

Winter 2011

Dear Friends, alumni, and colleagues:

Happy 2011! It still seems unreal that we are embarking on the eleventh year into a new century.

In the past year a great deal of time and effort was spent planning for and participating in a comprehensive 5-year academic review, although it was actually over 6 years since our last review in 2004. We were fortunate to have an excellent external review team of Ann Lichens-Park (leader) National Program Leader, NIFA, USDA; Ann MacGuidwin, University of Wisconsin; Marcia McMullen, North Dakota State University; Charles Rush, Texas A&M Agricultural Experiment Station; and Christopher Schardl, University of Kentucky. Dwayne Ball, Marketing, was the APC representative; Gary Brewer, Head of Entomology, was the IANR representative; Jessie Fernandez was the graduate student representative; and John McNamara of Wiles Bros. Fertilizer Co. was the clientele representative. We have begun addressing a recommendation to have a whole faculty approach to planning the most efficient and effective use of our limited department teaching appointment (1.04 FTE). We have to evaluate new options in Plant Biology and Invasives in Natural Resource Sciences. We also have opportunities to contribute to the microbiology major that should be approved

this coming year. Our graduate program specialization in Agronomy, which now has a defined Extension specialization, joins the specialization in Biological Sciences that we have had since 1975, and the new Doctor of Plant Health, with its Plant Pathology course requirements. We have to find more FTEs in teaching while prioritizing our teaching participation.

This past couple of years there has been a number of new hires in IANR. Three of these hires have plant pathology backgrounds and have been added to our department as courtesy faculty – Jeff Bradshaw, entomologist with background in plant pathogen/vector relationships at PHREC, Scottsbluff; Heather Hallen-Adams with a degree in Plant Pathology working in the Food Science and Technology Department on food safety and fungal toxins; and Greg Kruger, cropping systems agronomist with an M.S. in plant pathology, WCREC, North Platte. They join Gary Hein, Director of DPH program and entomologist on mite vectored viruses, Jack Morris, plant virologist, Rhae Drijber, soil microbiologist, and Ken Nickerson, fungal physiologist, as excellent resources for our faculty.

On a sad but not unexpected note, Anne Vidaver went from faculty to emeritus status in July. Anne has provided nearly 45 years of distinguished service to our department, UNL, APS and ASM professional societies, and USDA and brought recognition to us in phytobacteriology, science and leadership. She served as department head for over 25 years and was a pioneer for women in leadership roles. She plans to be an active emeritus while she completes some manuscripts and sorts through a large collection of paper memorabilia.

In the last newsletter I discussed our plan to add microbiology to our department name to initiate a microbiology major at UNL. The name change was challenged by some faculty in the School of Biological Sciences (SBS was formed from former botany, zoology and microbiology departments). However, a sincere discussion of the need for a microbiology major led to the formation of an IANR/SBS committee, cochaired by Jim Alfano, to develop the major. Through diligent work by the committee the new major has been approved by CASNR and the College of Arts & Sciences and awaits Academic Planning Committee and Regents approval. We expect the new major to be operational early next year.

The department's Extension specialization program (unique among plant health programs) received a boost when Dean Dickey allocated another specialty assistantship to the department. Craig Langemeier will be completing a research project in the areas of root health and cropping systems for field crops and will have the opportunity to spend at least his summers at the West Central Research and Extension Center (WCREC) in North Platte (housing provided at no cost). This GRA will initiate closer collaboration between WCREC faculty and our faculty. We have now received approval to hire a plant pathologist in cropping systems and root health at the WCREC in 2011. The position advertisement is on the APS website.

Jim Steadman Professor & Head

Welcome ©

Welcome to our new department members:

Kyle Broderick – Technologist in Dr. Giesler's lab – UNL graduate in Plant Protection Sciences

Dr. Emmanuel Byamukama – post doc in Dr. Wegulo's lab – Iowa State graduate

Jordan Ochs – temporary technician in Dr. Steadman's lab – UNL honors graduate and applying to medical schools

Jeewan Jyot Walia – Lecturer for Plant Virology

Welcome to our new graduate students:

Anita Panthi from Nepal Advisor: Dr. Stephen Wegulo

Oscar Perez-Hernandez – Iowa State M.S. graduate Advisor: Dr. Loren Giesler

Craig Langemeier – UNL Agronomy graduate Advisors: Drs. Tamra Jackson and Greg Kruger

Farewell 😕

Employees and friends who left the Department of Plant Pathology in 2010:

Dr. Graciela Godoy-Lutz was in Dr. Steadman's lab for 4 months this past summer and for a couple of weeks in December and will return in 2011.

