PathogeNews

Department of Plant Pathology
2025 Annual Newsletter

DEPARTMENT OF PLANT PATHOLOGY
UNIVERSITY *of* NEBRASKA–LINCOLN

WE ARE NEBRASKA

Here in the Department of Plant Pathology, we're big on making big impacts. Our passion lies in solving challenges at the microbial level that affect sustainable plant productivity. And we do it all while training the next generation of plant pathologists.

We'd love to hear how an advanced degree in plant pathology from UNL will benefit you.

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DEPARTMENT OF PLANT PATHOLOGY

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GROWING COMMUNITY

Front cover photo: This photo shows the conidia of *Pyrenophora tritici-repentis*, the fungus responsible for wheat tan spot, which appear hyaline (transparent) to light brown and are cylindrical or cigar-like, often displaying 4 to 7 transverse septa under the microscope. They serve as the primary inoculum for tan spot, making them the first point of contact between the pathogen and the wheat plant and thereby causing infection. ***Credit***: Janis Fomba, Ph.D. student in Dr. Stephen Wegulo's lab

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PathogeNews is an annual publication from UNL's Department of Plant Pathology.
Editor & Designer: Madilyn McKay
Editor: Amber Hadenfeldt

All Lab Highlights were written by each respective PI. All photos are from faculty, staff, and students within the department, or from the UNL digital photo archive.

Letter

FROM THE HEAD OF THE DEPARTMENT
DR. LOREN GIESLER

Greetings from the Department of Plant Pathology at the University of Nebraska-Lincoln. The past year brought both challenges and continued growth for our department. While we navigated the uncertainty of potential budget reductions, our faculty, staff, and students continued to achieve great accomplishments across our programs.

In December, the Board of Regents approved the merger of the Departments of Entomology and Plant Pathology to form a new integrated school. Throughout 2026, we will work together to define the school's name, mission, and structure, which is an exciting opportunity to shape our shared future. Both of our units see the integration as a way to future-proof our disciplines while creating new opportunities through collaboration.

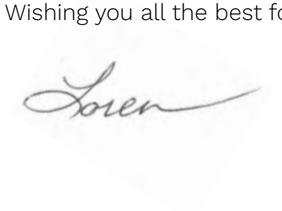
I am so very proud of our faculty, staff, and students who focus on our field of science and all that they achieved in 2025. In this year's newsletter, we highlight the achievements of our lab teams and showcase the work of our community. Our faculty continue to advance discovery and deliver impact across extension, teaching, and research, spanning fundamental to applied science in support of a sustainable and abundant food and fiber supply for a growing global population. None of this could be achieved without our amazing staff and students who work alongside our faculty. Below are a few highlights from 2025.

- Our department supported 1 Ph.D. graduate degree.
- Our students were recognized with 30+ local and national awards.
- Technologist Bhanu Dangi received the Lambrecht Award, which is the result of an endowed foundation in memory of Patricia Lambrecht (Technologist for Anne Vidaver).
- Faculty secured over 2.2M in funding to support their programs in research and extension.
- Madilyn McKay, our Graduate Coordinator, received the Department Service Award.
- IANR Vice Chancellor Mike Boehm returned to the faculty in our department and was elected as APS Fellow.

While this will be the final publication as a Department of Plant Pathology, we are excited about the future. Plant Pathology will continue to be a strong field of science at UNL, and the creation of a new integrated school will ensure its continued impact in advancing "Food Security for All People."

PathogeNews has been a part of our department for decades, and as our community grows through this integration, the newsletter will evolve with a new name reflecting a shared future. Together, our expanded team will build on our strengths to advance Nebraska agriculture and sustainable landscapes, and improve the lives of our global communities.

Wishing you all the best for the rest of 2026!



Letter

FROM THE PLANT PATHOLOGY GRADUATE STUDENT ASSOCIATION PRESIDENT, ERIC PARPERIDES

Over the past few years, the Plant Pathology Graduate Student Association (PPGSA) has developed into a crucial part of our graduate student training. In 2025, we continued to implement activities that have been well-received and developed new ideas to better enrich the student experience. Talking to plant pathology students from Ohio State University, Kansas State University, and other land-grant institutions, I know that our graduate student organization is the envy of other departments. No other university boasts such an engaged and social student body. Our incredible people allow us unique opportunities that other schools do not partake in.

Networking remained one of the core values of PPGSA. Our engagement lunches provided students with opportunities to interact with potential employers. Students met with industry professionals from Bayer and Corteva, and even local seed suppliers. They also learned critical skills such as time management, organization, and grant writing from faculty guests and experts from outside the department. These opportunities helped students develop and provided them with experiences that they might not get from the lab or classroom alone.

PPGSA continued to offer students a variety of ways to learn and communicate science with broader audiences. This past summer, we once again participated in Discovery Days where students work closely with Kyle Broderick to explain core concepts of plant pathology to our community. We hosted a student-led journal club that allowed graduate students to better examine papers they find interesting and discuss it with their fellow students. This club helped expose students to new ideas and techniques found in other branches of plant pathology that they might not otherwise have found on their own. In 2026, we are continuing our highly successful elevator speech contest and expanding it to include all CASNR graduate programs. This has allowed us to have our own internal competition where students gain experience discussing their research to a lay audience in a limited amount of time. These skills are crucial for working as part of a team or communicating crucial information to farmers and stakeholders. PPGSA continued to provide unique opportunities that would not be possible without a strong student body. Most notably, we hosted Claudio Dias da Silva from Kansas State University to visit with our faculty and students. His work impressed many people here in the department and opened avenues for future collaborations. PPGSA is also planning a retreat to Kansas City in the spring. This will act as a follow-up to our group's prior trip St. Louis in 2024 where we visited Bayer and the Danforth Center. We are optimistic that this will kick off a two-year cycle of student retreats for years to come.

These endeavors would not have been made possible without our outstanding officer team, engaged graduate students, and generous faculty support. Currently, our department faces many challenges from funding cuts to our fusing with Entomology. Despite these difficult times, I've watched as PPGSA has grown to represent a powerful throughline that unites labs, cultures, and people. At risk of sounding cliché, I believe that Plant Pathology's best days are ahead of it, regardless of the form our department takes.

PPGSA IN ACTION

2025-26 OFFICERS

President: Eric Parperides
Vice President: Nisha Rokaya
Engagement Lunch Coordinator & Treasurer: Janis Fomba
Secretary: Sujan Gautam
GSA Representative: Biwesh Ojha
Social Chair: Kelvin Muchiri
Journal Club Coordinator: Ben Wheeler

ABOVE: 2025-26 PPGSA Officers (left to right): Kelvin Muchiri, Sujan Gautam, Eric Parperides, Nisha Rokaya, Biwesh Ojha, Janis Fomba, and Ben Wheeler

OUTREACH

ABOVE: Students helped faculty at the Plant Pathology booth at the UNL East Campus Discovery Days Farmers' Market in summer

ENGAGEMENT

ABOVE: Students met with Dr. Dylan Mangel for an engagement lunch in September

SOCIAL

ABOVE: Loren and Keryl Giesler hosted students for a day of holiday cookie decorating

ABOVE: Some PPGSA members took to the badminton court for a friendly match in fall

FOSTERING BELONGING & RECOGNIZING IMPACT

The Department Community Advisory Group is proud to mark four years of supporting Plant Pathology faculty, staff, and students. In 2025, the group continued to host Culture Talks to strengthen our connections and deepen awareness of the global experiences within our community. During the fall semester, participants explored dating and marriage traditions from around the world, while spring discussions centered on animals ranging from beloved pets to mythical creatures, allowing members to share personal stories and cultural perspectives.

