

The DPH Practitioner

“Educating Leaders for Tomorrow’s Sustainable Plant Production Systems”

A Note From Dr. Bradshaw...

I hope you have all enjoyed the start of spring as much as I have! While I’ve been busy with “Team Sawfly” at UNL and in connected collaborations related to my research program with dryland agroecology, I’ve also taken the opportunity to connect with numerous alumni, potential students, and DPH residency partners. In fact, in this issue, you will find a spotlight on one of our key student residency partners, RD4AG as well as an update from one of our alumni, Chris Chen, who now works for RD4AG! I had a wonderful time meeting with alumni, many who work in plant health, at the National Association of Independent Crop Consultants (NAICC) Annual Meeting in San Antonio in January. We are so thankful to NAICC and for their support in offering us a booth at their Expo and we look forward to engaging with their members further in the future! I traveled out to Rexburg, Idaho earlier this year to meet up with alumnus Chris Wynn where we staffed a recruitment booth together at his alma mater’s Winter Career Fair at BYU-Idaho. We are so fortunate to have such passionate alumni, like Chris, who are eager to share their story with potential DPH applicants! We are very excited to share this issue with you where inside you will read from our newest student, Lilly Buchholz, and the many amazing things that our students are doing and have planned for this year! Additionally, Thomas Wilbur Davis discusses some of his work which has been under the advisement of Dr. Gary Hein. Thomas begins his DPH residency this summer with another one of our residency partners, Midwest Research!



Jeff Pictured with DPH alumnus, Dr. Chris Wynn at BYU-Idaho Winter Career Fair



Jeff Pictured with DPH alumnus, Dr. Zach Rystrom, at NAICC



Jeff Pictured with DPH alumnus, Dr. Chris Chen, at NAICC



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Welcome to the Doctor of Plant Health newsletter



The Doctor of Plant Health program at the University of Nebraska–Lincoln is an innovative model for educating plant health practitioners. DPH is a professional degree parallel to a medical or veterinary degree, but instead, graduates are prepared to understand and diagnose plant health issues and manage the entire plant production system. Our program provides coursework and internship experiences that prepare you to make a difference in tomorrow's agriculture.

Graduates of the Doctor of Plant Health program are in demand worldwide for their comprehensive knowledge and experience, resulting in 100 percent job placement.

Interested in us? We're interested in you! Contact Dr. Jeff Bradshaw, DPH program director, at jbradshaw2@unl.edu, or call 402-472-3365 for more information. We look forward to visiting with you.

New DPH Student - Lilly Buchholz!



My name is Lilly Buchholz. I was born and raised in Wisconsin. In 2019 I earned my B.S in Plant Pathology from the University of Wisconsin - Madison. After graduation, I worked as a research assistant at the University of Wisconsin studying fungal associations and pesticide efficacy.

In 2021, I began my master's degree at the University of Hawai'i at Manoa. My thesis covered fungicide efficacy for the management of coffee leaf rust and anthracnose on coffee. In addition to my thesis work, I had the opportunity to work on a few entomology projects with my lab mates. After graduation I briefly worked as a lab assistant at the

University of Hawai'i and helped maintain colonies of coconut rhinoceros beetles and assisted in various potato virus testing.

Now in Nebraska, I look forward to the Doctor of Plant Health program and being able to study all aspects of plant health. I am excited to become a more well-rounded plant pathologist and to learn more about how we can make the work we do more accessible to many different groups of people.

Lilly, Welcome to the University of Nebraska!

THE MISSION OF THE DOCTOR OF PLANT HEALTH PROGRAM AT THE UNIVERSITY OF NEBRASKA-LINCOLN

is to produce plant practitioners with broad expertise and experience across the various disciplines that impact plant health and plant management. These plant practitioners (plant doctors) will integrate from across this expertise to diagnose and solve plant health problems and to develop integrated plant and pest management systems that maximize the system's economic, environmental, and social sustainability.

Residency Partners Feature:



RD4AG is a contract research organization that provides agricultural research and development services to a wide range of clients, testing new agricultural technologies at its facilities in Arizona and Montana. RD4AG has been collaborating with the DPH program for over 10 years, hosting four DPH students as interns, and subsequently adding two of these interns as permanent staff in management roles once they completed their degrees. Most recently Dr. Xinzheng “Chris” Chen joined the company as the Technical Team Leader, bringing excellent technical knowledge and collaborative energy to the team.

