Charles Wortmann’s research project aims to increase profits for African farmers.

It is the policy of the University of Nebraska–Lincoln not to discriminate based upon age, race, ethnicity, color, national origin, gender-identity, sex, pregnancy, disability, sexual orientation, genetics, information, veteran status, marital status, religious or political affiliation.

TABLE OF CONTENTS

Letters from the department head and associate head 2–3

Staff
Dave Scoby, Fran Benne 4
Cheryl Bogenrief, Steve Gamet 5

Students
Student club updates 6–7
Agronomy—it’s in my roots 8
Agronomy Club hosts regional conference 9
When health and agriculture intertwine 10–11

Research
Organic Farming: Research in IANR and the Department of Agronomy and Horticulture 12–13
The Daugherty Water for Food Institute: Feeding a growing world 14–15
International research project aims to increase profits for African farmers 16–17

Faculty
New faculty 18–20
Awards 20
Hoegemeyer takes second retirement 23
Retirements 24
Alumni
Advisory council 25
Spotlight 26
Visiting scientist 28
Dr. Roch Gaussoin, Department Head

Whoa Nellie! Sports commentator legend Keith Jackson was often cited as the source of the “Whoa Nellie!” idiom, yet Mr. Jackson himself credits the phrase to his grandfather, a farmer in the southeast United States. In general, the high school students I visited included top high school students from Nebraska with an interest in science as part of a Women in Science Conference, which I had the opportunity this winter to attend a dinner with some of our department’s undergraduate student leaders as part of a Women in Science Conference, which included top high school students from Nebraska with an interest in stem fields (science, technology, engineering, and mathematics). In general, the high school students visited with anticipated studying medicine or physics in college; they didn’t really associate agriculture with being a STEM field. It was gratifying to observe our department’s student leaders—all women—articulate that disciplines such as agronomy; plant biology; range science, horticulture and turf science all have sound science at their core and that there are exciting, fulfilling jobs in these fields upon graduation.

Respectfully submitted,
Roch Gaussoin
Professor and Department Head
President, Crop Science Society of America

Dr. Richard Fergusson, Associate Department Head

After moving onto East Campus in 2003 (I began my University of Nebraska career at the former South Central Research and Extension Center), I’ve had the opportunity to become more engaged with students at multiple levels. It’s probably coincidental that our department’s undergraduate student numbers soon began to increase after several years of decline, approximately doubling between 2008 and 2014. The senior level course that I teach in site-specific crop management has more than tripled in enrollment in the same period. The last five to seven years have been one of the most optimistic periods in production agriculture in recent decades, as commodity prices have fueled renewed enthusiasm for careers in agronomy and associated disciplines. Increased student numbers have certainly stretched our department’s capacity in many ways—courses have waiting lists for enrollment, classrooms are crowded with extra seats, and lab sections have been redesigned to deal with larger groups of students. Our graduates have little trouble finding employment in their field. While current reduced commodity prices may somewhat slow the rate at which new jobs become available, forecasts generally suggest a very positive job market in production agriculture for the foreseeable future. It is truly an exciting time to be in our department—as students, staff or faculty. At the same time, it is interesting to observe the increasing lack of understanding of agriculture in much of our society today. I had the opportunity this winter to attend a dinner with some of our department’s undergraduate student leaders as part of a Women in Science Conference, which included top high school students from Nebraska with an interest in STEM fields (science, technology, engineering, and mathematics). In general, the high school students visited with anticipated studying medicine or physics in college; they didn’t really associate agriculture with being a STEM field. It was gratifying to observe our department’s student leaders—all women—articulate that disciplines such as agronomy; plant biology; range science, horticulture and turf science all have sound science at their core and that there are exciting, fulfilling jobs in these fields upon graduation.

Sincerely,
Richard Ferguson
Professor and Associate Department Head

Dr. Roch Gaussoin, Department Head

Whoa Nellie! Sports commentator legend Keith Jackson was often cited as the source of the “Whoa Nellie!” idiom, yet Mr. Jackson himself credits the phrase to his grandfather, a farmer in the southeast United States. In general, the high school students I visited included top high school students from Nebraska with an interest in science as part of a Women in Science Conference, which I had the opportunity this winter to attend a dinner with some of our department’s undergraduate student leaders as part of a Women in Science Conference, which included top high school students from Nebraska with an interest in stem fields (science, technology, engineering, and mathematics). In general, the high school students visited with anticipated studying medicine or physics in college; they didn’t really associate agriculture with being a STEM field. It was gratifying to observe our department’s student leaders—all women—articulate that disciplines such as agronomy; plant biology; range science, horticulture and turf science all have sound science at their core and that there are exciting, fulfilling jobs in these fields upon graduation.

Respectfully submitted,
Roch Gaussoin
Professor and Department Head
President, Crop Science Society of America

Dr. Richard Fergusson, Associate Department Head

After moving onto East Campus in 2003 (I began my University of Nebraska career at the former South Central Research and Extension Center), I’ve had the opportunity to become more engaged with students at multiple levels. It’s probably coincidental that our department’s undergraduate student numbers soon began to increase after several years of decline, approximately doubling between 2008 and 2014. The senior level course that I teach in site-specific crop management has more than tripled in enrollment in the same period. The last five to seven years have been one of the most optimistic periods in production agriculture in recent decades, as commodity prices have fueled renewed enthusiasm for careers in agronomy and associated disciplines. Increased student numbers have certainly stretched our department’s capacity in many ways—courses have waiting lists for enrollment, classrooms are crowded with extra seats, and lab sections have been redesigned to deal with larger groups of students. Our graduates have little trouble finding employment in their field. While current reduced commodity prices may somewhat slow the rate at which new jobs become available, forecasts generally suggest a very positive job market in production agriculture for the foreseeable future. It is truly an exciting time to be in our department—as students, staff or faculty. At the same time, it is interesting to observe the increasing lack of understanding of agriculture in much of our society today. I had the opportunity this winter to attend a dinner with some of our department’s undergraduate student leaders as part of a Women in Science Conference, which included top high school students from Nebraska with an interest in stem fields (science, technology, engineering, and mathematics). In general, the high school students visited with anticipated studying medicine or physics in college; they didn’t really associate agriculture with being a STEM field. It was gratifying to observe our department’s student leaders—all women—articulate that disciplines such as agronomy; plant biology; range science, horticulture and turf science all have sound science at their core and that there are exciting, fulfilling jobs in these fields upon graduation.

Sincerely,
Richard Ferguson
Professor and Associate Department Head
Dave Scoby

Research Technologist

After graduating from Purdue with an undergraduate degree, I came to UNL in 1982 for a master’s degree in sorghum physiology. I spent 16 years studying sorghum cropping systems and production as a research technologist with Dr. Max Clegg. I helped train many graduate students in field research methods under the auspices of the INTSORMIL project. Along the way I obtained another master’s degree in agribusiness. As faculty retired and grain sorghum became less economically important in Nebraska, I worked with Dr. Jerry Maranville and Dr. Robert Caldwell. In 2001 I began working in research and extension soil fertility and biosolids under Dr. Charles Wortmann.

Since 2003, I have worked with Dr. Tim Arkebauer in field-oriented physiological research examining the relationships between plants and their environment. Working mostly on the U.S. Department of Energy-funded Carbon Sequestration Project Team, we examine leaf and soil surface carbon dioxide exchange and fluxes of greenhouse gases from the soil. We also quantify various aspects of crop growth and development. More recently our project has started investigating photoprotective mechanisms in plants such as chloroplast avoidance movement and other plant stress responses.

The crops, equipment and my research emphasis have changed over the past three decades, but my enjoyment of working with motivated and creative faculty and students continues to make each day interesting and rewarding.

Away from work I volunteer my time with several animal rescue and advocacy groups. I also serve on the board of directors of the Great Plains Trails Network and the Nebraska Trails Foundation.

Fran Benne

Design and Communications Specialist

As a University of Nebraska-Lincoln College of Journalism Graduate and former athlete, I consider myself a Husker for life. So it felt like coming home when I accepted a position in the department in 2012 after working in the private advertising and graphic design industry for 18 years.

My first exposure to the department came in 2011 when I decided to follow my passion for gardening and landscaping and become an Extension Master Gardener volunteer. Having grown up on a farm near Arapahoe, Neb., I respected the agriculture industry and I wanted to get back to my roots and learn more about plants. Little did I know that someday I would get the chance to work on beautiful East Campus and merge my interests and skills into a job I love.

