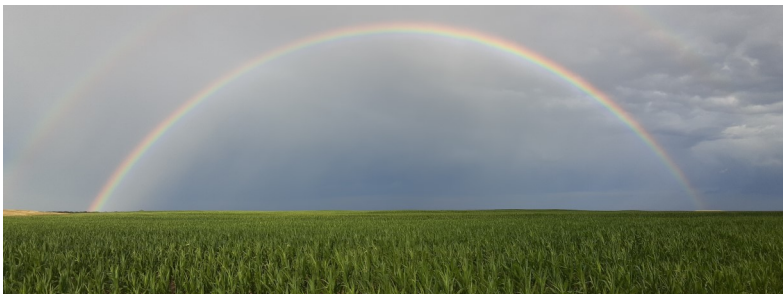


The DPH Practitioner

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

Greetings from the Doctor of Plant Health Program at UNL. The challenges through the last year have added up for all of us. Beginning last March when the COVID crisis hit, students moved to all on-line classes and some students found this more challenging. However, students and faculty responded well and completed the year. Also during this time, the DPH students were making plans for summer internships and research/work opportunities. There were concerns about whether they would be able to even go on internship. However, most received clearances from their employers as their assignments in agriculture were identified as essential services. This perspective during this time points out the importance of what we do in agriculture and its benefit to society.



For most on internships, social distancing was not too difficult when working in the field, but the COVID restrictions impacted their experiences by limiting interactions with employers and networking with other professionals. The students showed their resiliency, and all had very good experiences. With eight students travelling across seven states for internships, I was especially glad to see all travel out and return safely.

Through the last year, we have all had personal and professional challenges to work through. It will be important to remain cautious and vigilant, but we encourage you to move forward with optimism.

We look forward to six more graduates of the DPH program in May going out to establish impactful careers. We also invite prospective DPH students interested in leading the development and management of future sustainable agricultural systems.

Doctor of Plant Health
University of Nebraska-Lincoln
279E Plant Sciences Hall
P.O. Box 830933
Lincoln, NE 68583-0933

Phone: (402) 472-3365

Email: dph@unl.edu

www.dph.unl.edu



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DOCTOR OF PLANT HEALTH

DPH Faculty Steering Committee Members

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Dr. Chuck Francis, Professor, Agronomy/Horticulture

Dr. Loren Giesler, Professor and Head, Department Plant Pathology

Dr. John Lindquist, Professor, Agronomy/Horticulture

Dr. Lance Meinke, Professor, Entomology

Dr. Ellen Papanozzi, Professor, Agronomy/Horticulture

Dr. Anne Vidaver, Emeritus Professor, Plant Pathology

Dr. Brian Wardlow, Associate Professor, School of Natural Resources

Dr. Robert Wright, Professor, Entomology

Dr. Gary Yuen, Professor, Plant Pathology

Dr. Roch Gaussoin, Professor, Agronomy/Horticulture

DPH Program Staff

Dr. Gary Hein, DPH Director

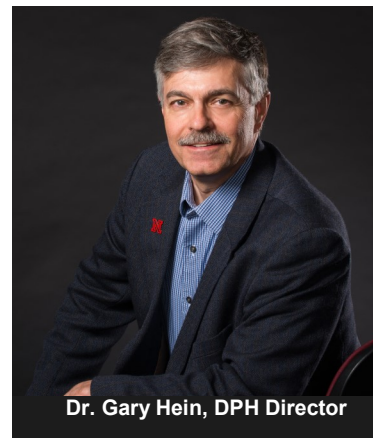
Kelly White, Administrative Associate

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. Gary Hein, DPH program director, at ghein@unl.edu, or call 402-472-3365 for more information. We look forward to visiting with you.



Dr. Gary Hein, DPH Director

TAPS Follow-up

Ali Loker, Chris Chen and Zach Rystrom participated as a Doctor of Plant Health team in the 2020 University of Nebraska Testing Ag Performance Solutions (UNL-TAPS) farm management competition. The team did well in managing their '1000 acre farm' with an average yield of 248 bu/A and average market price of \$3.77/bu, both above average for the competition. The TAPS program has been a great learning experience for everyone, and the team plans to participate again in 2021. TAPS recently shared results of the 2020 season online at taps.unl.edu.