This summer, the Advisory Group continued to foster recognition within the department by facilitating the annual Green Thumb and Service Awards. Through this process, nine Green Thumb Award recipients were recognized for their positive impact on the community, as nominated by their peers.

2025 Green Thumb Awardees:

- Irina Agarkova, Research Assistant Professor
- Claudia Barrios, Technician
- Kyle Broderick, Plant & Pest Diagnostic Clinic Coordinator
- Shilu Dahal, Ph.D. student
- Teddy Garcia-Aroca, Assistant Professor
- Amany Gomaa, Ph.D. student
- Libia Gómez-Trejo, Ph.D. student
- Tim Harris, Research Technologist
- Stephen Wegulo, Professor

2024 Service Award recipient Madilyn McKay with Dr. Loren Giesler

The third annual Service Award was presented to Madilyn McKay, Graduate Coordinator, in recognition of her outstanding dedication to graduate students at every stage of their journey. Madilyn is welcoming, compassionate, and dependable and plays a central role in fostering a sense of belonging, supporting student success, and ensuring the smooth operation of key departmental functions. Her professionalism, organization, positivity, and steadfast willingness to assist others make her an invaluable asset to faculty, staff, and students.

Toward the end of the year, we introduced a new community tradition: craft socials. All faculty, staff, and students were invited to relax in a cozy environment and enjoy refreshments, offering a welcoming space to decompress during finals week or other stressful times. Participants could bring their own craft projects or choose from a variety of activities provided, including coloring pages, word searches, and origami. Many attendees even learned how to crochet, making it a fun and creative way to connect with one another.

In the year ahead, the Department Community Advisory Group looks forward to expanding our community, deepening connections, and making an even greater impact together.

FRESH FACES

Kole Black
M.S. Student

Dr. Mike Boehm
Professor

Riley Eisenbraun
M.S. Student

Dr. Ze Tian Fang
Post-Doctoral
Research Associate

Lauren Gabriel
M.S. Student

Naomi Mark
Technologist

Welcome to all new members of our department! We're happy you're here.

GRADUATES

Nawaraj Dulal
Ph.D. graduate, December 2025
Advisor: Dr. Richard Wilson

Dr. Nawaraj Dulal successfully defended his Ph.D. dissertation in November 2025 and graduated in December 2025. Following the successful completion of his degree, he accepted a position as a Post-Doctoral Researcher in the lab of Dr. Richard Wilson, his Ph.D. advisor. **Congratulations, Nawaraj!**

2025 was an exciting year! Read on to learn about what was happening in our labs over the last 12 months.

BOEHM LAB

Members of the Boehm Lab in the GIC greenhouse (left to right): Mike Boehm, PI; Troy Pabst, Greenhouse Innovation Center Manager; Katie Bathke, Research Associate and Ph.D. student (Complex Biosystems Program); Kristen Kater, M.S. student (co-advised with Dr. Teddy Garcia-Aroca); and Sadia Mannan Mitu, Research Intern and Ph.D. student (Biological Systems Engineering)

Outside Room 447 of Plant Sciences Hall, a new sign marks the beginning of the Boehm Lab and reads: Biosensing & Biocontrol / Turfgrass Pathology.

The Boehm Lab in the Department of Plant Pathology focuses on understanding how plants perceive, integrate, and respond to biological, chemical, and environmental signals—and how those responses can be leveraged to improve plant health, resilience, and management. The lab sits at the intersection of plant pathology, microbial ecology, and biological control, with an emphasis on systems-level thinking across space and time.

A central research focus of the Boehm Lab is plant biosensing—the idea that plants can serve as "silent sentinels," detecting and responding to chemical and environmental perturbations before visible symptoms appear. While plants naturally interact with their environments, these responses have historically been considered too variable and context-dependent to function as reliable sensors. Advances in molecular biology, high-throughput phenotyping, data integration, and modeling now make it possible to decode plant signals and distinguish biologically meaningful responses from background variation. Through federally sponsored research, the lab combines controlled greenhouse experimentation with transcriptomic, proteomic, metabolomic, pigment, and spectral analyses, together with mechanistic modeling, to identify diagnostic plant signatures and link early responses to downstream disease and stress outcomes.

Complementing this work, the lab is working with colleagues to smartly reengage in research in biological control and turfgrass pathology, building on long-standing efforts in compost-mediated disease suppression, biological control of Fusarium head blight, and turfgrass disease ecology. Across these areas, the lab emphasizes integration—connecting host, environment, and biotic interactions across time to better understand complex plant systems and to inform sustainable management strategies.

The Boehm Lab is in its early stages at Nebraska, with current efforts focused on building experimental infrastructure, establishing reproducible workflows, and mentoring students and staff into interdisciplinary research roles. In addition to the research focus of the lab, Mike developed and is teaching Biosecurity & Bioterrorism: Science, Security, and Society, and is co-teaching PLPT/ENTO 413/813: Biological Control of Pests and Pathogens with Dr. John Ruberson in Entomology. As the lab continues to grow, the goal is to train students who think ecologically, work collaboratively, and connect fundamental plant pathology

with real-world challenges in agriculture, environment, and security.

In 2025, Dr. Mike Boehm was inducted as a Fellow into the American Phytopathological Society. He was honored with other Fellows at the 2025 APS Annual Meeting in Honolulu, HI. Congratulations, Mike!

GARCIA-AROCA LAB

Left to right: Tessa Fiore (undergraduate student worker), Riley Eisenbraun (M.S. graduate student), Dr. Teddy Garcia-Aroca (PI), and Kelvin Muchiri (M.S. graduate student)

The year 2025 was exciting for the Fungal Ecology Lab in the Department of Plant Pathology at UNL. We continue building for research ideas and approaches that can eventually lead to important discoveries in the intricate world of fungal plant pathogens.

We are constantly hypothesizing about the drivers of evolution and diversity in fungal populations, not just in Nebraska, but across global ecosystems.

Our research focuses on exploring questions about the ecology, evolution, and distribution of soil-borne fungal pathogens in both agricultural and non-agricultural settings. Our approach is to elucidate the genetic variation in pathogen populations, exploring their evolutionary history, and determining the factors constraining their spread, to develop potential ideas or resources that could revolutionize long-term management strategies.