It has been a blessing to collaborate with such positive and inspiring faculty, staff and students. I am thankful for the opportunity to create, design and communicate to the public, students and the university the new and interesting research, educational opportunities and events happening in our department. I basically get to do a little bit of everything I enjoy—photography, layout and design, website management and design, social media marketing, writing, editing and video production.

Away from work I’m involved with my daughter’s activities and volunteering at my church. I like running on the trails with friends, gardening, boating and fishing with my family, and working on house and landscaping projects with my husband.

Cheryl Bogenrief

Accounting Associate

I came to the University of Nebraska-Lincoln in the fall of 2002 after having worked for a propane service and an interior design firm. My work experiences as an office manager and bookkeeper prepared me for my position in the HAPPI Business Center, where I have been an accounting associate for more than six years.

I enjoy helping faculty and staff with the financial aspects of their teaching and research. My primary accounting duties include general customer service, revolving accounts, purchasing cards and travel. Working in the Department of Agronomy and Horticulture has been a nice experience for me because of the great group of co-workers and students. I like having the opportunity to help others with their work.

Originally from Brunswick, Neb., I graduated from Platteview High School and came to Lincoln to go to school and never left. I currently volunteer with the Lancaster County Election Commission, so you might see me working at a polling place on Election Day.

Antiquing—consignment stores and flea markets—collecting cookbooks, sewing and crafting are a few of my hobbies. I also like to do a bit of travelling and I have been to Alaska twice to visit my sister.

Stephen Gamet

Research Technologist

In August of 2002 I decided a change was needed in my lifelong goals. I was fortunate to find an opening in a new horticultural program at the University of Nebraska-Lincoln called viticulture—the study of wine grapes—in the corn state of Nebraska. Who could have imagined? Dr. Paul Read did, and viticulture has been a perfect fit for both of us.

In 2000 my immediate family established a vineyard in western Nebraska. Now I work with grapes in eastern and western Nebraska with only 325 miles in between.

I received a degree in agronomy with an emphasis in horticulture from UNL and have worked in the Nebraska nursery industry for more than 25 years. Before joining Dr. Read and the viticulture program, I enjoyed working for UNL Landscape Services as an area manager on City Campus. Eventually I began looking for something more unique and challenging that I could continue after retirement. Grapes in Nebraska fit the bill better than anything I could have imagined. Along with working with Dr. Read, I have helped establish a growers group in western Nebraska that has a combined vineyard acreage of more than 25 acres. We have also purchased the first mechanical grape harvester in the state. We now do custom harvesting and last year harvested over 60 acres of grapes.

Besides growing grapes I also enjoy making and drinking wine, so it’s an all-encompassing passion. My wife Kim of 29 years and two daughters, Mikayla, 22, and Meredith, 13, are also very involved in all aspects of what we call “grapes.” My oldest builds wine racks and the youngest is out in the field helping, particularly at harvest time. Kim is my cheerleader. And when I’m not playing in the grapes, I try to get in a little golf.
RANGE MANAGEMENT CLUB COMPETES

The Range Management Club started out the year with the Welcome Back Barbeque in conjunction with the Agronomy Club. In October, some of the club members attended the Nebraska Section Society of Range Management meeting in Ainsworth, Neb. During this meeting and joining with the Chadron State College Ag Club, the club held an annual auction fundraiser. The auction was a success and the generosity of the donors was greatly appreciated.

The rest of the fall consisted of preparing for the Annual Society of Range Management meeting in early February. Members practiced their presentations and prepared for competitions. The club was also able to tour Spring Creek Prairie Audubon Center near Denton, Neb. The fall semester ended with a bowling event and the annual Christmas party hosted by Dr. Walt Schacht.

The beginning of the spring semester was very busy as the final preparations were made for the Annual SRM meeting in Orlando, Fla. The club had excellent participation in the meeting with 11 undergraduates and two graduate students attending. The graduate students presented graduate research projects. The undergraduates competed in at least two of the following: the plant identification contest, the range management exam and the paper contest. While in Florida the club toured The Nature Conservancy’s 11,500-acre Disney Wilderness Preserve and Deseret Cattle & Citrus Ranch.

The club finished the school year discussing a couple of possible tours to take in the fall semester. During Dead Week and finals the club participated in laser tag and held a potluck dinner.

The UNL Range Management Club would like to thank everyone who helped and supported the club—making this year such a success. — Kyra Baldwin, Range Management Club President

ADVENTURES IN HORTICULTURE

The Year Was Both Busy and Exciting for the UNL Horticulture Club.

The fall semester included a fall foliage sale and the club’s annual poinsettia sale. For the second year, the poinsettia sale also included a philanthropy project. Pink poinsettias were sold to support breast cancer research, and a percentage of the profits were donated to the Breast Cancer Research Fund.

The club also sponsored and helped with the November activity, which was an evening of support for Hartley Huskers, a program that brings agriculture to students at Hartley Elementary in Lincoln. Club members took pie pumpkins to the school and helped children decorate them as turkeys to take home for Thanksgiving.

The club kicked off the spring semester by sending several members to the Great Plains Growers Conference in St. Joseph, Mo. A highlight of the semester was a trip to Florida over spring break. Twelve club members and the club’s two advisers, Stacey Adams and Dave Lambe, traveled to Orlando to explore the region’s expansive horticulture industry: The trip included visits to Busch Gardens, several area growers, a nursery and garden center, Lens Gardens and the beach. They ended the trip with a behind-the-scenes tour of the Flower and Garden Festival at Walt Disney World’s Epcot.

The club returned from Florida to finish the semester with a very successful spring plant sale and once again had the opportunity to sell geraniums and vegetables at Lincoln’s Spring Affair.

The UNL Horticulture Club would like to thank all of its supporters for such a great year. — Erin Kinley, Horticulture Club Secretary

20% of Agronomy and Horticulture Students Participate in a Club

Horticulture Club members Eric Hughes, left, and Erin Kinley prepare for the spring sale.

GRADUATE STUDENT ASSOCIATION GROWS

The Mission of the Agronomy and Horticulture Graduate Student Association is to serve as a representative body for graduate students in the Department of Agronomy and Horticulture while promoting student and faculty relations and investigating issues unique to graduate students.

President Samantha McConaughy, Vice President Leah Ruff, Treasurer Sarah Schlund and Secretary Grace Troupe make up the executive committee for this school year. Our goals for the 2014–2015 school year include continuing to hold regular meetings, tours and events for graduate students. We are also conducting a survey of graduate students in the department to gauge what is going well for students and what can be improved for a better experience.

This was a successful year for AHGSA. The two main events of the year, the Fall Cookout and the department annual Appreciation Banquet, were well attended and enjoyed by all. In addition to our two annual events, we also met with a group of 20 prospective graduate students and helped the department put on Keim UnKorked. Keim UnKorked was extremely successful with more than 100 attendees. We also started our own Facebook group to encourage graduate students to contact each other through social media.

As the 2014–2015 president, I sincerely hope that both faculty and students look at AHGSA as an opportunity to supplement graduate education. I hope that we are building a community of support and inspiration for Agronomy and Horticulture graduate students as well as giving graduate students a place to relax a little with their colleagues. I encourage all students to visit our meetings. The meeting schedule is published through email and at the AHGSA website, http://agronomy.unl.edu/ahgsa. For more information, or if you are interested in participating, contact me at samantha.mcconaughy@gmail.com.

—Samantha McConaughy, AHGSA President

A BIG YEAR FOR THE AGRONOMY CLUB

The UNL Agronomy Club provides educational leadership opportunities and training for students outside of the classroom.

Last year, we started off with the CASNR Club Fair followed by the first meeting at the Welcome Back Barbeque. UNL Agronomy Club meets on Wednesdays in Keim 150 at 6 p.m. During our meetings, industry professionals inform members about opportunities within their company and provide a chance to network.

Last school year the club raised more than $40,000 for the Students of Agronomy, Soils, and Environmental Sciences regional conference in March. More than 200 college students from 22 universities across the United States attended the three-day conference. The SASES Regional Meeting was an opportunity for undergraduates to get together to explore different aspects of agriculture throughout the nation. With the support of the Agronomy and Horticulture Department, the club highlighted Nebraska agriculture and the University of Nebraska to attending schools.

The Agronomy Club also assisted with Husker Food Connection and hosted the high school State FFA Agronomy Career Development Event.

Last year members of the Agronomy Crops Judging team competed regionally at nearby universities. The team is hoping to expand its numbers this year and get more members from the club involved.