Research Director Steve West comments, “My team has benefited greatly from the DPH program, since the students arrive with a solid background of the multidisciplinary subjects that RD4AG deals with in its environment of fast-paced multiple crop research programs. I am also thrilled that two of our past DPH interns or team members have since moved into senior roles in product development for global companies.”

The DPH students who have interned at RD4AG have gained valuable experience and exposure to a diverse and dynamic plant health industry. This environment has given the interns an opportunity to work with more crops than they would in Nebraska, such as lettuce, broccoli, cauliflower, tomatoes, peppers, melons, cotton, alfalfa, and wheat. The wide range of research programs, including biostimulants, seed varieties and novel plants, biotechnology, insecticides, herbicides, fungicides, fertilizers, and plant growth regulators also provides diverse opportunities for learning. Students are introduced to numerous types of farming and research equipment, including irrigation methods with hands-on experience. Some of the most exciting developments in this research include the use of very novel methodologies for evaluations, with an emphasis on image-based systems whenever possible.

RD4AG and the DPH program have had a successful partnership because they share a common vision and mission for plant health, showing how the private and academic sectors can work together to enhance the knowledge and skills of plant health professionals and deliver innovative and effective solutions to the agricultural industry. Both are committed to advancing the science and practice of plant health management using an integrated and interdisciplinary approach. They are also passionate about training and mentoring the next generation of plant health professionals, who will face the challenges and opportunities of a changing and growing global agricultural system.



DPH Students - Semester Wrap-up & Summer Plans

Garrett Kuss

This semester seemed to fly by with classes, crop judging competitions, being a part of the UNL plant science symposium planning committee, and traveling to conferences across the Midwest! I had the opportunity to attend the Texas A&M plant breeding conference with Tyler Prow, where we heard professionals across the country speak on systems such as cotton, grain sorghum, wheat, and many others. As part of my teaching assistantship, I chaperoned the undergraduate agronomy club to their annual SASES (Students of Agronomy, Soils, and Environmental Sciences) conference in Columbus, Ohio. We heard from Than Hartsock, the Vice President of Precision Upgrades at John Deere, where he shared the exciting future of technology in agriculture and the opportunities it will open for young professionals early in their careers.



Garrett & Tyler at Texas A&M



The Crops team competed in our national contest in April, traveling to Twin Falls, ID. As a team we placed sixth of the 13 schools and 20+ teams that attended.

This summer I will be traveling to the San Joaquin Valley of California for my internship with Corteva Agrisciences focusing on field research in grapes, citrus, and tree nut systems.

Tyler Prow

In between plant pathology classes, Tyler was able to travel to several conferences this semester. In February, Tyler and fellow DPH-er Garrett Kuss were able to attend the Texas A&M Plant Breeding Symposium in College Station, Texas. Highlights of the symposium were talks on cotton breeding and grain amaranth, as well as interacting with students from the A&M community. Other trip highlights included exploring College Station (try 1775 Texas Pit BBQ if you're ever in town!) and making a day trip to Waco. In early April, Tyler attended a Society of American Foresters conference in Pierre, South Dakota, a joint meeting of the Great Plains and Dakotas chapters. Along with other students and faculty from the UNL Regional & Community Forestry program, Tyler toured UNL's Barta Brothers Ranch, listened to talks on forest health and windbreak design, and explored the sights of South Dakota.

This summer, Tyler will be staying in Lincoln to work with USDA APHIS PPQ as a plant protection & quarantine technician, focusing on insect surveys and forest pests. He is excited to learn more about federal service and the exciting field of forest health.



Alex Angel



Alex plans to have an action-packed summer. On the professional front, he will be doing educational consulting work and traveling to visit organizations in Michigan, California, Sao Paulo, Brazil, and Pays de la Loire, France. While abroad, he will connect with friends and colleagues. On the formal education front, Alex will be enrolled in this summer's Plant Disease tour with Dr. Tamra Jackson-Ziems and will be taking a soil science class. Personally, he hopes to continue to work towards his goal of visiting every county in the United States by focusing on the Northern Plains.