DPH Conversations

Doctor of Plant Health Director, Dr. Gary Hein, talks with DPH alumni and current students about their perspectives on the program and its impact on their careers, and he also talks to faculty and other interested professionals about the contribution the program is making to agriculture and its economic, environmental, and social sustainability. <https://dph.unl.edu/dph-conversations>

"After almost 20 years in the field, I grew tremendously, both personally and professionally through [DPH Program] interaction." - Dr. Lee Briese

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.

Alumni Spotlight

Dr. Jeremy Wagnitz is a 2014 graduate of the Doctor of Plant Health program. Immediately after graduating, Dr. Wagnitz was hired by BASF as an Ag Biologist II at Research Triangle Park, NC. A few years later, Dr. Wagnitz was promoted to West Coast Field Biologist for BASF.



He lives in San Luis Obispo, California. His responsibilities include managing, coordinating, and conducting research and development trials across insecticides, herbicides, and fungicides. These activities include a wide range of specialty crops, row crops, and turf & ornamentals. The year-round growing season in his territory keeps him busy.

Jeremy says: "I use the multidisciplinary education the DPH program provided me daily. An example of this would be that I might be in a greenhouse in the morning in Southern California discussing an insecticide trial for whiteflies on poinsettia and later that day be on my way to setup a residual herbicide trial in almonds in the Central Valley. As you can imagine I work on a lot of different things. Every day is different! It's kind of a dream job."



DPH External Advisory Committee Members

Paul Carter - Sr. Agronomy Sciences Manager, DuPont Pioneer, Johnston, IA, retired

Glen Franzluebbbers - Director, Professional Ag Services, Central Valley Ag Cooperative, Oakland, NE

Thomas Hoegemeyer - Corn Breeder/Crop Professional Extraordinaire, retired

Billy McLawhorn - McLawhorn Crop Services, Inc., Cove City, NC

Bruce Monke - retired (formerly with Bayer), Kansas City, KS

Brian Olson - Learning Center Manager, Monsanto Company, Gothenburg, NE

Abby Stilwell - Supervisory Plant Protection and Quarantine Officer, USDA-APHIS-PPQ, Raleigh, NC

Tom Taylor - Twin Rivers Agronomics, Inc., Minden, NE



Dr. Chris Wynn (right) pictured with Mark Allen, Account Manager for Northern California, standing in a 400-acre Organic Carrot field in California.

Dr. Chris Wynn graduated in 2019 and began as an Account Manager-Agronomist with Verdesian Life Sciences for Western Oregon and Washington. Chris recently received a job promotion with Verdesian to be the Technical Services Manager for the Pacific Northwest.

In this position, he assists the Western sales team and customers by helping them better understand the science and technology behind their

products. This is basically taking scientific terminology and plant biology and making it easier for everyone to understand. He also works to place product trials within the Pacific Northwest in their vast Specialty Crop market. He indicates that there are about 60 specialty crops to know about and deal with and all are unique and finicky in their own special way. Chris indicates that the DPH program prepared him well for this role.

2020 Summer Internships

Brett Lynn - Have you ever wondered where your favorite bag of potato chips came from? If you live in the upper Midwest there is a good chance those spuds were plucked from the fertile soil of Montcalm County, MI. I spent the summer scouting chip potatoes near Six Lakes, MI for Agri-Business Consultants, Inc (ABC).

Potatoes are grown with the end user in mind, and my experience was no exception. The six growers who contract ABC's services raise chip potatoes for Frito-Lay® that are taken by truck to a plant in Wooster, OH. The seasoned consultants described the summer as unseasonably wet and cool which yielded a number of stand establishment issues. However, our mission was the same – optimize tuber yield while safeguarding tuber quality.

Fields were scouted weekly and recommendations were made accordingly. *Phytophthora infestans*, the fungus that causes late blight and was responsible for the Irish Potato Famine, is the impetus for ABC's business. Fortunately, no late blight was observed this year, albeit there was plenty of work chasing other foliar diseases and Colorado potato beetles.