The Agronomy Club and Crops Judging team are always happy to welcome new members. To find out more about the club and keep up to date with our events, like us on our Facebook page—UNL Agronomy Club. —Molly Hoffbauer, Agronomy Club President
YEARS "I'm currently involved in Crops Judging and Agronomy Club. I served as the club secretary for the 2014–15 school year and have been elected club president for 2015–16. As a senior majoring in agronomy and minoring in agricultural economics, I’ve found that my passion for crop production has not wavered. My goal is to graduate, become an agronomist and return to our 1,500-acre family farm to assist with the production of row crops—corn, soybeans and alfalfa. The agronomy industry has the potential for growth in the years to come, and I honestly can’t wait to see what is in store for me! — Amanda Vodvarka

Molly Hoffbauer, Agronomy Club President

THE UNIVERSITY OF NEBRASKA-LINCOLN AGRONOMY CLUB HOSTS REGIONAL CONFERENCE — The UNL Agriculture Club and adviser Tim Keatley hosted the 2014 SASES Regional Conference in Lincoln.

On the final day, students experienced career development sessions and heard NU Vice President and IANR Harlan Vice Chancellor Ronnie Green speak about the sexiness of agriculture. The evening ended with a live band and dance in celebration of the conference. CASNR Dean Steven Waller said the event was a success. "The Planning Committee and the entire Agronomy Club are to be complimented on this accomplishment. They are a role model for other clubs in their commitment to serving their profession," Waller said. "The planning, financing, attention to detail, showcasing Nebraska and the University, program content, entertainment and hospitality were unparalleled and the equal of any professional meeting." — Molly Hoffbauer, Agronomy Club President

The DuPont Oval Logo and Science with Service Delivering Success® are registered trademarks of DuPont. PIONEER® are registered trademarks of Pioneer. © 2014 PHII. DUPPPP14030VA 15-1596

LEONARD W. KEATLEY

AGRONOMY CLUB HOSTS REGIONAL CONFERENCE

THE UNIVERSITY OF NEBRASKA-LINCOLN AGRONOMY CLUB: raised more than $40,000 for the 2014 Students of Agronomy, Soils, and Environmental Sciences Regional Conference on March 27–29, 2014. More than 200 college students from 22 universities across the United States attended the three-day conference.

The theme of the conference was "Promoting Agriculture through Social Media," and SASES attendees were encouraged to make posts that advocated agriculture on Facebook, Twitter and Instagram.

During the conference students competed in a social media contest for the most creative post and the most valued post. These posts, on different social media sites with the hashtags #sases2014 and #medias4ag, were about the conference, agriculture and the state of Nebraska. Going along with the theme, different speakers expressed the importance of social media in agriculture. Janice Person, social media director at Monsanto, taught the students about the impact they can make by actively supporting agriculture through social media. The Agronomy Club highlighted the UNL College of Agricultural Sciences and Natural Resources and showcased the importance of Nebraska agriculture. SASES attendees walked through the Omaha Zoo jungle before eating supper in the Jungle Cafe on the first evening.

On the second day students were able to see Nebraska agriculture firsthand—touring 24 agricultural industries throughout the state. Some industries included Lindsay Corporation Irrigation, Behlen Manufacturing Co., DuPont Pioneer Hi-Bred and E Energy Adams.

The theme of the conference was "Promoting Agriculture through Social Media," and SASES attendees were encouraged to make posts that advocated agriculture on Facebook, Twitter and Instagram. During the conference students competed in a social media contest for the most creative post and the most valued post. These posts, on different social media sites with the hashtags #sases2014 and #medias4ag, were about the conference, agriculture and the state of Nebraska. Going along with the theme, different speakers expressed the importance of social media in agriculture. Janice Person, social media director at Monsanto, taught the students about the impact they can make by actively supporting agriculture through social media. The Agronomy Club highlighted the UNL College of Agricultural Sciences and Natural Resources and showcased the importance of Nebraska agriculture.

SASES attendees walked through the Omaha Zoo jungle before eating supper in the Jungle Cafe on the first evening. On the second day students were able to see Nebraska agriculture firsthand—touring 24 agricultural industries throughout the state. Some industries included Lindsay Corporation Irrigation, Behlen Manufacturing Co., DuPont Pioneer Hi-Bred and E Energy Adams.
I’VE ALWAYS BEEN FASCINATED WITH AGRICULTURE, INSECTS AND HEALTH, yet at the beginning of my academic path, I wasn’t quite sure how these interests would come together for a meaningful career. This connection first came when I was on a World Food Prize Borlaug-Ruan International internship at the International Center of Insect Physiology and Ecology in Kenya. For the small-holder farmers of western Kenya, the barriers to food security were a dynamic interplay between inadequate agronomic techniques and the constant threat of malaria. During this experience, my research matched sugars found in local plants to determine feeding preference of Anopheles gambiae mosquitoes and how this affects their survival and fecundity. This experience played a key role in contextualizing the complex and uncertain obstacles in feeding a rapidly-growing global population. Food stability for the majority of their lives as their primary food source, with females only blood feeding during periods of reproduction. This feeding behavior allowed me and my research team to develop and patent an exciting new tool for malaria control which uses several classes of ingestion-based insecticides and combine it with a plant-based attractant to attract and kill malaria-resistant mosquitoes. This attractive toxic sugar bait tool is hung in a hut and attracts mosquitoes which were originally attempting to blood feed on a human. After the mosquito feeds on the ATSB, nearly 100 percent of the resistant, malaria-transmitting mosquitoes were killed.

The potentials of genetically improved crops in Africa cannot and have not been realized when soil properties and plant nutrients are depleted. Health and agriculture are fundamentally intertwined with the daily struggles of the poorest one billion in achieving food security. There is much to be learned in this cross-disciplinary interaction in providing the fundamental right of every human to maintain security in supplying food for themselves and their families. It is my sincerest hope to be a part of the solutions to these monumental challenges, and I know my continued education at UNL within the Department of Agronomy and Horticulture will help me achieve my current and future goals. —Zachary Stewart

Stewart’s malaria trial site was located in Tanzania in a small farming community at the base of Mount Kilimanjaro.

Nonny Bandilla: Hardin Distinguished Graduate Fellowship, UNL Plant Science Retreat Best Poster Presentation
Ben Beckman: W.R. Chapline Fellowship
Samuel Bledsoe: Gerald O. Mott Award for Meritorious Graduate Students in Crop Science
Cody Crecch: Third-place North Central Weed Science Society Best Graduate Student Weed Science Team
Jason Danley: Hardin Distinguished Graduate Fellowship
Amanda Easterly: Othmer Fellowship
Katherine Frels: Henry M. Beachell Fellowship
Chenchou Han: Second-place Winner – New Venture Pitch Competition, Northwest Missouri State University
Lacy Jo Leibhart: Widaman Trust Distinguished Graduate Assistant Award, First-place NCWSS Paper Presentation
Luoi Li: Winner of the CSSA C-5 Turf Division Poster Contest for Management and Establishment
Jonathan Luetchens: Milton E. Mohr Fellowship
Julianne Matcyszyn: Milton E. Mohr Fellowship
Samantha McConaughy: Milton E. Mohr Fellowship
Darrell Michael: Henry M. Beachell Fellowship
Joshua “Jay” Miller: Third-place NCWSS Best Graduate Student Weed Science Team
Glen Obear: Presentation Competition Award Winner at CSSA Meeting
Matthew Pedersen: John & Louise Skala Fellowship
Pamela Peña-Perdomo: Widaman Trust Distinguished Graduate Assistant Award, Milton E. Mohr Fellowship
Miles Redden: Irvin A. & Agnes E. Nelson Memorial Fellowship
Leah Ruff: American Seed Trade Research Foundation’s Roger Kruegar Scholarship
Debalin Sarangi: David H. & Anne E. Larrick Memorial Travel Award to attend NCWSS Annual Meeting, Third-place NCWSS Best Graduate Student Weed Science Team
Brad Schick: Daniel T. Walters Travel Fund
Zachary Stewart: North Central Extension–Industry Soil Fertility Conference Outstanding Graduate Student Award
Kayla Tarr: Arthur William Sampson Fellowship
Laura Thompson: International Society for Precision Agriculture Outstanding Graduate Student Award
Rodrigo Werle: University of Nebraska–Lincoln Deans Fellowship, Milton E. Mohr Fellowship, McDonald Fellowship, Third-place NCWSS Best Graduate Student Weed Science Team

Health and agriculture are fundamentally intertwined with the daily struggles of the poorest one billion in achieving food security.
Organic farming

SALE OF ORGANIC FOODS IN THE UNITED STATES REPRESENTED $42 BILLION IN 2014, and the sector is projected to grow at nearly 15 percent per year over the next decade. Several faculty in IANR conduct research related to organic farming production systems, and this article presents an overview of that work.