We are committed to bridging the gap between applied and fundamental research in fungal ecology. In other words, we're not just scratching the surface of fungal pathogen biology and ecology, we are determined to provide insights that can be useful to lay the groundwork for innovative solutions in the ongoing battle against plant diseases.

These are the members of our team:

Riley Eisenbraun, who joined our lab as an undergrad and recently transitioned into our MSc program. Riley is working on documenting the genetic diversity and fungicide resistance of Colletotrichum coccodes, the pathogen associated with potato Black Dot and Tuber Blemish.

Kelvin Muchiri, who joined our lab in the summer of 2024 as an MSc student, is currently working on a survey of soil-borne and the species diversity and pathogenicity of Fusarium species associated with soybean in Nebraska. Bithiah Pulliam, a sophomore undergraduate student who joined the lab in the Fall of 2025. Bithiah has been working on a variety of projects related to Fusarium and Clonostachys spp. from soybean systems.

And me, Teddy Garcia-Aroca, contributing to different aspects of our lab efforts to advance our knowledge in fungal ecology, developing exciting ideas for novel research questions, exploring collaborations, and refining teaching strategies.

Over the summer, members of the lab also attended the Mycological Society of America (MSA) meeting in Madison, WI and the Plant Health 2025 meeting in Honolulu, HI. Riley won the second place in the student Pitch 120 competition at the APS Plant Health meeting. In 2025, we also launched our new lab website: www.fungalecologylab.org, where we share updates of what is going on in the lab, exciting news, and or important developments.

We are excited to resume our pursuit of knowledge this spring, with new students and new frontiers of scientific discovery. Our lab is driven by a shared passion for understanding the intricate dance between fungi, environment, and their plant hosts, among and within species diversity, and the factors that drive their evolution. Stay tuned for more exciting updates from the Fungal Ecology Lab as we continue our journey of discovery!

GARCIA-RUIZ LAB

Garcia-Ruiz lab members carrying out research in the lab in the Morrison Center for Virology

Our research is focused on the mechanisms of plant defense responses to pathogens, virus-hosts interactions, particularly the molecular mechanisms of small RNA biogenesis and activity, antiviral immunity, the genetic determinants of plant-virus interactions, and gene silencing. We are also interested in the identification and characterization of cellular genes that condition susceptibility to viruses, and in the mechanisms of virus genome variation. We have developed bioinformatic approaches to profile genome-variation in viruses. The computational approach developed is a fundamental tool for profiling viruses of agricultural importance. Our findings have an immense impact on agriculture, such as molecular diagnostics and engineering of genetic resistance to viral diseases in plants. Part of this knowledge has been translated into more accurate diagnostic protocols for potyviruses. Susceptibility genes provide targets for gene editing and are valuable tools to understand the mechanisms of virus-hosts interactions. In recent publications, we have identified the core genetic components of antiviral gene silencing and shown the effects of the silencing suppressor in overcoming antiviral defense responses. We have also identified small RNAs that transfer from fungi to downregulate the key regulator of plant defense responses. This is a novel pathogenicity effector in fungi. We implement an interdisciplinary approach that combines biochemical, genetic, genomic, computational biology and bioinformatics tools. We use experimental model systems that consist of positive- and negative-strand RNA viruses and model plants *Arabidopsis thaliana* and *Nicotiana benthamiana*, and heterologous host *Saccharomyces cerevisiae*. Our lab is housed at the Morrison Life Science Research Center and is part of the Nebraska Center for Virology. For more information visit the Virus Genomics Laboratory website.

HARVESON LAB

In 2023, when I was asked to participate in a project with microbiologists from Georgia, Ohio, and Florida, we characterized bacterial isolates captured from the stratosphere, appearing to be *Curtobacterium flaccumfaciens* pv. *flaccumfaciens* (Cff), the causal agent of the bacterial wilt disease in dry beans.

Most of the stratosphere bacterial strains were identified as (Cff), but at least one was different enough to be a new species of Curtobacterium (proposed to be called *C. aetherium*).
This one strain was additionally compared to 15 isolates from Nebraska that I had collected over the years, and the *C. aetherium* isolate proved to be identical to a Cff isolate captured from a millet field in Banner County in 2006. This suggests that this specific pathogen has been in Nebraska for a long time, and now could be particularly useful for breeders working to develop new cultivars with disease resistance. Additionally, it is a novel opportunity to contribute to identifying and naming a never-before seen, bacterial pathogen species. This information was published in 2025 from Microbiology Spectrum entitled: "*Curtobacterium aetherium* sp. *nov.*, a polyextremeophilic plant pathogen isolated from the stratosphere."

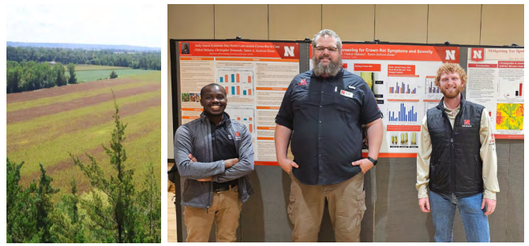
Drs. Bob Harveson and Carlos Urrea in the Panhandle Research and Extension Education Center (PHREEC) greenhouse

My publications have been widely downloaded and viewed in 2025. According to ResearchGate, my published work in 2025 has been either first or second in my department for downloads and views each week (51 weeks the most and once a second) or 98% of the year in total. Specifically, two *Plant Disease* features (published in 2015 and 2019, respectively) have in 2025 both exceeded 6,000 downloads. The articles pertain to (1) the new appearance of bacterial wilt in dry beans (6,113), and (2) 15 years of sunflower disease surveys with the National Sunflower Association (6,280). Another feature concerning a new sunflower virus and its characterization has been downloaded more than 3,000 times (3,596) in less than 36 months.
I have also participated in our Sunflower Pathology Working Group (SPWG) funded by the USDA- Specialty Crops Block Grant program. It consists of 6 pathologists, and our outputs from 2014 to 2025 include more than 700 publications (refereed, Extension, popular press) created by the SPWG members, working on identified sunflower-stakeholder priorities.

JACKSON-ZIEMS LAB

Left to right: Claudia Barrios (Technologist), Brad Tharnish (Research Manager), Dr. Tamra Jackson-Ziems (PI), Kole Black (M.S. student), Chikoti Mukuma (Ph.D student), and Chris Termunde (M.S. student)

2025 was a record year for corn diseases in Nebraska and made for a very busy year for our team members with lots of diverse activity and exciting news!
We're pleased to announce that graduate student Chris Termunde started a new position as Extension Instructor in January 2026 for Phelps, Furnas, Gosper, and Harlan Counties. Congratulations, Chris! Talon Mues has continued in his similar role as an Extension Instructor for more than 1 year and his accountability region has been adjusted to include Dawson, Buffalo, and Custer Counties. Talon was also the recipient of a Nebraska Extension Engagement Award in 2025. He received this award, in part, for his innovative efforts to connect producers and the public with research and educational opportunities. Congratulations, Talon! It's very rewarding to have the opportunity to work alongside my students in Extension as we all serve Nebraska stakeholders. Both Talon and Chris are working full-time in their Extension positions and completing their M.S. theses.