The summer imparted a deep respect for the expertise necessary to raise a successful potato crop, so we can all enjoy the nostalgic crunch from our favorite bag of chips. During off hours I took in the beauty of Montcalm County. My boss' house was on Horseshoe Lake, which led to a lot of time on the dock staring at a bobber.



Adam Striegel interned in Jamestown, ND with DPH alumnus, Dr. Lee Briese of Centrol Ag Consulting. As a Field Scout, Adam scouted crop fields for pests and other problems, identifying abiotic and manmade crop stress. He communicated his observations and management recommendations with supervisors and growers.



Amy Hauver did her internship at the Denver Botanic Gardens in Denver, CO. Amy worked in ornamental horticulture to monitor and improve the health of plants in the gardens. A large part of her internship was working with visitors and guests to the gardens, and community outreach and education relating to the plants.



Callie Braley did her internship with Crop Quest, Inc. in northeastern Colorado and southwestern Nebraska. Her duties included scouting corn, wheat, milo/sorghum, sunflower, and bean fields with agronomist, and then writing up reports to send to farmers.

2020 Summer Internships

Jacob Nikodym interned as a Research Technician and acted as a Project Manager for several trials at Research Designed for Agriculture - RD4Ag, Yuma, AZ. He assisted in establishing and maintaining field trials, collected plant and soil samples, collected and analyzed trial data, and prepared field reports.



Lindsay Overmyer - I interned at Agrimanagement Inc., in Yakima, Washington. The landscape is diverse from west to east, with the west having greater precipitation than the eastern region. Yakima is located in south-central Washington and is a "green desert", meaning most anything you see that is green, is most likely irrigated. This county is the leading county in the nation in the production of hops. The Yakima Valley is rich in agricultural production; besides hops, you can find apples, sweet cherries, stone fruit (plums, prunes, apricots), peppermint, spearmint, grapes, carrot seed, potatoes, sweet corn, asparagus, blueberries, wheat, cucurbits (pumpkins, squash), peppers, dill, hemp, and more. Having never been to the Pacific Northwest, this landscape let me experience the diversity that Yakima Valley has to offer.



As a Field Scout, I had the opportunity to scout hops, carrot seed, potatoes, cucurbits, and mint. Field scouting involved monitoring pests (arthropods, weeds, pathogens), identifying weak areas in the field, and providing weekly integrated pest management recommendations for each field. Not only did I scout fields, Agrimanagement provides irrigation monitoring which involves taking soil samples to calibrate the sensors in the field. I conducted weekly or biweekly petiole and leaf analysis so I could recommend in-season crop nutrition management. Lastly, I assisted with contract research projects in collecting and processing the data.

This summer provided opportunities for professional and personal growth. Even though I had not worked in most of the crops, my prior experiences and training from the program helped me identify arthropods and agronomic problems in the field. Additionally, I had the opportunity to help in training other seasonal workers in field scouting procedures.



Since this was my first time in the Pacific Northwest, I took advantage of this beautiful location to explore the region beyond where I went for work. I took several weekend day trips to sightsee. I rode my bike multiple times along the Columbia River, including the gorgeous Columbia River Gorge, located between the border of Washington and Oregon. I saw Mt. Saint Helens, Mt. Adams, Mt. Rainier, and Mt. Hood. One of the most exciting views I had was seeing the Pacific Ocean for the first time at Arcadia beach in Oregon, where I also got to visit with DPH Alumnus, Dr. Chris Wynn. Before leaving Yakima, I went to Glacier National Park and drove along the Going to the Sun road at sunset and stopped by Lake Kintla (30 miles from Canada) which I found to be so still and peaceful. Finally, on my way back to Nebraska I drove through Yellowstone National Park and saw many geysers and bison. Needless to say, it was a great summer expanding my knowledge of crops and exploring five states.



2020 Summer Internships

Aaron Sedivy completed his second internship in Lincoln, NE with RhizoCity Farms. As a Regenerative Agricultural Production intern, Aaron produced a plant list and incorporated plants into a design for an unused city lot. The design incorporated horticulture therapy, ornamental value, food production, natural systems, emphasis on native plants, and low input/management once established. He also developed a management schedule for site preparation, initial/end of season planting, and long-term objectives.



Chris Chen continued to work on his research on the effects of dicamba and 2, 4-D drift on lettuce and pumpkins. He recorded data on crop injury, yield loss, and residue persistence on the produce.