Thomas Wilbur Davis

This spring semester has been filled with exciting opportunities to contribute to science and the field of Plant Health. In March, I had the privilege of judging projects from the Southeast region of Nebraska for the Nebraska Junior Academy of Sciences (NJAS) State Science Research Competition. It was a rewarding experience to be on the other side, evaluating the quality of young researchers' work and providing guidance through comments that may shift the work they do on a positive side. In April, I continued my involvement with NJAS by serving as a judge at the state level during the 2024 NJAS State Science Fair held at the Nebraska East Union. The enthusiasm and dedication displayed by these young scientists were truly inspiring.



"Thank You Certificate" for judging the state science fair.



Presenting at NAS 134th Annual Meeting

Attending the Nebraska Academy of Science (NAS) 2024 Annual Meeting in Lincoln was another highlight of the semester. I had the opportunity to present an oral talk, sharing my research findings with colleagues and engaging in valuable discussions. The NAS Annual Meeting provided a platform to network with experienced scientists and stay updated on the latest advancements in various fields.

Looking ahead to the summer, I am excited to begin my internship with Midwest Research Inc. My work will focus on assisting in various aspects of agronomic research trials, including pesticide, biological, and fertilizer efficacy tests, GMO trait assessment, pesticide residue analysis, and product demonstrations. I will also be involved in establishing and maintaining research plots, collecting data, and assessing plant health, diseases, insects, and weeds. Processing the collected data using various computer software will be another key responsibility during this internship.

In addition to my internship, I will be attending the APS 2024 Plant Health Conference in Memphis, Tennessee from July 27-30. My abstract, "Effect of soil nitrogen levels on wheat streak mosaic virus symptom expression and physiology in wheat plants," has been accepted as a poster presentation. This conference will provide an excellent opportunity to present my research, learn from experts in the field, and network with fellow plant health professionals.

Continuing my work from last summer, I am currently collaborating with the Arthropod Vectors of Plant Pathogen Lab at the UNL Department of Entomology. We are setting up insect traps and collecting data across various locations in Nebraska to determine the dominant strain of barley yellow dwarf virus infecting cereal crops and its efficient aphid transmitter. This research will contribute to developing effective management strategies for this economically important virus.

As I reflect on this semester and look forward to the upcoming opportunities, I am grateful for the support and guidance provided by the Doctor of Plant Health program. These experiences have not only enhanced my knowledge and skills but have also fueled my passion for advancing plant health through research, education, and service.



Thomas setting up insect traps and labeling them.



DPH Students - Semester Wrap-up & Summer Plans

Joshua Villazana



In January, Josh traveled to Mexico and got to try some tasty eight and six legged treats along the way! He's looking forward to taking another trip but this time the epicenter of Brood XIX and XIII periodical cicada emergence in Springfield Illinois.

Early Spring Josh started a new position with the Nebraska Department of Agriculture as an Agricultural Inspector for Animal and Plant Health Protection under the Entomology Program covering Northeast Nebraska in a *stylish grey van*.

The mission of the Entomology Program is to protect Nebraska's agricultural, horticultural, and environment from the introduction and establishment of plant pests, and facilitate the export of Nebraska plants and plant products. This is accomplished by conducting plant pest (insects, plant diseases, and nematodes) surveys, plant quarantine compliance inspections, plant pest eradication programs, nursery stock certification programs, and the certification of plants and plant products for export. [Click here to learn more.](#)

Josh and his coworkers (Amber on the left and Kathleen on the right) talked to 4th and 5th graders from multiple school groups about spongy moth, spotted lantern fly and NDA's survey and detection program at Platte River State Park and Fort Kearny State Historical Park for the Outdoor Discovery Program offered by NE Game and Parks.



He wishes everyone good spirits and warm weather!

Help us grow the Earle Raun Plant Health Fund



Earle S. Raun, Ph.D.