Left: A field showing the differences in fungicide-treated and nontreated control corn fields with heavy southern rust disease pressure. Right: Chikoti Mukuma, Chris Termunde, and Talon Mues stand next to their posters at an Extension event.

We're pleased to welcome Kole Black to our lab team. Kole, originally from Oregon, joined us in summer 2025 in a technical role working alongside Brad Tharnish in our field trials and is now a M.S. graduate student. The objectives of Kole's research project will continue to build on the theme of corn diseases under irrigation and their management with fungicide chemigation.
Chikoti Mukuma continues his Ph.D. work on crown rot helping us understand this complicated and emerging disease in the U.S. Corn Belt. The disease continues to cause concern among growers and the seed industry around the country.

2025 LAB HIGHLIGHTS

Brad Tharnish continues in his role as Lab Manager for our Team, coordinating annual field trials and contributing results toward Nebraska and regional team Extension programs. Claudia Barrios continues to (work with Kyle Broderick and our team) help build the Tailgate Diagnostics Extension program helping users select and use affordable microscopes for disease diagnoses among other projects in the lab.
The increased disease pressure in 2025 created opportunities (and some stress?). Our team members participated in a field-scale experiment (coordinated by Extension Educator, John Nelson) in Cass County comparing efficacy of spray drone versus airplane application of a fungicide. The project was part of the Nebraska (Extension) On Farm Research Network (NOFRN) and our team's data collection and participation in the trial was led by Chris. The site experienced heavy southern rust pressure (and other diseases). SPOILER – Both application methods similarly reduced disease severity and increased yield compared to the nontreated control and created dramatic visual differences (photo by Chris Termunde at left).
In 2025, team members presented their results in the 2025 Plant Health (APS) meeting in Honolulu, the North Central Division meeting of APS in Brookings, SD, the Corn Disease Working Group in Pensacola, FL, and numerous Extension events around the state. Tamra also had the unique and exciting opportunity to travel to South Africa as an invited keynote speaker at the Pantoea Conference in Skukuza, as well as serve as a content expert for the Expert Working Group (EWG) meeting in Paris, France as we prepared a Pest Risk Analysis (PRA) for the European and Mediterranean Plant Protection Working Group (EPPO). Both of these opportunities were related to recent reports of Goss's bacterial wilt and blight (Clavibacter nebraskensis) in South Africa and concern over its potential for further spread and impacts on international corn

(maize) production.
Finally, Tamra was immensely grateful to be selected as the first recipient of the John and Patty Wilson Professorship in Plant Pathology. She is eager to honor John and Patty's wishes to advance applied and extension plant pathology objectives and collaboration in Nebraska. Thank you!

KIM LAB

Left to right: Libia Gómez-Trejo, Lauren Gabriel, Mei Iwamura, Minji Kang, Dr. Ze Tian Fang, Ruben Ruvalcalba Ramirez, and Dr. Saet-Byul Kim (PI)

The Kim lab was productive in 2025, with many talented people and active collaborations.
Dr. Ze Tian Fang joined the Kim lab as a postdoctoral fellow in April 2025. He works on southern corn rust, the most impactful fungal disease of corn, and has also taught basic molecular skills to a few undergraduate students and visiting scholars.
Lauren Gabriel, who interned in 2024-2025, joined my lab as a master's student in August 2025. Her thesis project examines how maize recognizes rust and triggers defense responses. She uses Foxtail mosaic virus-induced gene silencing to study receptor genes in maize. Her ultimate goal is to identify receptor genes associated with maize immunity.
Libia F. Gómez-Trejo received an FFAR fellowship in 2025, which supports graduate students in becoming global leaders in agriculture. About 30 graduate students are selected nationwide by FFAR each year, and two from UNL were selected this time. One is Libia, and the other is from the Entomology department. This has been meaningful because Plant Pathology and Entomology are becoming one school. We hope that merging the two departments will lead to more collaboration and synergistic outcomes in the future.
Dohee from South Korea and Ruben from Mexico joined our lab as visiting scholars, and we have Mei from Japan. Dohee and Ruben said they enjoyed their time and would miss the people. Mei is working hard in the lab, and I hope she learns about more plant-fungal interactions. Two undergraduate students, Grant Nielson and Emily Francis, received UCARE funding and have been working on their own projects. I see they will learn more about plant-microbe interactions this year! We have sad news too. Minji went back to Korea in November 2025. We hope she will get the job she wants.
We had an opportunity to visit a sorghum field this summer to assess sorghum anthracnose in Dr. Schable's Havelock field. We screened about 1000 sorghum lines and learned a lot about sorghum diseases. I believe this is a strong example of great collaboration for us.
Looking ahead to the spring of 2026, we will focus our research on how plants defend themselves against rust pathogens at the molecular level. Overall, despite the busy 2025 schedule, it was a year filled with significant hiring accomplishments, and we believe we will continue to succeed in 2026.

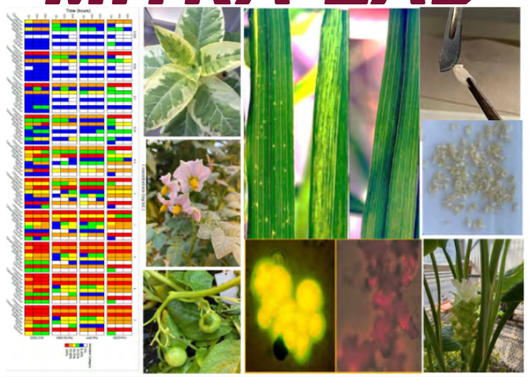
MANGEL LAB

The past year has been a period of growth for the Applied Soybean Pathology Lab as we continue our mission to protect Nebraska soybean yields. Our team has grown significantly to support our increasing research and extension efforts. We are excited to have four graduate students, Roshani Baral, Olivia Dooley, Cooper Hicks, and Thales Rodrigues da Silva (co-advised with Justin McMechan), driving our current projects. Rebecca Higgins and Bhanu Dangi continue to work in the lab as research technologists. We also welcomed Lauren Wilson and Colleen Schmitt, who joined us for our busy summer season.

Mangel lab members (left to right): Cooper Hicks (M.S. student), Lauren Wilson (undergraduate student worker), Bhanu Dangi (technologist), Roshani Baral (Ph.D. student), Dr. Dylan Mangel (PI), Becky Higgins (technologist), Olivia Dooley (M.S. student), and Colleen Schmitt (undergraduate student worker)

A major milestone this year was the establishment of a new research site at the Eastern Nebraska Research and Extension Center (ENREC) near Mead, NE. While we continue to value our partnerships at the Haskell and South Central Ag Labs, the ENREC site offers a unique technical advantage: a permanent underground grid of scheduled sprinklers. However, new space comes with new equipment challenges and we learned a lot working with our new planter and tractor. We are most excited about the level of control and repeatability that these will offer our operation.These advancements in infrastructure are particularly vital as we explore the next wave of plant protection products, including biofungicides and bionematicides.
Finally, we have significantly broadened our extension outreach. To better serve our diverse stakeholders, we have expanded beyond X to include Facebook, LinkedIn, and YouTube. These channels allow us to target content specifically for farmers, young professionals, and the general public. We remain committed to fostering collaboration across the department and invite our colleagues to share research through our new platforms. As we look toward 2026, our lab is better equipped than ever to provide Nebraska growers with the data they need to manage complex disease challenges.