Nathan Fortner is working on his internship with the International institute of Tropical Agriculture. Unable to travel to Tanzania due to COVID-19, Nathan is completing his internship remotely. He participated in a series of Africa RISING program video meetings and is preparing a manuscript on extending the impact of the program on the productivity and livelihoods of smallholder farming families.



As part of the fall 2020 DPH Colloquium, Nathan Fortner, Ali Loker, and Brett Lynn were tasked with creating a unique project featuring agricultural sustainability as the focal point. The students used the “[design process](https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond)” (<https://www.designcouncil.org.uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond>) to explore agricultural sustainability both widely and deeply and then take focused action to develop an educational opportunity for community organizations.

Internal and external conversations with eight community organizations led the group to conclude the term sustainability is often shrouded in ambiguity. The team resolved to bring some clarity to the term by developing an annotated bibliography for its versatility to meet the needs of multiple audiences. The group espoused the United Nations’ sustainable development pillars – environmental, social, and economic. These pillars serve as the framework for the annotated bibliography that is hosted on the [Doctor of Plant Health website](#).

More than 20 sources were curated per topic, ranging from a cursory overview to an intimate investigation of specific issues. The aim is to provide a “jumping off point” for community organizations and others to examine the concept of agricultural sustainability. The authors hope future students will build upon the current bibliography and would appreciate feedback for improvements.

Nathan Fortner – nathanfortner@huskers.unl.edu **Ali Loker** – aloker2@huskers.unl.edu **Brett Lynn** – blynn4@huskers.unl.edu

Nathan, Ali, and Brett would like to thank Dr. Gary Hein and Dr. LJ McElravy for their support in this unique project.

Navigating Vegetable Varieties



DPH student Ali Loker was prepared to conduct on-farm variety trials over the summer; the cucumber and pepper plants were thriving in the greenhouse and planting was only a few weeks away. But the pandemic had other plans and the research team made the difficult decision to postpone the trials to the following summer. Like many who were forced to adapt this year, Dr. Sam Wortman and Ali developed a different type of research project, one that could be completed remotely. The two aimed to aggregate and analyze all publicly available variety trial data for broccoli, cucumbers, and peppers, and present the results in a grower-friendly

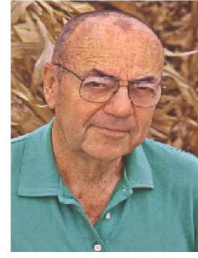
online tool. The result was the [Vegetable Variety Navigator](https://agronomy.unl.edu/Vegetable-Variety-Navigator) (https://agronomy.unl.edu/Vegetable-Variety-Navigator).

Ali spent the first few weeks of the summer scouring journal articles, extension publications, and other sources of variety trial data (nearly 300 in total!). She extracted yield and quality data for statistical analysis. Her favorite part of the project was developing the Vegetable Variety Navigator tool using a data visualization software called Tableau. She really enjoyed synthesizing vast amounts of data and presenting it in an approachable format for growers and other users.

Ali looks forward to sharing this work with a variety of audiences. In October, Ali presented her research at the Plant Science Symposium “Predictive Agriculture: turning Data into Decisions”, organized by Kansas State University, and she will present at the Great Lakes Vegetable Working Group annual meeting in February. Ali and Dr. Wortman have also submitted a manuscript to the journal HortTechnology to share the methodology and outcomes of this research with an academic audience. She and Dr. Wortman hope that growers will use the Vegetable Variety Navigator in conjunction with information from seed distributors, and extension agents, to help predict how a particular variety might perform on their farm.



Help us grow the Earle Raun Plant Health Fund



Dr. Earle S. Raun

The Earle S. Raun Doctor of Plant Health Fellowship 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, Nebraska Independent Crop Consultant Association. Contributions to this fund will enable UNL to offer fellowships for Doctor of Plant Health students. To give, go to nufoundation.org and enter Earle S. Raun in the search window.

For more information, contact Josh Egley at 402-458-1202 or Dr. Gary Hein at 402-472-3345.



University of Nebraska–Lincoln

279E Plant Sciences Hall

PO Box 830933

Lincoln, NE 68583-0933

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