminent pathologist E.C. Stakman, who arranged introductions and employment as a student hourly worker in various laboratories in the Plant Pathology Department.

He entered graduate school and in 1957 completed research under the direction of J.F. Kernkamp for his Ph.D. dissertation on the black stem disease of forage legumes. Following postdoctoral studies on the genetics of wheat stem rust, in which he was the first to show that recombination can occur in the somatic cells of a

In Memoriam

Dr. Albert Ellingboe

fungus, he was offered a postdoctoral fellowship in 1959 at Harvard to investigate sexuality in Schizophyllum commune. He documented somatic sexual recombination also in that fungus but, even more interestingly, reported the first instance in fungi of recombination of mating-type genes without recombination of the remainder of the genome - a discovery that predated reports of mating-type switching in yeasts by several years.

In 1960 Ellingboe joined the faculty at Michigan State University as cereal crops pathologist, where over two decades he systematically developed the powdery mildew of wheat/barley system as a model to elucidate by genetics combined with cytology all stages of host-parasite interaction. A seminal finding was that resistance is usually expressed before there is any sign of a hypersensitive response.

In 1980 he became director of the Plant Pathology Section of the International Plant Research Institute, San Carlos, CA, where he established the recombinant gene program noted above, renowned for its scientific talent.

In 1984 Ellingboe accepted an offer to join the departments of Plant Pathology and Genetics at the University of Wisconsin-Madison. He and his colleagues developed the Magnaporthe grisea/rice system to critically test the gene-for-gene dogma. They found that each avirulence gene had a second locus that functioned as a dominant suppressor of the avirulence allele.

Al was elected Fellow of APS in 1978 and was frequently invited to speak at prestigious international meetings. The University of Naples recognized him in 1995 with an Honorary Doctorate, and the University of Minnesota with a Distinguished Alumni Award in 2003.

He established a breeding program to select for resistance to chestnut blight and for several years was director of research for the American Chestnut Foundation.

He retired in 2004. Al Ellingboe was of stoic Norwegian lineage and proud of it.

He is survived by his wife Ann, four children, and seven grandchildren.

Submitted by: John Andrews, Doug Maxwell and Craig Grau