MITRA LAB



Recent research outcomes from the Mitra lab

The Mitra Lab advances crop resilience and quality by engineering disease-resistant transgenic and gene-edited potato, tomato, hop, and pea plants. Leveraging multi-domain antimicrobial peptides, R-gene remodeling, and RNA interference technologies, the lab targets major agricultural threats, including zebra chip disease in potato, viral and bacterial diseases in tomato and wheat, and downy mildew in hop, while also enhancing the nutritional quality of pea.

POWERS LAB

There were three major ongoing research projects in the Powers lab during 2025. Ph.D.

student David Seringo explored the genomics of the nematode *Xiphinema americanum*, a vector of Nepovirus, and the endosymbiotic bacterium required by the nematode to sustain its development. He also submitted a new species description of a *Xiphinema* species endemic to Nebraska tallgrass prairies. Pratibha Karki, a recent M.S. graduate from Dylan Mangel's lab, is leading an effort to genetically characterize endemic species of entomopathogenic nematodes from Nebraska soils.

David Kihoro Sirengo (left) and Pratibha Karki (right) collecting soil samples at 9-Mile Prairie near Lincoln, NE

This project, funded through USDA, the Nebraska Corn Board, and Corteva, focuses on nematodes that inject a lethal bacterium into the Western Corn Rootworm, killing them within 24 hours. Questions of nematode persistence and compatibility with other forms of rootworm management are being addressed. A third NSF funded research effort examines the unique nematodes of the lakes, streams and rivers of the Nebraska Sandhills. Within these waters exist nematodes that can withstand the extremes of high pH and alkalinity found in the western alkaline lakes. The physiology of these nematodes may provide insights into questions of nematode survival. Progress in this project is documented in the Microscopic Marvels section of the Streaming Science website and as a traveling science and art show displayed in 2025 at the Willa Cather Gallery in Red Cloud Nebraska, the Audubon Prairie Pines Center, and in Victoria, British Columbia.

ROJAS LAB

Left to right: Biwesh Ojha (Ph.D. student), Sapana Ghimire (Ph.D. student), Dr. Clemencia Rojas (PI), John McKendry (lab coordinator), Shilu Dahal (Ph.D. student), Dr. Kim Ha Nguyen (post-doc), and Dr. Thiago Maia (Research Assistant Professor)

The Rojas Lab was very active in 2025 communicating our research findings with 22 oral and poster presentations in conferences and we were very happy when some of those presentations received awards. Sapana Ghimire received first place in oral presentations at the Nebraska Plant Science Symposium for her Ph.D. research understanding rice responses to Bacterial Panicle Blight when combined with high night temperatures. Shilu Dahal also received first place in the graduate student poster competition at the UNL Microbiology Symposium for her Ph.D. research using comparative genomics to identify genomic regions encoding antimicrobial activity in the environmental bacterium *Pseudomonas protegens* PBL3.

We also communicated our research findings in three publications. On our research using molecules produced by the environmental bacterium *Pseudomonas protegens* PBL3 to develop effective biopesticides, Shilu Dahal published a component of her research scaling up the production of the *Pseudomonas protegens* PBL3 secretome in a fermentation tank to facilitate further testing in planta (Dahal, et al, 2025. Plant Pathology. doi/10.1111/ppa.70102). Also, related to that project, Biwesh Ojha published his findings that the *P. protegens* PBL3 secretome is broad-spectrum against several plant pathogenic bacteria as well as human pathogenic bacteria (Ojha et al Microbiology Spectrum. doi: 10.1128/spectrum.02669-25). Thiago Maia, in collaboration with Biwesh Ojha and the Proteomics and Metabolomics core facililty, also published his findings on the function of the immune proteins AtNHR2A and AtNHR2B on protein secretion to the apoplast (Maia et al., Phytopathology. doi: 10.1094/PHYTO-07-25-0237-R).

We had a busy summer hosting four undergraduate students from other institutions: Ailanys Cordero-Morales, Melody Chen, Sonya Behrends, and Logan Shreve, as part of the NSF-funded summer research program "Beneficial Bacteria." Those students were mentored by Shilu and our collaborators Chia-Sin Liew and JJ Riethoven at the Bioinfomatics Core Facility and Sophie Alvarez at the Metabolomics and Proteomics Core Facility. The students presented their rsearch at the UNL Summer Research Symposium and Logan Shreve also won first place on poster presentations for his research developing a Python-based program to design spacers for CRISPR-Cas3 gene editing.

We were glad to have Kim Ha Nguyen and Kwang Moon Cho working as postdocs in the lab and making great progress understanding the cellular pathways associated with AtNHR2A and AtNHR2B function. We hope to publish their findings this year. We are also very grateful to Aryee McCabe, Kiyara Grosz, and John McKendry for their valuable contributions to all the projects.

TATINENI LAB

The main focus of Dr. Tatineni's lab research is virus-virus, virus-host, and virus-vector interactions of economically important yellow dwarf viral diseases of barley and wheat, wheat streak mosaic virus (WSMV), Triticum mosaic virus (TriMV), and High Plains wheat mosaic virus (HPWMoV). Since WSMV, TriMV, and HPWMoV are transmitted by the common vector, the wheat curl mite, mixed infections of wheat with two or three viruses are common in growers' fields, resulting in exacerbated yield loss. Dr. Tatineni's lab is working to understand how these viruses cause disease in wheat and identify the host and vector factors required for the completion of the virus infection cycle and use this information to disrupt the virus infection cycle through biotechnological approaches such as RNA interference and gene editing. To achieve these goals, Dr. Tatineni and his team are examining viral gene functions through reverse genetics and biochemical and molecular biology approaches, and identifying host and viral

L to R: Satyanarayana (T.S.) Tatineni (PI), Mritunjoy Barman (Joint Post-Doc with Dr. S. Mondal), Jeff Alexander (Biological Science Technician and Lab Manager), Chi Hzeng (Jensen) Wong (Graduate student), and Mya N. Malusky (undergraduate student)

factors through protein-protein and protein-RNA interaction analyses and bioinformatics. The availability of GFP- or RFP-tagged WSMV and TriMV facilitated the examination of viral genes required for wheat curl mite transmission, movement, disease development, superinfection exclusion, synergistic interactions, and the resistance

mechanisms of Wsm1 and Wsm2 genes in wheat cultivars against WSMV and TriMV. Dr. Tatineni's lab developed RNAi-based dual-resistant transgenic wheat against synergistically interacting WSMV and TriMV, identified determinants of WSMV-TriMV disease synergism, and wheat and wheat curl mite proteins required for WSMV infection and wheat curl mite transmission, respectively. Currently, Dr. Tatineni and his team are working on (1) mechanisms of synergistic interaction between WSMV and TriMV; (2) virus-host interactions of WSMV to identify means to disrupt the viral life cycle and control viral diseases; (3) mechanisms of wheat curl mite transmission of WSMV and virus-vector interactions between WSMV and wheat curl mites to identify ways to interrupt vector transmission; (4) screening perennial wheat lines for dual resistance to WSMV and TriMV and introducing dual-resistant wheat genes into widely cultivated winter wheat cultivars; (5) developing WSMV-resistant wheat through CRISPR targeting wheat genes required for WSMV infection; and (6) examining the diversity and transmission of yellow dwarf viruses infecting barley and wheat.