Faculty involved in these cooperative projects are in Entomology, School of Natural Resources, Food Science and Technology and Agricultural Economics in addition to Agronomy and Horticulture. Organic farmers are part of the research. In 2005 a group of IANR faculty received a USDA grant to develop four certified organic areas across the state. These were located near Sidney (HPAL), Clay Center (SCAL), Mead (ARDC) and Concord (HAL). After the three-year transition period, all sites were successfully certified. A second grant focused on winter wheat quality, and a third grant continued the research on organic farming practices and the assessment of the farm impacts on surrounding wildlife, with bird populations and diversity as indicators.

Based on principles of agroecology and uniqueness of place, and the diversity of land and climate as well as interests of faculty across Nebraska, each of the four sites has a research focus appropriate to that district. The main focus for all projects is to identify ways to improve organic production systems, not to compare to conventional systems. At Sidney, the focus is on rototations that contribute nitrogen through associated legume cover crops but do not use too much water. At Clay Center, we established several rotations to determine the benefits of a three-year versus a four-year rotation. The organic certified land at the ARDC site is located on the forestry section within the long-term windbreaks established over 50 years ago. The focus there is to verify the impacts of a winter wheat-soybean green manure-corn-soybean rotation. In addition, we studied the release of nitrogen from legume cover crops and the impact of underseeding coolseason cover crops in the winter wheat.

Another noncertified long-term experiment at ARDC compares organic rotations based on animal manure for fertility with those based only on cover crops and recycling nutrients from residues. Since there are also conventional treatments, research on variety by system interactions has been conducted. Other organic experiments at ARDC look at crop/weed and crop/cover crop interactions and the effect competition for resources has on plant physiology. At the Concord site the focus was on propane flame weeding and on nutrient management. The propane flame weeding deserves special mention since the project, led by Dr. Stevan Knezevic, has developed into a world-renowned program that has produced dozens of publications including a comprehensive manual available on the Internet. It has resulted in additional grants from the Propane Foundation, established linkages with heat shield engineers and produced a spin-off business. Most importantly from the organic farming perspective, the project has developed equipment that is safer and more energy efficient than before, and our specialists have demonstrated how to utilize this weed management method successfully on organic farms.

The nutrient management component includes on-farm trials that are placed on certified organic farms located primarily in the eastern third of Nebraska. The goal is to investigate the relative productivity of the organic farm nutrient and weed management systems. On these farms, extra nutrients were provided with additional manure or compost, and extra weed control was provided by timely management. For the most part, with the exception of one farm that was severely deficient, the additional inputs had only minor yield enhancing effects. The intent is to determine whether additional nutrient or weed management would increase productivity.

Engaging with organic farmers and those interested in organic farming has been a substantial part of the project. During the life of the two main USDA grants, annual advisory meetings were held to enhance project collaboration. There have been on-farm trials of the farmer’s choosing to determine the effects of multiple and site-specific production practices. Of much interest to the organic farming community is the reduction of tillage by the use of a roller crimper that is used to kill a cover crop, leaving a mulch to suppress weeds and reduce the need for tillage and several cultivations. The short answer for this research on farms and at the research laboratories is that cover crops need to be crimped early in the season and the weather has to cooperate; otherwise, the late planting and cover crop regrowth will combine to severely limit grain crop production.

There is a UNL course on science-based organic farming that has been taught in spring term every year since 1998. This continues to attract students from our department as well as the School of Natural Resources and an increasing number of interested students from urban backgrounds. The course is taught in the evenings to accommodate people from the community with an interest in organic practices and systems. One spin-off from the course is a student Community-Supported Agriculture organic farm, initiated in 2013 based on interest generated in a course in agroecology, and in the organic farming course. In 2014 their new CSA had 13 subscribers, and they are recruiting younger students to take a leadership role. A recently-funded project from the corn and soybean check-off boards is supporting cover crop research across the state, with results highly valuable for organic farmers. There is a new Hatch project, recently approved, that will focus on long-term experiments, including rotations and cover crops, and will provide an integrated research platform for cooperative projects that will serve both organic and conventional farmers across Nebraska.

With the ending of the large USDA grants, the status of organic farming research at IANR is at a crossroads. Funding for the organic farming extension educator position ended in 2013, and there is now no one with organic farming extension in their position description. Several of the faculty who were on the original 2006 grant have retired, left the university or will be leaving soon. Two of the four sites are not certified as organic, and the other two have an uncertain future. Active faculty with research interests in the areas of weed control, cover crops, food quality, plant breeding, environmental impact and other disciplines remain. It is essential that our department seeks continuing internal as well as grant support to continue these projects that can inform farmers about organic practices and systems that fuel the growing markets in this special sector of U.S. agriculture. — Charles Shapiro, Soil Science and Crop Nutrition
Feeding a Growing World

IMAGINE WATCHING A RIVER BASIN AS THE WINTER ICE MELTS AND WILDFLOWERS SPRENT FROM THE GROUND. Clouds rolling overhead like cotton balls dumped out of a giant bag in the sky, flowers blooming, seeds blowing in an autumn breeze, snowflakes covering the dry grass as the year circles back—all within 60 seconds.

This is a glimpse of the Phocalstream project, one of several research projects supported by the Robert B. Daugherty Water for Food Institute at the University of Nebraska. The project involves taking one photo an hour of areas up and down the Platte River Basin to develop a time-lapse view of the land and weather. Using advanced software, researchers can quickly navigate the 1.5 terabyte image library, linking rich photographs to data from the U.S. Drought Monitor or USGS Water Data. Through Phocalstream, audiences can literally see man and nature’s impact in real-time.

This is a glimpse of the Phocalstream project, one of several research projects supported by the Robert B. Daugherty Water for Food Institute at the University of Nebraska. The project involves taking one photo an hour of areas up and down the Platte River Basin to develop a time-lapse view of the land and weather. Using advanced software, researchers can quickly navigate the 1.5 terabyte image library, linking rich photographs to data from the U.S. Drought Monitor or USGS Water Data. Through Phocalstream, audiences can literally see man and nature’s impact in real-time.

The institute supports and shares this type of research to address the global challenge of achieving food security with limited water resources. In the next 35 years, the world’s population is expected to grow by 9 billion. Water shortages already occur in many of the world’s major food production areas, and growing municipal and industrial demands are shifting water resources away from agriculture.

At a time when agriculture must produce more food, water supplies are stretched to meet increasing demands and a changing global climate. Founded in 2010, the institute spans all campuses of the University of Nebraska to maximize the university’s vast education, research and outreach expertise in agriculture, water management, food science and natural resources. Furthermore, the Nebraska Water Center, which has a long track record of engagement with the people of Nebraska, is now an integral part of the institute. Working together with other universities and public and private sector organizations locally, regionally and across the globe, the institute supports the efforts of small- and large-holders farmers to deliver innovative solutions to this complex global challenge.

Research is at the core of institute programs to develop effective solutions to sustainably manage water and increase food security, inform policy and give students hands-on experience in the lab and field. Collaborative research programs are currently underway in Nebraska and agricultural areas of the United States, India, Brazil, China, sub-Saharan Africa, the Middle East, North Africa and Latin America. These projects include sustainably increasing crop yields and water productivity using mapping, modeling and information systems; increasing the sustainability and productivity of crops and livestock in water-limited conditions; and improving drought management and climate change adaptation through monitoring, preparedness strategies and stronger warning systems.

Closer to home, 50 Faculty Fellows within the University of Nebraska system are contributing to the institute’s research, engagement and education programs. Among them are nine from UNL’s Agronomy and Horticulture Department: P. Stephen Baenziger, Kenneth Cassman, Tom Clemente, Roger Elmore, Patricio Grassini, Martha Mamo, Teshome Regassa, Harkamal Walia and Haishun Yang. Their institute-supported research is contributing to global thought leaders and experts to discuss potential solutions to the challenge of doubling our agricultural production by 2050 and doing it with less water than we use today.

The 2014 conference included more than 250 participants from 35 countries and focused on the role of data and information in transforming our agricultural yields and water management. Videos from the conference sessions and blog summaries are available at waterforfood.nebraska.edu/WFF2014.

