On April 7-12, 2014 Northwest Missouri State University (NWMSU) and the Missouri Natural Resources Conservation Service (NRCS) hosted the North American Colleges and Teachers of Agriculture (NACTA) National Collegiate Soil Judging Contest in the Maryville area of MO. There were 17 teams in the 2-year and 4-year divisions from across the US participating in the contest. Soil judging provides practical experience in evaluating the physical and chemical properties of soils important in making land use decisions. Soil forming factors (including site characteristics), soil classification, land use interpretations, and soil morphology are all key parts of the judging process. The top four teams at this national competition were 1st – University of Wisconsin River Falls (UWRF, with 2717/3714 points), 2nd – South Dakota State University (SDSU with 2668 points), 3rd – University of Wisconsin Platteville (UWP with 2642 points), and 4th – Purdue University (PU with 2597 points). Individually there were 1238 points. Individuals that placed from the SDSU team were Hannah Wilkerson (4th with 915 points), Nathan Odegard (9th with 879 points), Brandon Splinter (13th with 858 points), and Joseph Gerber (28th with 785 points). Other team members are Caleb Buysse, Tyler Carda, Derek Guthmiller, Tanner Sjomeling, and Stuart Tilma. The SDSU Soil Judging team is coached by Rachel Owen, Graduate Research Assistant, and Doug Malo, Distinguished Professor of Plant Science, in the College of Agriculture and Biological Sciences.

Announcements

Resignations
Leo Schleicher has resigned from his Professor position in Horticulture.
Buyung Hadi has resigned from his position as Pesticide Ed Coordinator/Urban Entomology Coordinator.

Other News
Five team members, PhD students Jiaoping Zhang, Siddhi Bhusal and Mukhtar Agoub, Visiting Scholar/Post-Doc Dr. Xianzhi Wang, and Guo-Liang Jiang attended the 2014 Soybean Breeders Workshop held in February in St Louis, MO. Two oral presentations were made by Jiaoping and Dr. Jiang. Each of the three PhD students and Dr. Wang made posters. Siddhi Bhusal won the third prize in the graduate poster competition at the conference.

Celebrate the Earth!
Earth Day—April 22
Arbor Day—April 25
Deneke and Rosenberg Honored

Comments read by Brenda Sievers from the SD Department of Agriculture at the Weed and Pest Conference in February:

“Mark Rosenberg graduated from SDSU with a BS in Agriculture Education/Extension. He has worked the majority of his career in Spink County, where he dedicated 29 years working with not only landowners and producers, but influencing and guiding many young 4-H’ers.

Mark was a vital part of the Spink County Weed and Pest Board, giving them advice and expertise in weed control options and methods. Mark is currently serving as the Extension Field Specialist for Agronomy-Weeds at the Aberdeen Regional Center. He is responsible for crop weed management, noxious weed education, pesticide use education plus general agronomy programming. Mark has 1 daughter who is currently a nurse in Sioux Falls. Please help recognize Mark Rosenberg as an Outstanding Contributor to Weed & Pest Control.”

“Our last award goes to an individual that is very well known to all of us. I’m sure there isn’t a week that goes by in any one of your counties that this man’s name isn’t mentioned. And I don’t mean that in a bad way! Without this man’s help, the Weed Program in the State of South Dakota wouldn’t be what it is today. And this is especially true in this last year! Darrell Deneke is no stranger to any of us. He graduated from SDSU with a degree in Animal and Dairy Science. He started out his Extension career as a County Agent in Hutchinson County – where we still hear stories of his days there! He then moved to Hand County and served as County Agent, assisting kids in the 4-H program as well. Darrell went back to help out on the family farm raising pigs and sheep for several years, but returned to Extension. This time he was helping out Leon Wrage with the Weed Program. Darrell has been serving as the SDSU Extension IPM Coordinator since 1997. Darrell spends endless amounts of time answering weed questions, helping with biocontrol, assisting counties with their annual meetings and sharing his wealth of knowledge with others on weed control. He is a walking encyclopedia when it comes to figuring out the descriptions that people give at the booths on what my weed looks like….