WEGULO LAB

The Wegulo Lab studies the epidemiology and integrated management of wheat diseases including Fusarium head blight (FHB) caused by Fusarium graminearum and bacterial leaf streak caused by Xanthomonas translucens pv. undulosa. The lab has previously also participated in research on the wheat streak mosaic virus disease complex. Wheat and barley lines in the UNL small grains breeding program are screened for resistance to FHB, stem rust, and leaf rust. Field trials are conducted to evaluate the efficacy of fungicides in controlling head and foliar fungal diseases of wheat including FHB, leaf spots, and rusts. Extension activities include the development and delivery of clientele-targeted educational materials, participation in crop production clinics and field days, and annual wheat disease surveys. The lab is managed by research technologist Naomi Mark and is assisted by several student workers each year. In April, Stephen Wegulo attended the 4th Annual Bacterial Leaf Streak Conference in St. Paul, MN. In August, Ph.D. student Janis Fomba presented a poster titled "Assessing yield loss in winter wheat caused by bacterial leaf streak in Nebraska" at the Plant Health 2025 meeting in Honolulu, HI, and Stephen presented an invited talk titled "Impact of plant diseases and human-induced factors on crop production and food security in Africa" at the same meeting.

Current Wegulo Lab, from left to right: PhD student Janis Fomba, research technologist Naomi Mark, PI Dr. Stephen Wegulo, PhD student Sujan Gautam, and undergraduate students Alykx Wojcik and Halle Paczosa.

In October, Ph.D. student Sujan Gautam presented a poster titled "Characterizing aggressiveness and DON production of Fusarium graminearum isolates with varying triazole fungicide sensitivity (EC50) on two spring wheat cultivars differing in resistance to Fusarium head blight" at the B4U Summit in Chesterfield, MO, and in December, he presented a poster titled "Integrated management of Fusarium head blight in winter wheat in Nebraska" as well as a flash-and-dash talk on the same poster at the National Fusarium Head Blight Forum in Denver, CO. In December, Stephen concluded his journal editing career spanning 23 continuous years during which he edited for the journals *Plant Disease*, *Canadian Journal of Plant Science*, *Australasian Plant Pathology*, and *Crop Protection*.

WILSON LAB

Left to right: Nawaraj Dulal (Ph.D. graduate), Jude Almquist (UCARE student), Nisha Rokaya (Ph.D. student), Sudeep Tiwari (post-doc), Dr. Rich Wilson (PI), Ben Wheeler (M.S. student)

This year, we graduated Nawaraj Dulal, who is staying on in the Wilson lab as a Post-Doc. We said goodbye to undergraduate student researcher Jude Almquist.
In 2025, Nawaraj received the Dean's Fellowship from the UNL Office of Graduate Studies. He presented a poster on our recent findings during the 2025 International Society for Molecular Plant-Microbe Interactions (IS-MPMI) Congress in Cologne, Germany.
Graduate student Nisha Rokaya won the Widaman Distinguished Graduate Fellowship Award and the Milton E. Mohr Biotechnology Fellowship award. She was selected to participate in B4U (Bayer University Mentoring Program), where she strengthened her career development and networking skills through structured mentorship.
PI Rich Wilson served a second year as co-Editor-in-Chief of the journal *Fungal Genetics and Biology*. In 2025, he also became Associate Editor-in-Chief of *MPMI*, in anticipation of becoming *MPMI* Editor-in-Chief in 2026, and now subsequently serves on both the APS Publications Board and on the Board of Directors for IS-MPMI.
The lab was lucky to receive 3 more years of NSF funding to continue our investigations into effector control at the mRNA translation level.
In 2025, Rich Wilson spoke about our new findings at a retirement symposium at Kanas State University for National Academy of Sciences member Dr. Barbara Valent. He was also the opening plenary speaker for the XV Congress of Molecular and Cellular Biology of Fungi at the Centro Cultural Universitario in Merida, Mexico.
Rich Wilson was honored to be nominated for, and grateful to receive, the 2025 Outstanding Postdoc Mentor Award.

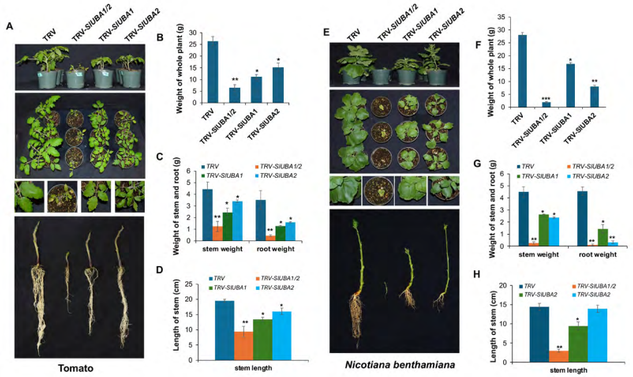
VAN ETTEN LAB

Left to right: Dr. Cindy Jittrapan (visiting post-doc), Bruna Botelho, Clecio Alonso (visiting graduate students), Dr. Tom Petro (UNMC faculty), Dr. Garry Duncan (Nebraska Weslyan emeritus), Antonella Aquilone (visiting graduate student, Dr. Imma Speciale (visiting assistant professor), Dr. Irina Agarkova (research assistant professor), Dr. Jim Van Etten (PI), Nate Knorr (undergraduate student), Dr. Cristina De Castro (visiting professor)

The Van Etten laboratory continues to work on a range of topics associated with the molecular biology, biochemistry, physiology, ecology, genetics, and bioinformatics of viruses that infect certain unicellular, eukaryotic chlorella-like green algae.