To carry out its mission, the institute encourages collaborative research between Fellows with different backgrounds. For example, Cassman, Grassini and Yang are leveraging their respective expertise in plant nutrition and crop physiology, yield gaps, resources and energy use efficiency and crop modeling to configure the GYGA in a comprehensive manner. Mamo, a soil scientist, and Regassa, a cropping systems expert, worked with three Fellows outside their department to assess food security in Ethiopian villages. This included interviewing scores of farmers, meeting with nongovernmental organizations and collaborating with two Ethiopian universities. Ultimately, their groundwork led to an Ethiopia study abroad experience this summer for eight UNL undergraduates.

In addition to supporting and promoting the Fellows’ water- and food-related research projects and sharing news and data with a variety of stakeholders, including policy makers, the institute hosts an annual Water for Food Global Conference. These conferences bring together global thought leaders and experts to discuss potential solutions to the challenge of doubling our agricultural production by 2050 and doing it with less water than we use today.

You can learn more about the institute and join the conversation about feeding our growing world through any of these online resources:

Follow us on Twitter @waterforfood
Like us on Facebook
Find useful information on Pintrest: waterforfood.nebraska.edu/blog/category/blog
Subscribe to our YouTube Channel: subscribe to our YouTube Channel
Follow and submit comments on our blog: waterforfood.nebraska.edu/blog/category/blog
Visit our website: waterforfood.nebraska.edu
INTERNATIONAL RESEARCH PROJECT AIMS TO INCREASE PROFITS FOR AFRICAN FARMERS

FORY MANY PEOPLE, A TRIP TO AFRICA CONJURES UP IMAGES OF WILDLIFE SAFARIS AND SUNSETS ON THE SAVANNA. Not so for Professor Charles Wortmann, who is more likely to visualize maps of soil properties, spreadsheets of crop data and charts of response functions. Since the July 2013 launch of his project, Optimizing Fertilizer Recommendations in Africa, Wortmann has filled more than 30 pages in his passport and has visited all 13 countries participating in the three-year project. Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Niger, Nigeria, Rwanda, Tanzania, Uganda and Zambia. Agriculturally important to Africa, these Sub-Saharan countries represent portions of about 40 different agroecological zones and grow annual food crops such as maize, sorghum, rice, dry beans and soybeans.

CHARTING RESPONSE FUNCTIONS

Existing data on crop-nutrient response functions, together with new data, is being used to determine the most profitable rate of fertilization for various crops. For example, farmers growing maize can maximize the return on their investment by applying nitrogen at the rate where the response curve is steepest (i.e., where the yield is greatly increased with the least cost of fertilizer).

So far OFRA has created approximately 3,500 response functions for different combinations of crops and nutrients in various zones. Yet more work remains, and data collection continues. “We know there’s still quite a lot out there in different people’s files and we just haven’t convinced them to let it go,” said Wortmann.

While a lot of response functions have been charted for some crops—maize, for example—other target crops have received less attention. To verify data from previous research and to fill in gaps where information is missing, field trials are being conducted in partnership with national teams from each of the countries. Nouri Maman, who earned master’s and doctoral degrees from UNL, serves as the regional coordinator for western Africa, and Kayuki Kaizzi fulfills that role for eastern and southern Africa. Field research on another continent involves understanding local farming systems and how they influence crop production. The poor soil in Mali and Niger, for instance, is improved by the presence of a unique tree that loses its leaves during the rainy season (reverse leaf phenology). Crops are able to grow beneath these trees where the soil is enriched without competing for sunlight.

COVERING MORE GROUND WITH SPATIAL INFORMATION

“Another thing we’re doing, which is quite novel, is to use spatial information. Even here in the United States we underutilize this potential,” said Wortmann. Crop response information from parts of Africa with similar crop growing conditions is applied to agroecological zones of interest to fill in information gaps using spatial soil and climate information. Spatial information from the Africa Soil Information Service and the UNL-developed Global Yield Gap Atlas allows OFRA to extrapolate, or predict, crop-nutrient response functions across agroecological zones.

For example, the Africa Soil Information Service provides information on soil properties for different zones. The Global Yield Gap Atlas provides climate information. The Fertilizer Optimization Tool, a computer program developed in 2012 by graduate student Jim Jansen, who is now a UNL research assistant and farmer, provides the estimated mean effect on yields and the expected net returns of fertilizer use. The tool then uses response functions to determine which crop-nutrient-rate combinations provide the best return on investment. Outputs include the recommended fertilizer and application rate for each crop, the estimated mean effect on yields and the expected net returns of fertilizer use.

All of the research becomes meaningful for African farmers through the Fertilizer Optimization Tool, a computer program developed in 2012 by graduate student Jim Jansen, who is now a UNL Extension educator in northeast Nebraska. Users input variables such as the area of each crop to be planted, anticipated grain values, fertilizer costs and the amount of money available for fertilizer. The tool then uses response functions to determine which crop-nutrient-rate combinations provide the best return on investment. Outputs include the recommended fertilizer and application rate for each crop, the estimated mean effect on yields and the expected net returns of fertilizer use.

In Uganda alone, more than 700 advisors of farmers have been trained to use this tool. The goal is that this practical tool will help African farmers make scientifically-sound decisions about fertilizer application. As a result, yields and farmer profitability will increase—ultimately helping to reduce hunger across Africa.

Building on previous work in Uganda, Wortmann wrote the preliminary proposal for the project and works closely with the Centre for Agriculture and Biosciences International in the United Kingdom. CABI provides project management, while UNL offers technical and scientific leadership. Funding for the $5.6 million project is provided by the Bill & Melinda Gates Foundation through the Alliance for a Green Revolution in Africa.
ROGER ELMORE Extension Cropping Systems Agronomist

ROGER ELMORE MAY HAVE A FAMILIAR FACE TO MANY NEBRASKANS. He has returned to the University of Nebraska–Lincoln after a nine-year hiatus in Iowa. Elmore returned in January 2014 as a cropping systems agronomist with UNL Extension.

He received his B.S. in agriculture/biology from Illinois State University and his M.S. in agronomy and Ph.D. in agronomy (International) from the University of Illinois at Urbana-Champaign. Raised on a grain and livestock farm near Princeton, Ill., he served as a Peace Corps Volunteer in Malaysia after his undergraduate degree at Illinois State University. His graduate work at the University of Illinois focused on corn, soybean and grain sorghum intercropping systems. After receiving his Ph.D., he worked 24 years as a UNL Extension crops specialist, initially at the South Central Research and Extension Center, Clay Center, and then on campus in Lincoln. He worked with cultural practices for irrigated corn and soybean systems and with nonirrigated winter wheat and grain sorghum.

After his initial work at Nebraska, he served almost nine years with Iowa farmers and students in order to improve corn productivity for Iowa State University Extension as a corn agronomist. A major accomplishment there was the publication of “Abedeeshet et al., 2011, Corn Growth and Development,” Iowa State Univ. Extension PMR 1009.

Now at UNL he co-leads a new cover crop research project supported by the Nebraska Soybean Board and the Nebraska Corn Board with Humberto Blanco and several other colleagues. He is also a B. Keith and Norma Heuermann Chair and Robert B. Daugherty Water for Food Institute Fellow. He enjoys his family and working outside. Elmore and his wife Ann live in Lincoln and have three adult children, two adult children-in-law, four grandsons and one granddaughter.

DANIEL SCHACHTMAN Plant Molecular Physiologist

DANIEL SCHACHTMAN JOINED THE DEPARTMENT IN FEBRUARY 2014. Professor Schachtman’s area of focus and current projects include the root microbiome, elucidating how soil microbes influence crop productivity and how plants influence their root-associated microbes. He is also currently the director of the University of Nebraska-Lincoln Center for Biotechnology.

Schachtman received his Bachelor of Science in agricultural economics and his Master of Science in plant physiology from the University of California, Davis. He received his Ph.D. from The Australian National University in plant physiology and genetics. Schachtman joined the faculty from Monsanto, where he was project lead and Science Fellow. Prior to Monsanto, Schachtman was a principal investigator and full member at the Danforth Plant Science Center in St. Louis. A plant molecular physiologist, Schachtman researched how plant roots respond and adapt to stressful conditions in soil. His research has led to seminal findings on the mechanisms of salt tolerance in wheat, the molecular identification and functional characterization of sodium, potassium and auxin transporters and the signal transduction networks controlling root response and adaptation to low nutrient conditions. His current research focuses on the interactions between plant roots and soil microbes and their impact on plant performance.

Schachtman grew up in Chicago with a strong interest in gardening and indoor plants and eventually found his career in agricultural research during his master’s degree at UC Davis and Ph.D. at CSIRO in Australia. Schachtman’s hobbies include hiking, biking, travel, wines, the stock market and food—eating and growing.