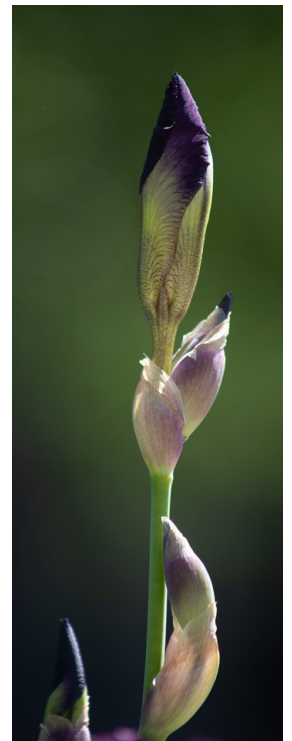
The Earle S. Raun Doctor of Plant Health Graduate Student Support Fund was created to honor Earle Raun's efforts in establishing the University of Nebraska-Lincoln's plant health program and his professional contributions to crop consulting and agricultural education.

In addition to his work at UNL, Dr. Raun created Pest Management Company — the first independent crop consulting firm in the Midwest specializing in research and advice on pest management and crop production — and was instrumental in founding the National Alliance of Independent Crop Consultants and its Nebraska affiliate, the Nebraska Independent Crop Consultant Association. Contributions to this fund will enable UNL to offer fellowships for Doctor of Plant Health students.

For more information, contact Doug Carr at doug.carr@nufoundation.org or Jeff Bradshaw, Ph.D., at jbradshaw2@unl.edu.



To give, go to nufoundation.org or scan this QR code.



DPH Alumni Updates

Dr. Adam Striegel (2021 Graduate) This is the second year I have been involved in a graduate student mentorship program to expose graduate students at Iowa State to job opportunities within Bayer Crop Science (R&D). My mentee this year, Evy, is an interdisciplinary MS student in entomology and plant pathology studying green mungbean with Dr. Daren Mueller and Dr. Matt O'Neal. Dr. Brett Lynn (2022 Graduate) and I have been tapped by our current managers to evaluate the use of drones to capture weed control (e.g. inverse ground cover) and potential plant phytotoxicity (NDRE/Red Edge) in small-plot RCBD projects.



We are both evaluating stewarded seed trials for Bayer's next herbicide-resistant soybean offering: 2,4-D, dicamba, glyphosate, glufosinate, and mesotrione. We will also do another year of testing around Bayer's HG12 Phytoene desaturase inhibitor herbicide, diflufenican which has promising efficacy on Amaranthus species (Palmer amaranth, waterhemp) at PRE.

I am co-chair of the North Central Weed Science Society's Resident Education Committee, and will be assisting this summer with the regional Weeds Contest in Indiana, to be hosted by ABG Ag (a third-party independent research contract group).



Dr. Justin McMechan (2016 Graduate) was promoted to Associate Professor with Tenure in UNL's Department of Entomology. ***Congratulations, Justin!***

Dr. Chris Wynn (2019) is now the Market Development Agronomist for the Pacific Northwest for Winfield United/Land O Lakes. He will assist the Seed, Sales, Crop protection, regulatory and marketing teams. He will provide recommendations and guidance on how to best handle different crops and markets within the Pacific Northwest, as well as Montana and North Dakota. He will also assist in reviewing and trialing new technologies and products that Winfield United wants to possibly add to our portfolio. As the company grows along the west coast, He will provide agronomic knowledge and expertise on how best to enter those markets.



"The DPH has prepared me well for this role. This role encompasses many different areas of Ag and with my multi-disciplinary background and education I can hit the ground running."

Dr. Chris Chen (2022 Graduate) RD4AG has provided many learning experiences. My work entails conducting research such as growth stimulation, herbicide application, and insecticide development. This hands-on experience allows me to engage with different crop varieties and cropping systems. The main vegetation we are currently working with is lettuce, cabbage, corn, strawberries, watermelon, and a few others.

One of the advanced systems I've recently gotten to learn is the automated GPS. The system allows us to spray different treatments at a single pass using each plot's GPS coordinates from start to end. We have finished more romaine lettuce trials and continue our lettuce quality analysis on bolting and compactness. We currently connect an electronic tablet to take images and check the image quality of the lettuce.

There is still much to learn and new experiences with different varieties and projects as various clientele have different goals. With that said, the company is always welcoming interns from the DPH program to practice their knowledge here.





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