ZENG LAB

Chloroviruses are found in freshwater all over the world and they have many interesting and unexpected properties. One property is that the chloroviruses are among the largest viruses known, containing as many as 18 tRNA-encoding genes and 450 protein-encoding genes, including many not previously reported in viruses. These genes encode DNA restriction and modification enzymes, hyaluronan and chitin biosynthetic enzymes, polyamine biosynthetic enzymes, ion channels and transporters, and many glycosyltransferases. The proteins encoded by some of the chloroviruses are either the smallest or among the smallest proteins of their class. Consequently, some of the chlorovirus-encoded proteins are the subject of intensive biochemical and structural investigation. Currently there are over 525 publications on the chloroviruses and their gene products. In the past year, our lab published seven manuscripts on the viruses. This year's publications were in *EMBO Reports*, *Virology*, *npj Viruses*, *Immunobiology*, *ISME Journal*, *Pathogens* (cover photo), and *Viruses*. We have sequenced and annotated about 140 chloroviruses from water samples around the world. We currently have a proposal before the International Committee on the Taxonomy of Viruses (ICTV) to classify the chloroviruses into three subgenera called Alphachloroviruses, Betachloroviruses and Gammachloroviruses. Each genus contains multiple species, with a combined 20 species. We continue to try to determine if some of the chloroviruses might be associated with ALS diseases like Lou Gehrig's disease. We discovered that the virus encoded glycans attached to the major capsid proteins are very immunogenetic in human and mice cells. Furthermore, many humans have antibodies that react with the chlorovirus glycans. We currently have a NSF-EPSCoR-funded project with the University of Delaware, University of Hawaii, and Roger Williams University (Rhode Island) that involves looking for chloroviruses in the unique alkaline lakes located in western Nebraska. There are only two other places in the world that have lakes similar to the ones in Nebraska, which are potassium based. We also have funding from the Stuart Nichols ALS Research Foundation.



Differential roles of ubiquitin E1 genes in growth and development of tomato and tobacco (*Nicotiana benthamiana*)

Deployment of genetic resistance represents the most sustainable and economically viable strategy for managing pathogen infections in agricultural crops. The long-term goal of research in the Zeng lab is to elucidate the molecular basis of plant–pathogen interactions and, consequently, to facilitate the development of novel strategies for breeding enhanced, broad-spectrum, and durable genetic resistance.

Using the model pathosystem of tomato and the bacterial pathogen *Pseudomonas syringae* pv. *tomato*, the Zeng lab made several novel discoveries in 2025 on the roles of ubiquitination—a major posttranslational protein modification—in plant immunity. These findings were reported in the journals Molecular Plant Pathology and BMC Plant Biology. The studies demonstrated that tomato possesses dual ubiquitin-activating systems (DUAS) directed by two ubiquitin E1 enzymes, SlUBA1 and SlUBA2. The DUAS play divergent roles in plant growth, development, and immunity by differentially charging a subset of ubiquitin E2 enzymes. These discoveries open new avenues for identifying key regulatory circuits in plant development and immunity that can be exploited to engineer crops with enhanced yield and resilience.

Additionally, research conducted in the Zeng lab implicated three tomato ubiquitin E2 enzymes—SlUBC32, SlUBC33, and SlUBC34—in endoplasmic reticulum (ER)-associated protein degradation (ERAD) and in plant tolerance to biotic and abiotic stresses. The study uncovered the complex functional relationships among these E2s. ERAD is a critical component of the protein quality control system in plant, animal, and human cells, playing a vital role in stress responses. The Zeng lab's findings establish SlUBC32, SlUBC33, and SlUBC34 as key components of the ERAD machinery in tomato, an important horticultural crop.

In 2025, Dr. Zeng continued teaching two courses: PLPT 418 Microbial Genetics and Genomics and PLPT 801 Biology of Plant Pathogens, which serve as core courses in the UNL Microbiology program and the Plant Pathology graduate program, respectively.

FUNNELL-HARRIS RETIREMENT

Deanna Funnell-Harris, USDA-ARS professor and research plant pathologist in the Department of Plant Pathology, retired after 23 years of service at Nebraska and more than 35 years in this field. Funnell-Harris is from Costa Mesa, California, and became interested in plant pathology as an undergraduate studying natural resources at the University of California, Berkeley, including plants and fungi and their interactions — pathogenic or symbiotic. She went on to earn a doctorate in plant pathology from the University of Arizona. At Nebraska with the USDA-ARS, Funnell-Harris' research focused on delineating key aspects of plant-fungal interactions, particularly pathogens that infect grain and other crops. A significant portion of her research demonstrated, for the first time in any crop, that sorghum lines with reduced lignin content did not have increased susceptibility to pathogens and, in some cases, showed increased resistance — challenging widely held assumptions about the role of lignin in plant defense. She received over $2.6 million in grants from the USDA NIFA and the U.S. Wheat and Barley Scab Initiative to support her research on sorghum and wheat pathogens. Funnell-Harris served as a mentor for a U.S. Wheat and Barley Scab Initiative-supported graduate student and formally served on 13 other University of Nebraska–Lincoln graduate committees. She served on the editorial boards of two major plant pathology journals, as vice president and president of the North Central Division of the American Phytopathological Society, and as vice chair and chair of two APS committees. She was promoted to professor in 2019. In retirement, Funnell-Harris looks forward to traveling with her husband, volunteering for her favorite causes, and moving back to the drier and warmer Southwest.

Celebrating at the USDA Retirement Party, left to right: Dr. Loren Giesler, Dr. Scott Sattler, Dr. Deanna Funnell-Harris, and Dr. David Holding

UPDATES FROM THE PLANT & PEST DIAGNOSTIC CLINIC

P&PDC Coordinator, Kyle Broderick

2025 – what a fun year to be a plant pathologist! Higher than normal moisture, extended cloud cover, and cooler than normal temperatures created ideal conditions for many diseases in Nebraska. Unfortunately, that didn't result in a major uptick of samples but the P&PDC still received 1,259 samples from 9 different states, resulting in 2,682 unique diagnoses. As is often the case, most of the samples were from row crops (corn, soybeans, and wheat), though there were a fair number of landscape/horticultural samples as well. Two of those "non-ag" samples ended with reports that became evidence in a wrongful death lawsuit in Texas. While samples like this are never fun to work on, it was positive to provide some help to the client who had tried to send material to 4 other diagnostic clinics at Land Grant Universities in other states.

The P&PDC continued to process plant disease samples for the Nebraska Department of Agriculture (NDA), receiving 160 samples of material that is leaving or coming into the state. Luckily, there were no samples received that needed "regulatory" action. For the first time in Nebraska, the aster yellows phytoplasma was identified on soybean. This phytoplasma most commonly affects plants in the landscape, such as prairie coneflowers, but has a very broad host range and can also cause disease on a range of agricultural crops including wheat oats, and sunflower.

Systemic bacterial wilt of corn caused by the bacterium *Clavibacter nebraskensis*. Note the bacterial attacking the corn's growing point and large amount of bacteria that ooze out with minimal pressure applied.

Early in the season, most of the samples coming into the clinic were due to bacterial diseases, with a lot of bacterial stalk rot and systemic Goss's wilt of corn being the most common. While southern rust of corn tended to steal the show, the unique environment led to some diseases that typically are not common in this part of world – including Curvularia leaf spot on corn and sorghum ergot. Neither of which are new to Nebraska but certainly are not commonly seen either.