Such as - it has yellow flowers and green leaves. At State Fair, he divides his time between his two of his loves – sheep and weeds. If you don’t find him at the Weed booth, you will more than likely find him in the sheep barn – either feeding his sheep or prepping them for the show. Darrell also oversees the test plot work that is done and helps get the trial information out to the public. Without all his work, we wouldn’t have the many brochures that we hand out today. There are so many things that Darrell does to help all of us, but this award really says we appreciate all you do for Weed Control in South Dakota. Please help recognize Darrell Deneke as an Outstanding Contributor to Weed and Pest Control.”

Featured Employee

Name: Dave Vos
Title: Ag Research Manager / Specialist
Office: SAG 235

Work history
Number of years at SDSU: almost 30
Previous jobs held: Dow-Agro
Future goals: Retire before going to the old folks’ home

Education
High School: Luverne High School
University/College & major: SDSU—Agronomy, Soil Science Minor

Personal
Spouse: Beth
Children: Dan and Michael—Cody, Pam and Tammy
Hometown: Hardwick, MN
Places you have lived or visited: Water-town, visited Hawaii (parts are just like SD)

Just for Fun
Favorite Book: Bell’s Inequality
Favorite TV show: Star Trek and Star Trek Enterprise
Favorite movie: The Great Outdoors—John Candy “I see trees”
Hobbies or interests: Astrophysics, gardening
If you could have three wishes, what would they be?
World Peace
Food, clothing, and shelter for everyone
Three wishes for everyone.
David Clay Receives Distinguished Research Award

Dr. Clay’s research goal is to develop and test sustainable agricultural management systems that enhance environmental quality, maintain rural economies, and improve energy self-sufficiency.

Dr. David Clay is the Director of the South Dakota Drought Tolerance Center, Professor of Plant Sciences, Fellow of the American Society of Agronomy, and Technical Editor for the Agronomy Journal. In addition he is an Editor or author for 10 books or manuals. He has published over 200 papers and been awarded 123 grants. Based on his research, teaching, and extension activities he was awarded the SDSU/Rio College Deans Award for Excellence (1999) and Teamwork (2004), SDSU Gamma Delta Research Award (1996), SDSU F.O. Butler Award for Excellence in Research (2004), SDSU Sigma Xi Presidents Award for Service (2006), USDA-ARS Collaboration Award (2006); the PrecisionAG Award of Excellence in Education and Research (PrecisionAG Institute, 2009); Weed Science Paper of the Year (2012), the 2013 ASA Precision Agriculture Systems Impact Award; and been awarded certifications of excellence for the wheat and corn BMP manuals.

Dr. Clay is an outstanding scientist, creative thinker, and is a catalyst for positive change. He exhibits excellent leadership and collegiality, and is one of the very top researchers in the College of Agriculture and Biological Sciences.

International scientists drawn to biotechnology lab, expertise

Top-notch laboratories, molecular biologists, pathologists and wheat breeders, along with a land-grant institution’s close relationship to its producers, have drawn visiting scientists from three countries to SDSU. During the last six months, scientists from Algeria, South Korea and India have been learning how to develop wheat that can tolerate or resist disease and environmental stressors by genetically screening plant materials.

Hamida Benslimane from M’hamed Bougara University in Algeria studied the pathogens that cause the wheat fungus tan spot; Dea Wook Kim from the National Institute of Crop Science in South Korea, analyzed preharvest sprouting; and Shahid Ahmed from the Indian Grasslands and Fodder Research Institute has tackled leaf rust.