DAREN REDFEARN Forage/Crop Residue Specialist

DAREN REDFEARN JOINED THE FACULTY IN JUNE 2014 as a part of an interdisciplinary research and extension team focused on enhancing and developing integrated forage-based crop and livestock production systems. Prior to his arrival in Nebraska, he was with Oklahoma State University Extension for 14 years as a forage and pasture management specialist. He completed his Ph.D. in agronomy with a range and forage specialization from the University of Nebraska–Lincoln in 1995.

A unique opportunity exists in Nebraska to guide sustainable utilization of forage crops and crop residue and to integrate these products into beef cattle production systems on rangeland and pastureland. The opportunity to develop a new extension and research program area of focus that highlights integrated forage, crop, and beef systems is the principal reason Redfearn joined the faculty in Agronomy and Horticulture at the University of Nebraska. His goal is to build on the continuing strength of forage-based livestock agriculture in Nebraska.

According to Redfearn, one measure of success is to identify forages that can produce high rates of livestock gain during each month of the year. Simultaneously, Redfearn feels it is also critical that proper grazing and harvest management techniques are developed to maintain or enhance soil health and water use for these types of forage and crop residue systems. Overall, the adoption and implementation of these system components will result in the enhancement of long-term sustainability by identifying species suitable to meet overall management goals without compromising long-term production and sustainability of the systems.

These integrated programs will be implemented in collaboration with faculty in Agronomy and Horticulture, Agricultural Economics and Animal Science to address the transdisciplinary requirements needed to address these diverse production systems. Redfearn’s extension program incorporates and enhances the use of crop residues and annual forage crops into existing beef production systems, as well as implementing economical crop residue harvest and grazing methods. His research program will address the management, production and utilization strategies for annual double crop forages, study the influence of crop residue management systems on establishment of annual forage double crops, and create unique crop residue management systems that facilitate the use of annual forage double-crop systems.

Redfearn is joined in Lincoln by his wife Kasi, who is employed by Lincoln Public Schools as the librarian at McPhee Elementary School. His two daughters, Kelsi and Shelli, were both born in Lincoln during his graduate program. Kelsi is currently employed with NASA at Johnson Space Center in Houston, Texas, as an ETHOS flight controller, and Shelli is initiating her pursuit of graduate studies in speech and language pathology.
**BRIAN KRIENKE**

Soil Assistant Extension Educator

Brian Krienke grew up in Pierce, Neb., where he enjoyed helping on the family grain farm. This exposure and experience drove Krienke’s passion for agriculture. He received his B.S. and M.S. in agronomy from UNL, and he is currently a Ph.D. candidate finishing his degree in agronomy.

Krienke became a soil assistant extension educator in the department in May 2014. Much of his background is with soil fertility with corn and soybean production. He has experience with nitrogen management, which includes using remote sensing technologies such as unmanned aerial vehicles in his research. Current projects with regard to soil fertility include updating resource material for producers, conducting on-farm research and developing curriculum for producers that connects the classroom environment to the experience from the field on soil fertility issues.

Krienke loves to spend time with his wife of eight years, Abbey. The two enjoy hiking/backpacking, gardening, having friends over for game night and something as simple as a good cup of coffee.

---

**James Schnable**

Computational Biologist

James Schnable joined the department in May 2014. His research focuses on comparative genomics of grain crops. His lab is working on identifying the genetic changes that make many grain crops more tolerant of cold and more efficient in their use of water than corn and sorghum as well as supporting genomics-assisted breeding of Nebraska grain crops such as proso millet.

Schnable, who grew up in Iowa, received his undergraduate and graduate training in New York and California respectively. He is very happy his career has brought him back to the Midwest.

---

**FACULTY AWARDS**

Stephen Baenziger: Daugherty Water for Food Institute Fellow, National Council of Commercial Plant Breeders Genetics and Plant Breeding Award

Roch Gaussoin: CSSA President-Elect, Outstanding Alumnus Award from the Department of Plant & Environmental Sciences – New Mexico State University

John Guretzky: 2014 Agronomy Journal Outstanding Associate Editor

Gary Hein: NACTA Teaching Award of Merit Certificate

Greg Kruger: NCWSS Young Scientist Award

Dave Lamine: IANR Dinsdale Family Faculty Award, UNL Teaching Council and Parents Association Contribution to Students Award, Black Masque Chapter of Mortar Board February Professor of the Month

Sally Mackenzie: Gates Foundation Award

Deana Namuth Covert: Holling Family Senior Faculty Teaching Excellence Award

Daren Redfearn: Editor – Forage and Grazinglands

Zac Reicher: CSSA Chair-Elect of CS Turf Division, UNL Teaching Council and Parents Association Contribution to Students Award

Richard Sutton: UNL Teaching Council and Parents Association Contribution to Students Award

Kim Todd: Tau Sigma Delta Honor Society – Architecture and Allied Arts (nominated and accepted into membership)

Dirac Twidwell: Society for Range Management, Texas Section – 2014 Publication Award

Anita Wingeyer: 2014 Outstanding Postdoc Award

---

**American Agricultural Laboratory, Inc.**

210 East 1st Street, PO Box 370, McCook, NE 69001

McCook, NE 69001  308.435.5578

www.amaglab.com

Providing 38 years of analytical services to U.S., Canada, Mexico & Central America

“Analysts You Can Grow With.”

Specializing in

- Soil
- Fertilizer
- Water
- Heavy Metals
- Feed
- RFV / RFQ
- Mycotoxins
- Plant Tissue
- Manure
- Compost
- Sugar Beet Nematodes

Fertilizer Recommendations for your Crops

Certified by the National Forage Testing Association

Certified by DHHS for Water Analysis

Contact: christine@AmAgLab.com
IN OUR SEARCH FOR WAYS TO PUSH EVERY ACRE TO ITS LIMITS, THE ONLY THING WE HAVEN’T FOUND ARE THE LIMITS.

WinField®
be Greater

TOM HOEGEMEYER, PROFESSOR OF PRACTICE at the University of Nebraska–Lincoln, retired on Jan. 15, 2015. Again. Hoegemeyer previously retired in 2008 as the CEO of Hoegemeyer Hybrids, the family business that he had no intention of joining. That first retirement is what enabled him to top off a career in plant breeding at UNL, where his interest in genetics took root.

UNIVERSITY OF NEBRASKA–LINCOLN PRACTICE

Hoegemeyer didn’t know what he wanted to do when he arrived at UNL in 1966. Then he had a genetics class with Professor Dave McGill. “I just really liked him and the subject matter,” Hoegemeyer said.

Later, Hoegemeyer worked for Professor Charlie Gardner, a corn quantitative geneticist. “He was also really good to me,” Hoegemeyer said. When it was time to choose a graduate school, Gardner called people he knew. “He was the one who made connections for me,” Hoegemeyer said. “I was fortunate to have had such great mentors.”

WORLD-RENOVATED CORN BREEDER

Hoegemeyer obtained his doctorate in plant breeding at Iowa State University in 1974, he decided to help run the family seed business for a few years.

A few years turned into a few decades, and the little seed company in Hooper, Neb., grew to be a significant player in the industry. Along the way, Hoegemeyer became an internationally recognized breeder of corn hybrids.

In 2005, Hoegemeyer sold the genetics and breeding portion of the company to Syngenta and worked as a scientist for them for several years.

HIGHLY REGARDED FACULTY MEMBER

Initially recruited for a UNL fund-raising campaign in 2009, Hoegemeyer signed on to teach as well. “After having been out of the academic world as long as I had been, I was a little intimidated at first,” Hoegemeyer admitted.

But Hoegemeyer found the transition to be smoother than expected. “The department has been so gracious to me,” he said. “I am just very appreciative of all the opportunities I’ve been given.”

Colleagues, too, expressed sentiments of appreciation. “Having Tom in the department was one of the highlights of my experience here. In the corn breeding nursery, I was able to satisfy Tom’s addiction to corn breeding. In exchange, my students and I benefited from Tom’s vast knowledge, which he freely shared in the field,” said Aaron Lorenz, former assistant professor.

“As the department’s first plant breeder, I’ve been given. ”

Tom was our model for all who follow,” said Professor Gardner.

For several years.

In 2005, Hoegemeyer sold the genetics and breeding portion of the company to Syngenta and worked as a scientist for them for several years.

HIGHLY REGARDED FACULTY MEMBER

Initially recruited for a UNL fund-raising campaign in 2009, Hoegemeyer signed on to teach as well. “After having been out of the academic world as long as I had been, I was a little intimidated at first,” Hoegemeyer admitted.