For most of 2025, a student in the Doctor of Plant Health program interned in the diagnostic clinic. Lilly Buchholz, originally from Wisconsin via an M.S. at the University of Hawaii, spent the summer learning about all the abiotic factors and non-pathogens that negatively impact plants in the environment. Even though most people want to blame "the blight" or "the fungus," over the years ~90% of the samples submitted by homeowners are more affected by adverse abiotic conditions than pathogens.

Additionally, the P&PDC received some national press in 2025 due to a couple of high-profile cases of plant pathogens being moved internationally without having the proper permits. These cases highlighted the lack of knowledge that most of the public has about pathogens and microbes in general, and it was nice to be able to provide some context about how widespread certain pathogens are and the importance of monitoring pathogen movement across borders. It was also a good lesson in how difficult it is to discuss nuance in a 6-minute spot...

Sorghum ergot caused by the fungus *Claviceps africana*. This disease causes white fungal bodies that replace the seed and produce a sugar-rich exudate called honeydew. Secondary fungi often colonize the honeydew, leading the sorghum heads to have a darkened appearance.

Outreach events were also a big part of the P&PDC in 2025, hosting booths at UNL's East Campus Discovery Days as well as the state FFA convention. These outreach events tend to be pretty popular with the public and provide a great opportunity for grad students to get experience communicating their science to the public and gain experience doing "extension work." This was our first year soft launching Tailgate Diagnostics. This program explores the use of cheap, readily available magnification tools for the public to identify plant health problems. Thus far, we haven't had great luck identifying an inexpensive and durable tool that has high enough resolution to differentiate morphologically similar conidia, but we've conducted a couple of trainings where the clientele could at least see *something* under magnification.

Plant Pest and Diagnostics booth at the Nebraska State FFA Convention. Pictured left to right is Chris Termunde, Janis Fomba, and Claudia Barrios.

PLANT PATHOLOGY AWARDS

The Department of Plant Pathology offers annual department-specific awards.

The Robert M. Goss Scholarship honors the legacy of Dr. Robert M. Goss, a pioneering plant pathologist who served as one of the founding faculty members of the Department of Plant Pathology at the University of Nebraska–Lincoln in 1920. Dr. Goss was instrumental in the identification and early research of Goss's bacterial wilt and blight of corn, a disease that continues to impact the largest acreage commodity in Nebraska.

Honoring Dr. Robert Goss, the **Goss Memorial Scholarship** has been actively supporting outstanding graduate students since 1971. It was developed to help defray expenses for students who are presenting research at regional and national/international meetings, attending and participating in relevant workshops, or any other appropriate scholarly activity beyond the normal execution of their research. In 2025, the Goss Award recipients were Shilu Dahal and Nawaraj Dulal.

The **PPGSA Professional Development Award** is used as financial assistance for travel to scientific meetings or to attend workshops and training events. In 2025, there were 12 recipients of the award: Roshani Baral, Shilu Dahal, Olivia Dooley, Nawaraj Dulal, Janis Fomba, Sujan Gautam, Sapana Ghimire, Amany Gomaa, Libia Gomez-Trejo, Kelvin Muchiri, Chikoti Mukuma, Biwesh Ojha, Eric Parperides, Nisha Rokaya, David Kihoro Sirengo, Ben Wheeler, and Jensen Wong.

The **Lambrecht Award for Technologists** recognizes the contributions of technologist Patricia Lambrecht to the science of plant pathology, the laboratory of Dr. Anne Vidaver and others, and assistance to the department in mentoring students, technicians, and post-docs in various techniques and practices in plant pathology, especially those connected with bacterial plant pathogens. The award is primarily for the furtherance of the awardee's education, attendance at conferences and meetings, travel to meetings and experimental sites, or other activities. In 2025, the recipient of the Lambrecht Award was Bhanu Dangi, technologist with Dr. Dylan Mangel.

Congratulations to all recipients of awards and scholarships in 2025!

Amy Timmerman, John Wilson, and Dr. Loren Giesler

The John and Patty Wilson Professorship in Plant Pathology

"A Legacy Rooted in Relationships"

Many within the Department of Plant Pathology recognize the name of John Wilson. Over more than four decades serving as a UNL Extension Educator in Burt County, John worked closely with extension pathologists and nematologists to help Nebraska farmers manage some of the most significant disease challenges affecting their crops. His work was especially impactful in advancing efforts to address soybean cyst nematode through collaborations with Drs. David Wysong, Tom Powers, and Loren Giesler.

Throughout his career, John built meaningful and enduring partnerships with Plant Pathology faculty. His collaboration with Loren Giesler was particularly influential, spanning international travel and extensive educational programming focused on soybean cyst nematode. Together, they developed programs that translated research into practical, impactful tools for growers. From travels to Brazil studying soybean rust alongside then-student Amy Timmerman to presenting at conferences around the world, their work exemplified a shared commitment to advancing plant health through partnership and outreach. This long-standing relationship ultimately helped to inspire John and his wife Patty's extraordinary generosity to the department.

In 2021, the Wilsons connected with the University of Nebraska Foundation with a simple goal, to give back. With no expectation of recognition, they established an endowed Plant Pathology fund, creating immediate impact for the department for student support.

Building on this foundation, the Wilsons made a transformative decision in 2024 to establish the department's first named professorship with a focus on Extension. Their vision recognizes the critical role Extension plays in connecting science to stakeholders and ensuring that research translates into real-world solutions for Nebraska agriculture.

In fall 2025, Dr. Tamra Jackson-Ziems was named the inaugural recipient of the John and Patty Wilson Professorship. A Corn and Sorghum Diseases Extension Specialist, Tamra's work spans key disease challenges including tar spot, bacterial leaf streak, Goss's bacterial wilt and blight, fungicide use, and plant-parasitic nematodes of corn. Since joining UNL in 2005, she has delivered more than 180 invited presentations across 16 states.

The Wilsons' generosity ensures that the field of Plant Pathology can continue to recruit and support outstanding faculty who are dedicated to serving producers, advancing science, and strengthening communities. We are profoundly grateful to John and Patty for their vision, partnership, and enduring commitment to Plant Pathology.

At right: John Wilson, Larry Ziems, Dr. Tamra Jackson-Ziems, Patty Wilson, and Dr. Loren Giesler

The Department of Plant Pathology is on a trajectory to be a leading institution in our field of science. As we continue to grow our department, there is a consistent need to support faculty, staff, and students in ways that inspire our community and strengthen relationships in order to build connections.

The Plant Pathology Department Excellence Fund has been established to provide opportunities for future students and our department community. It is critical that our students are exposed to a diverse set of experiences to help them become effective leaders. Teamwork, leadership, interpersonal skills, collaborative projects, community outreach, teaching, and communication with diverse audiences are examples of qualities we want our students to grow in by encouraging their participation in rewarding activities.

Please consider donating to this fund to ensure opportunities continue that build our community of professional plant pathologists at UNL. To contribute to this fund, please visit: go.unl.edu/plantpath-excellence

University of Nebraska FOUNDATION

DEPARTMENT OF PLANT PATHOLOGY