Benslimane spent 10 weeks at SDSU examining the pathogen itself and the genes and proteins that could lead to resistance to tan spot in wheat. “This pathogen causes too much damage,” said Benslimane, citing up to 50 percent yield losses in North African wheat fields. “Here I found people who have been working on tan spot for 20 years,” she explained. She worked with small grains pathologist Shaukat Ali to understand the disease. Then molecular biologist Jai Rohila of the biology and microbiology department helped decipher what genetically makes one variety resistant and another susceptible to the fungus.

“Only 1 percent of the 182 million bushels of wheat used in South Korea is locally grown, according to Kim. In 2008, the government set out to increase local production to 10 percent by 2017. “We are trying to expand the area of cultivation and improve the quality and yield,” said Kim.

As part of a two-year project, Kim spent three months at SDSU studying why one line of wheat is more susceptible to preharvest sprouting than another.

Korean farmers raise white winter wheat, planting in October and harvesting in June; however, the country’s rainy season begins in June, explained Kim. If the rains hit the crop before it has been harvested, the grain begins to sprout in the head. “It’s a problem everywhere,” said Rohila. “Just before harvesting, farmers don’t need the rain. When farmers can’t get in the field, ear loss and quality loss can happen.”

White winter wheat is particularly susceptible to preharvest sprouting, explains Kim. To help Kim improve preharvest sprouting tolerance in Korean wheat, SDSU wheat breeder Karl Glover provided Kim with 40 lines of wheat—half of them are tolerant to preharvest sprouting and half are susceptible.

“I did not expect this,” says Kim. He compared the lines to determine which functional proteins account for this tolerance. Wheat is a major crop in India, with farmers raising nearly 95 million tons each year, according to Ahmed, a senior scientist and oats breeder at the Indian Grasslands and Fodder Research Institute. His work is supported by the Indian Council of Agricultural Research.

Leaf rust is an airborne disease, Ahmed explained. “If the wind blows, it carries the spores,” infecting both wheat and oats. When conditions are conducive for leaf rust, it can affect 35 to 45 percent of the crop, reducing yields by as much as 45 percent, Ahmed explained. “It affects the quality of fodder oats.” Though farmers use chemicals to control the disease, Ahmed seeks to breed resistant varieties.

Now he must grow the whole plant population under disease conditions to determine if it is resistant to leaf rust, but at SDSU, he will learn how to “screen that breeding material at an early stage rather than going to the full-scale field.” It’s called marker-assisted selection.

To do this, Ahmed worked with molecular biologist Yang Yen, who is experienced in molecular marker-assisted selection. He used the resources at the plant biotechnology lab to accomplish this, thanks to his host, Rohila.

By screening the DNA of several wheat breeding lines using modern biotechnology tools, Ahmed can extract the genetic material from a plant leaf, compare it with a resistant or susceptible parent from the cross and then can tell whether the offspring will show a resistant or susceptible phenotype to the disease.

“We can test the breeding material at a molecular level,” he said. Being able to promote or reject a line without growing the plant in the field will speed up the process of breeding for resistance in Indian grain. As was done for Kim, Glover provided Ahmed with lines that are resistant and susceptible to leaf rust.

Link to Article
Congratulations!

Lily Jane was born February 25, 2014 to Karl and Andrea Glover. The little Miss weighed 6 lbs, 3 oz and joins a sister, Alison. Pictured here are Alison and Lily with the lilies from the Plant Science Department.

Interesting Links

SDSU dean relates sense of urgency about precision ag
Producers hear about latest on precision ag frontier
Winter wheat variety selection tool helps production
Bare-Root Plants Can Be a Bargain This Spring
Growing Teff Grass
Glyphosate Resistant Waterhemp: A Growing Problem
Growing Vegetables in Tubs
Thinking About Growing Field Peas in 2014

Jiyul Chang became an American citizen on Friday, April 11, 2014. Congrats!

Entomology Graduate Students Karly Henry and David Ordosch presented posters at the North Central Branch meeting of the Entomological Society of America held March 9-12 in Des Moines, IA.