But Hoegemeyer found the transition to be smoother than expected. “The department has been so gracious to me,” he said. “I am just very appreciative of all the opportunities I’ve been given.”

Colleagues, too, expressed sentiments of appreciation. “Having Tom in the department was one of the highlights of my experience here. In the corn breeding nursery, I was able to satisfy Tom’s addiction to corn breeding. In exchange, my students and I benefited from Tom’s vast knowledge, which he freely shared in the field,” said Aaron Lorenz, former assistant professor.

“As the department’s first plant breeder, I’ve been given. ”

Tom was our model for all who follow,” said Professor Gardner.

For several years.

In addition, Hoegemeyer wrote and taught three other courses offered to both resident and distance-learning students. These courses gave students all over the world access to Hoegemeyer’s firsthand experience in the field. “Tom was our window into private plant breeding, and our students will be forever in his debt. He helped shape their futures while shaping ours,” said Baenziger.

Easing out of academic life, Hoegemeyer will serve in an adjunct capacity while he assists several graduate students to finish their programs. He will also continue helping students make connections with people in the plant breeding industry, just as Professor Gardner once helped make a connection for him.

SEED-PLANTING, GLOBE-TROTTING RETIREE

“Tom was a great mentor,” said Aaron Lorenz.

For several years.

In addition, Hoegemeyer wrote and taught three other courses offered to both resident and distance-learning students. These courses gave students all over the world access to Hoegemeyer’s firsthand experience in the field. “Tom was our window into private plant breeding, and our students will be forever in his debt. He helped shape their futures while shaping ours,” said Baenziger.

Easing out of academic life, Hoegemeyer will serve in an adjunct capacity while he assists several graduate students to finish their programs. He will also continue helping students make connections with people in the plant breeding industry, just as Professor Gardner once helped make a connection for him.

SEED-PLANTING, GLOBE-TROTTING RETIREE

So what’s next for a fellow who has planted seeds most of his life? “I’m going to plant some wild rice and grow some hops,” Hoegemeyer said.

He is also looking forward to spending time with his family and traveling. In July, he and his wife Linda plan to trade Nebraska cornfields for fields of lavender and wine tasting in Provence, France.

“I’ve lived a charmed life,” said Hoegemeyer.

Perhaps. But one gets the sense that Hoegemeyer has simply reaped what he has sown.
JAMES SPECHT—40 YEARS

THOMAS ELTHON—25 YEARS

FACULTY

Honorary and Alpha Zeta Honorary Association, Sigma Xi Science Honorary, Gamma Sigma Delta Science Society of America, American and Nebraskan Soybean Advancement of Science, American Society of Agronomy, Crop the Nebraska Hall of Agricultural Achievement in 2012. Specht's include the Louise Pound-George Howard Distinguished Career community for many years to come. His recent honors and awards Associated Mapping populations that will serve as an exceptionally response of plants to environmental stresses, plant mitochondrial function and proteomic methods. Elthon also teaches plant growth and development, plant anatomy and botany.

JAMES SPECHT RETIRED JUNE 30, 2014. He received his Ph.D. in genetics from the University of Nebraska. Specht joined the department in 1974 and was promoted to full professor in 1985. He was honored with the Charles E. Bessey Professorship in 2004 and as the Francis and Dorothy Haskins Professor of Agronomy in 2010. Specht was a soybean physiologist and genetist and studied soybean yield response to drought and water irrigation. Early in his career, he helped Nebraska soybean growers by sharing information about proper irrigation for optimized crop yield and how irrigated soybean production could be more productive and more profitable. He has also served on research teams funded by the United Soybean Board that led to better understanding of the soybean plant and how genetics may be used to make plants more tolerant of drought. Specht has been the lead PI with respect to developing the national Nested Associated Mapping populations that will serve as an exceptionally valuable resource for the soybean genetics and physiology research community for many years to come. His recent honors and awards include the Louise Pound-George Howard Distinguished Career Service Award in 2015, Special Meritorious Service Award from the American Soybean Association in 2015 and induction into the Nebraska Hall of Agricultural Achievement in 2012. Specht's professional affiliations include the American Association of Advancement of Science, American Society of Agronomy, Crop Science Society of America, American and Nebraska Soybean Association, Sigma Xi Science Honorary, Gamma Sigma Delta Honorary and Alpha Zeta Honorary.

ROBERT WILSON—39 YEARS

ROBERT “BOB” WILSON RETIRED DEC. 31, 2014, AFTER 39 YEARS WITH THE DEPARTMENT. Wilson received his Ph.D. in 1975 from Washington State University. He was hired by the University of Nebraska in 1975 and promoted to full professor in 1985. Wilson's main area of focus was sugar beet production and demonstrating new technology and developing sustainable weed control systems involving cultural practices, tillage and herbicides for sugarbeet, dry bean, corn, alfalfa, chicory, selected horticulture crops and rangeland. He also explored the root yield and economic potential of chicory in western Nebraska. He is a member of Gamma Sigma Delta, Sigma Xi Scientific Research Society, Weed Science Society of America, North Central Weed Science Society, American Society of Sugar Beet Technologists and Western Society of Weed Science.

ALUMNI ADVISORY COUNCIL HOLDS MEETING

THE AGRONOMY AND HORTICULTURE ALUMNI ADVISORY COUNCIL HELD ITS INAUGURAL MEETING ON FRIDAY, DEC. 5, 2014, on UNL East Campus. The AAHAC is built on the voluntary participation of alumni with notable early and late career credentials. The mission of the AAHAC is to aid and counsel the head of the department in alumni engagement, financial stability, industry relations and student interaction with alumni. Members participate in a semiannual meeting with the department and throughout the year as needed.

The meeting allowed opportunities for council members to interact with members of the department and the Institute of Agriculture and Natural Resources. Council members participated in student and faculty “fast break” sessions where five-minute speeches were given on specific topics of interest. In addition to the fast break sessions, council members had the opportunity to hear NU Vice President and IANR Harlan Vice Chancellor Ronnie Green share information on the progress of the institute and anticipated changes taking place over the next few years. AAHAC members were also invited to attend the department’s holiday luncheon to further engage with staff and faculty.

Roch Gaussoin, professor and head of the department, commented, “I see this as the beginning of a long and mutually beneficial relationship with our stakeholders. Putting the department in the position to have a meaningful interaction with alumni will be a tremendous opportunity for positive growth and relevance as an academic unit.”

THOM HOEGEMEYER—SIX YEARS

TOM HOEGEMEYER RETIRED JAN. 15, 2015, AFTER SIX YEARS WITH THE DEPARTMENT. Hoegemeyer received his bachelor’s degree in crop science from the University of Nebraska in 1970 and his doctorate in plant breeding from Iowa State University in 1974. Hoegemeyer retired in 2008 as the chief executive officer of Hoegemeyer Hybrids, where he was an internationally recognized breeder of corn hybrids. In retirement, Hoegemeyer assisted with a UNL fund-raising campaign in 2009 and started teaching in the Department of Agronomy and Horticulture as a professor of practice. He became the department’s first plant breeder in residence. Hoegemeyer also wrote and taught three other courses offered to practice. He became the department’s first plant breeder in residence. Hoegemeyer also wrote and taught three other courses offered to practice. He became the department’s first plant breeder in residence. Hoegemeyer also wrote and taught three other courses offered to practice.

DALE SWARTZENDRUBER

Emeritus Professor Dale Swartzendruber, age 89, passed on Oct. 21, 2014. Dr. Swartzendruber was a soil physics professor at the University of Nebraska-Lincoln from 1977 to 1998, when he retired. He was dedicated to excellence in research and teaching and was a member of the Soil Science Society of America and the American Geophysical Union. Prior to coming to the University of Nebraska, Swartzendruber was a distinguished member of the faculty at Purdue University. Some of his honors include SSA and ASA Fellow as well as the Soil Science Society of America’s Distinguished Service Award, and he authored more than 85 publications throughout the course of his career.

Dr. Darrell Nelson, UNL emeritus professor and colleague of Swartzendruber, said, “Dr. Swartzendruber was one of the preeminent soil physicists in the United States. His work on water and heat flow in porous media was of ground breaking quality and led to his receiving the SSA Research Award.”

Impacting Lives Through Science

LI-COR Biosciences is a leader in the development of research tools for plant biology, biotechnology, and environmental research.