Dr. Haoyu Si – Ph.D. student in Dr. Harris' lab

Hu Yin – M.S. student in Dr. Yuen's lab.

Dr. GuoLiang Qian – Visiting Scientist in Dr. Yuen's lab – returned to China

Weijing Guan – graduate student in Dr. Alfano's lab – joined husband at University of Florida

Tim Brovont – Technologist in Dr. Giesler's lab – attending dental school in Oklahoma

Dr. John Nopsa – Ph.D. student in Dr. Wegulo's lab

Pamela Pena Perdomo – M.S. student in Dr. Steadman's lab and Dr. Urrea's lab

Students on the Move

The following students have completed degrees in the Department of Plant Pathology.

2010:

Kevin Korus, M.S. "Evaluating Commercially Available Diagnostic Tests for the Detection of *Claivibacter michiganensis* subsp. *nebraskensis*, Cause of Goss's Wilt and Leaf Blight in Corn" Advisor: Dr. Tamra Jackson Began UNL Doctor of Plant Health program

John Nopsa, Ph.D. "Fusarium Head Blight: Winter Wheat Cultivar Responses and Characterization of Pathogen Isolates" Advisor: Dr. Stephen Wegulo Moved to Corvallis, OR for a USDA postdoctoral position

Pamela Pena Perdomo, M.S. "Root Rot Resistance and Mapping Unique Rust Resistance in Dry and Tepary Bean" Advisors: Dr. Carlos Urrea and Dr. Jim Steadman Began Ph.D. with Tom Clemente in UNL Agronomy & Horticulture

Haoyu Si, Ph.D. "Regulation of Morphogenesis in *Aspergillus nidulans*" Advisor: Dr. Steve Harris Postdoctoral at Brown University

Hu Yin, M.S. "Detection Methods for the Genus Lysobacter and the Species Lysobacter enzymogenes" Advisor: Dr. Gary Yuen Began a Ph.D. with Dr. Steve Harris

Congratulations Kevin, John, Pamela, Haoyu, and Hu!

Plant Pathology Student Organization

The website for the Plant Pathology Student Organization: <u>http://www.unl.edu/ppso</u>.

Plant Pathology Department Website

The department website has been converted to the Liferay system standards set up by UNL. Visit the site at http://plantpathology.unl.edu.

Honors and Awards

Jim Alfano – Bessey Professorship

Jessie Fernandez – 2011 Gamma Sigma Delta Graduate Student Award; 2010-2011 Shear-Miles Fellowship; 2010 Goss Memorial Scholarship

Leny Galvez – 2010-2011 Milton E. Mohr Fellowship for IANR

Leny Galvez, Kevin Korus, Jessie Fernandez, and Jae Behn -

Pierce's disease article was the APSnet Feature Article in October 2010 <u>http://www.apsnet.org/publications/apsnetfe</u> <u>atures/Pages/Pierces.aspx</u> Loren Giesler – Distinguished Young Alumni Award - Chadron State College

Jordan Ochs – Honors Program Graduate with High Distinction

Tania Toruno – 2010-2011 Milton E. Mohr Fellowship for Biotechnology; 2010 Goss Memorial Scholarship

Jim Van Etten – Distinguished Achievements Alumni Award - Carleton College

Jenny Rees (M.S. 2004) – Distinguished Extension Educator Award for 2010

2010 UNL Service Awards

Congratulations to:

Loren Giesler – 15 years David Dunigan – 10 years Tamra Jackson – 5 years Stephen Wegulo – 5 years

BIOS 968 - Plant Pathology Seminar – Spring 2011

List of seminar speakers and dates:

Jan. 24 – Jim Alfano, "Green revolution: The covert takeover of the plant immune system by bacterial virulence proteins"

Jan. 31 – Jim Van Etten, "Unusual Lifestyle of Giant Algal Viruses"

Feb. 7 - Oscar Perez-Hernandez, Ph.D. student, "Multifactorial Analysis of Mortality of Heterodera glycines Populations in Nebraska Cropping Systems and Assessment of Spatial Patterns and Dispersal Gradients Analysis on the Validity and Accuracy of Sampling Data in SCN Variety Evaluations" Feb. 14 - Melissa Bartels, M.S. student, "Population Genetics of Cell-to-Cell Movement of Plant Viruses"

Feb. 21 - Bing Yang, Assistant Professor, Department of Genetics, Development and Cell Biology, Iowa State University, Ames IA, "Bacterial TAL effectors and the derived technologies for targeted genome engineering"

Feb. 28 – Jae Behn, M.S. student, "Determining the Efficiency of Endoparasitic Nematode Extraction from Corn Roots"

Mar. 7 – Jessie Fernandez, Ph.D. student, "Redox and rice blast: how sources and destination of NADPH facilitate infection by *Magnaporthe oryzae*"

Mar. 16 – Mary Beth Mudgett, Associate Professor, Department of Biological Sciences, Stanford University, Stanford, CA, "Mechanisms for altering eukaryotic signal transduction: How bacterial pathogens promote disease during infection"

Mar. 28 – Trung Nguyen, M.S. student, "Extension programming: Field efficacy trials to program evaluation"

Apr. 4 – Anita Panthi, M.S. student, "Characterization of chemotype and aggressiveness of Nebraska isolates of *Fusarium graminearum* from winter wheat"

Apr. 11 – Cristian Quispe, M.S. student, "Characterizing the role of GATA-family transcription factors in *Magnaporthe oryzae* development and pathogenicity"

Apr. 18 – Donald Aylor, Department of Plant Pathology and Ecology, Connecticut Agricultural Field Station, New Haven, CT, "A Biophysical Framework for Modeling Aerial Dispersal of Plant Pathogens"

Apr. 25 – Tania Toruno, Ph.D. student, "The *Pseudomonas* HopA1 effector suppresses

plant immunity and resembles phosphothreonine lyases from animal pathogens"

Extension News/ Diagnostic Clinic

A total of 1,132 samples were processed in the diagnostic clinic in 2010.

62.4% of the samples processed for plant diseases

28.9% of the samples processed for corn nematodes

4.3% of the samples processed by weed science

3.7% of the samples processed by entomology

0.6% of the samples processed by horticulture.

The large majority of the samples are row crops (corn, soybean, wheat and sorghum).

Amy Timmerman will soon be on maternity leave. The clinic will continue to operate. Loren Giesler, Tamra Jackson and Stephen Wegulo will look at the plant disease samples according to their specialty areas.

Report from Bob Harveson's Diagnostic Clinic:

Disease diagnostic testing service for clientele: 1,483 samples in 2009. An estimated 24,000 total samples have been processed since 2000.

Undergraduate Recruitment News

Members of the department are actively participating in recruitment activities, such as the annual CASNR Open House – Power of Red, for our undergraduate Plant Protection Sciences major. Students graduating from this program have a broad multi-disciplinary background that prepares them well for the Doctor of Plant Health degree or graduate studies. The department offers students 2 graduate degree options, M.S. or Ph.D. as Plant Pathology specializations through the Department of Agronomy and Horticulture or Biological Sciences. The department also offers an Extension specialization with our Agronomy and Horticulture M.S. program. Please help us identify students with an interest in any of our undergraduate or graduate programs.

Doctor of Plant Health News

The Doctor of Plant Health (DPH) program is looking for students. Dr. Gary Hein (ghein1@unl.edu), Director, should be contacted if you know of any potential students who are interested in consulting, state or federal government regulatory, or other careers in tomorrow's sustainable agricultural systems.

New students enrolled in DPH include Kevin Korus, the first graduate of the extension specialization M.S. program in Plant Pathology.