STAFF AWARDS

Tomie Galusha: Staff Advisory Committee Special Contributions Award
Ben Loseke: SAC Professional Development Award
Matt Sousek: SAC Professional Development Award

LI-COR

4647 Superior Street
Lincoln, NE 68504
www.li-cor.com
GROOMS RISES TO THE TOP

MARISA GROOMS, A FORMER UNIVERSITY OF NEBRASKA–LINCOLN UNDERGRADUATE from Valentine, Neb., won the second annual Engler Quick Pitch Competition last spring. Rising to the top in a field of nearly 80 applicants, Grooms pitched a business idea for a soil-sampling lab for area producers with a high level of customer service and won $1,000 for her efforts.

Shortly after winning, Grooms graduated with a B.S. in agronomy and started a job with agricultural giant Cargill. Cargill, one of the largest privately held corporations in the United States, provides food, agricultural, financial and industrial services, and products to 67 countries around the world.

Grooms believes the degree she received from UNL was well-rounded and beneficial in preparing her for a career in agronomy.

“I’m glad I made connections and took advantage of the opportunities offered, such as Agronomy Club and out-of-state internships in New York and Kansas. My professors were good mentors—they enjoyed visiting with their students and offered advice,” Grooms said. She chose the soil science option under the agronomy major and took as many plant-related classes as possible while still graduating in three years. She appreciated the opportunity to choose her classes and mentioned her favorite class as AGRO 405 taught by Department of Agronomy and Horticulture Professor Steve Mason.

“His class allowed me to look into the future. It gave me real-life experience and was easily the most difficult but beneficial and realistic class I took,” Grooms said.

Now she is putting her skill set to work at Cargill improving the efficiency of food production, and her future is looking bright. Grooms is currently working as a sales agronomist for the company. She sells crop inputs such as fertilizers, fungicides, insecticides and herbicides, as well as meeting with producers and finding solutions for their operations.

“I’m in the office at times and other days I’m checking fields or visiting with producers, so it varies,” said Grooms. “I really enjoy my work and I am thankful for the opportunities and experiences I had at UNL which helped shape my future.” —Anthony Vance

YOUR OPERATIONS IS NOT THE PLACE TO TEMPT FATE

Out here, your livelihood depends on the land and the resources it takes to produce crops and livestock that the rest of the world relies on. As your complete ag testing partner, Ward Laboratories provides quality analytical testing and consulting services for soils, plants, feed, forage, water, manure, fertilizer and other specialized projects. When you’re equipped with in-depth knowledge on each facet of your operation, you’re better positioned to maximize production.

Get the Ward Reward

- Fast turnaround
- Competitive pricing
- Accurate results
- Personal service

“Guiding Producers Today to Feed the World Tomorrow”

Get started with Ward Laboratories, Inc.
800-887-7645 | 308-234-2418
www.wardlab.com
**ALUMNI | VISITING SCIENTIST**

**BECOMING A VISITING SCIENTIST WAS A GOAL I WISHED TO FULFILL AFTER I FINISHED GRADUATE SCHOOL.** My name is Piyaporn Phansak, but most people at UNL know me as Bee. I received my doctoral degree from the Department of Agronomy and Horticulture, University of Nebraska–Lincoln in 2010.

Under the supervision of Dr. James Specht, I worked with the soybean breeding program to complete my dissertation “Detection of soybean seed protein QTLs using selective genotyping.” After finishing my Ph.D., I decided to do postdoctoral research with Dr. Specht and Dr. Roch Gaussoin for another two years.

I returned to my home country, Thailand, in 2013. I soon wished to return to the United States to gain more research experience and learn new techniques and methods. With much kindness, Dr. Harkamal Walia accepted me to work in his lab as a visiting scientist.

At first, I was a little nervous. I didn’t know what the experience would be like or what type of work I would be doing. However, after only a couple weeks in the lab, I learned the system and became comfortable in the environment. My projects focused on salt tolerance in rice and submergence tolerance in maize.

Responsibilities included designing experiments, planting, collecting and analyzing data and assisting other lab members in time of need. Most of my work was in the greenhouses. Some days I worked in the field with graduate students, while other days I worked in the lab.

Working as a part of Walia’s lab, I saw not only the importance of people willing to help others but also how the lab members work as a family by lending assistance to get things done on time. It is this family-like environment that I also enjoy as a researcher and teacher in Thailand.

The Walia lab has been a great experience. Even though I worked as a visiting scientist for a short period of time, it was rewarding to experience the joy of a day’s work, people who help others, new techniques that can be applied to my future work and a place to make new friends. — Piyaporn “Bee” Phansak

---

**GROW YOUR STORY IN THE UNIVERSITY OF NEBRASKA–LINCOLN DEPARTMENT OF AGRONOMY AND HORTICULTURE**

You’ve got work to do—to plant, to nourish, to grow, to enrich, to harvest, to feed.

You’re a doer, a producer, a scientist, an entrepreneur, a teacher, a game changer.

Undergraduate programs in Agronomy, Horticulture, Plant Biology, and Turfgrass & Landscape Management provide hands-on learning in research labs and out in the field, preparing you for a future where you can influence the world in powerful ways.

Here you will get personal attention at a Big Ten university and learn from faculty who work to feed and enrich the lives of a growing global population.

Contact Anne Streich to learn more about getting your start in the UNL Department of Agronomy and Horticulture.

Grow your story here and impact the world.

agronomy.unl.edu/undergraduate

402-472-1640 or astreich2@unl.edu

---

**STOCK SEED FARMS**

A Leader in Native Grass & Wildflower Production

Quality Seeds Since 1936

- Native Prairie Grasses
- Wildflowers
- Candy™ & Bosia™
- Turf-type Buffalo Grass
- Pasture & Forage
- Wildlife Habitats
- CRP Seedings
- Erosion Control
- Conservation
- Maneuvers
- Fescue Re-establishment
- Landscapes
- Acreage Seedings
- Ornamental
- Field Seed
- Turf Seed
- Lawn Fertilizer
- Cover Crops
- Alfalfa/Clover

Visit our website to view our entire product line, request a free catalog, or place an order!

www.stockseed.com

1.800.759.1520 • Email: prairie@stockseed.com

28008 Mill Rd • Murdock, NE

---

**CONTACT ANNE STREICH**

402-472-1840 or astreich2@unl.edu

growyourstory@unl.edu/undergraduate

---

**AgSource Laboratories**

A Subsidiary of Cooperative Resources International

300 Speedway Circle, Unit #2 • Lincoln, NE 68502

Phone 402/476-0300

©2014 CRI A-08393-14

lincoln.agsource.com

402.476.0300

labinfo@agsource.com

PROFESSIONAL LABORATORY ANALYSIS

SOIL • PLANT • WATER

Visit our website to view our entire product line, request a free catalog, or place an order!

www.agsource.com

---

**STOCK SEED FARMS**

A Leader in Native Grass & Wildflower Production

Quality Seeds Since 1936

- Native Prairie Grasses
- Wildflowers
- Candy™ & Bosia™
- Turf-type Buffalo Grass
- Pasture & Forage
- Wildlife Habitats
- CRP Seedings
- Erosion Control
- Conservation
- Maneuvers
- Fescue Re-establishment
- Landscapes
- Acreage Seedings
- Ornamental
- Field Seed
- Turf Seed
- Lawn Fertilizer
- Cover Crops
- Alfalfa/Clover

Visit our website to view our entire product line, request a free catalog, or place an order!

www.stockseed.com

1.800.759.1520 • Email: prairie@stockseed.com

28008 Mill Rd • Murdock, NE

---

**CONTACT ANNE STREICH**

402-472-1840 or astreich2@unl.edu

growyourstory@unl.edu/undergraduate

---

**AgSource Laboratories**

A Subsidiary of Cooperative Resources International

300 Speedway Circle, Unit #2 • Lincoln, NE 68502

Phone 402/476-0300

©2014 CRI A-08393-14

lincoln.agsource.com

402.476.0300

labinfo@agsource.com

PROFESSIONAL LABORATORY ANALYSIS

SOIL • PLANT • WATER

Visit our website to view our entire product line, request a free catalog, or place an order!

www.agsource.com

---
Aaron Rerucha considers himself to be incredibly lucky. This Nebraska native has received both the Engler Scholarship and the Cabela’s Scholarship.

The financial aid he received while still a student at UNL’s Department of Agronomy & Horticulture helped him start Oxbow Natural Landscaping on a 24-acre plot of land that has been in his family for generations.

Aaron is grateful for the scholarships he received. Grateful to all of the donors who make students’ dreams possible. Grateful to be able to make his grandfather and his great-great-great-grandfather proud.

You have the chance to make other students’ dreams come true. Give online at nufoundation.org/agronomyandhorticulture or contact Ann Bruntz at 402-458-1176 or abruntz@nufoundation.org.