Growing
South Dakota
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COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / SPRING 2011

Optimistic Career Outlook for Ag Grads

Livestock Judging Endowment Established

Summer Signals Prime Time for Research
“The ultimate measure of a man is not where he stands in moments of comfort and convenience, but where he stands at times of challenge and controversy.” — Martin Luther King, Jr.

In the early 1920’s, farmers and ranchers became interested in bringing electricity to their farms and ranches. At that time, individuals had the choice of using gasoline engine driven electricity systems, or low output wind chargers with large batteries for use when the wind didn’t blow. In 1925, the Agricultural Engineering Department at South Dakota Agriculture College (now South Dakota State University) helped develop one of the first central service electric lines in rural America, the Renner Test Line that ran from Sioux Falls to Renner.

Tests of the Renner Test Line were conducted by Ralph Patty, who went on to become the first Head of the Department of Agricultural Engineering at South Dakota Agriculture College. Patty published the results of his work in three bulletins that aided significantly in the electrification of rural South Dakota and our nation. Eighty-six years later, it is nearly impossible for us to imagine what life was like on farms and ranches without electricity.

My wife Jane’s grandfather, Edward Steen, knew what it was like. Edward passed away in 1969, but farmed for 55 years north of Brookings, on the land homesteaded by his father. It is the farm that Jane and I call home today.

Some of my favorite stories about Edward center on his response to the challenges he faced during the difficult drought and Depression of the 1930s. He faced those challenges while raising his family, taking care of aging parents, and playing a key role in the development of the rural community of Brookings.

When the opportunity presented itself to bring rural electric service to his home and farm, Edward not only invested financially in the process, but physically helped set the poles and string the wire. To put this in perspective, while Jane’s grandmother was selling eggs and cream for grocery money, and her mother and aunt were little girls collecting cow chips and corn cobs to heat the farm house, Edward was digging post holes to electrify the lives of his family and community. But in terms of South Dakota, what is remarkable about Edward Steen was how commonplace his actions were — stories about men and women like him can be told by thousands of families across our state.

Similarly, Ralph Patty’s outstanding work in the electrification of our state is also mirrored in the hundreds of stories about individual faculty members at South Dakota State University who improved the lives of South Dakotans in fulfillment of the land-grant mission of teaching, research and extension.

Sadly, South Dakota State University’s ability to fulfill its land-grant mission is in jeopardy. During the last three state budgets, South Dakota has reduced the base funding of the College of Agriculture and Biological Sciences at SDSU by $3.5 million. With anticipated cuts to the federal budget, this will exceed $4 million. Base funding to the college is critical, as it is primarily used by the College to pay the salaries of its faculty, Extension educators, and support staff.

The impact of correcting the structural deficit caused by these state and federal cuts to the College has been dramatic. In an organization that is 90%-plus people, it means many people have lost their jobs. We have reduced the size of the administration of the College. The faculty has had their compensation dramatically reduced. Two field research stations have been closed as well as two service labs. We have reduced the number of departments in the College from 10 to eight. In late October, we will be operating the SDSU Extension service under a new structure and staffing model.

To the diverse groups of people that the College serves, it means reduced and changing services.

In the last three months, I have attended meetings across the state with a wide array of interested constituent groups including the State Extension Advisory Board, 4-H Leaders Association, Farmers Union, Farm Bureau, and open meetings with county commissioners, legislators, and concerned citizens. I have also sought and received feedback via e-mail and phone calls from literally hundreds of people.

One of the most provocative questions I received during this interactive process was from a concerned 4-H parent/leader, who asked: “Will all of these changes hurt the children of South Dakota?” I paused for a moment, thanked her for her excellent question, thought of Jane’s grandfather and the dedicated faculty and staff at SDSU, and answered: “It depends on us!”

Edward Steen was a farmer. Ralph Patty was a professor. The careers of these two men were as different as night and day. But they shared a remarkable spirit of self-reliance and an immeasurable dedication to the service of others.

While the impact of the budgetary decisions hoisted upon us seems unyielding, I am confident that if presented by similar challenges, a professor named Ralph and a farmer named Edward would willingly accept the challenge, knowing full well that the future depended on them, as it does on us today.

Barry H. Dunn, Ph.D.
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On the Cover:
South Dakota's state flower, the pasque, is a welcome sign of spring. The purple beauty and an array of other colorful flowers, grasses, trees and shrubs can be enjoyed during a visit to McCrory Gardens near the SDSU campus in Brookings. Learn about the new Education and Visitor Center being constructed at McCrory Gardens on page 21.

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McCrory Gardens Grows To Include Education And Visitor Center
It's an exciting time to be in agriculture with an abundance of career opportunities ahead. That's the report Don Marshall, director of academic programs for SDSU's College of Agriculture and Biological Sciences, shares as spring graduation culminates for students.

“We've seen a strong market for ag jobs in the last decade, and that trend is expected to continue,” indicates Marshall. He credits the optimistic ag outlook to the world's growing population.

Marshall notes that the global population is projected to expand to more than 9 billion people by the middle of this century - meaning 2.3 billion people will be added to the planet over the next four decades.

As a result, Marshall explains there is growing need for food and the myriad of products, research, and industry related to agriculture, which also means career growth for the ag sector.

That uptick is already being seen. Marshall cites a USDA outlook report that forecasts 5% more college graduates with expertise in agricultural and food systems, renewable energy, and the environment will be needed from 2010 to 2015 compared to the five years previous.

Specifically, the USDA study projects there will be an estimated 54,400 annual openings nationally for individuals with college degrees related to food, renewable energy, and environmental specialties between 2010 and 2015. Seventy-four percent of the jobs are expected in business and science occupations; 15% in agriculture and forestry production; and 11% in education, communication, and governmental services.

The same report projects that there will only be approximately 53,500 qualified graduates available each year. Resulting in job growth out-pacing college graduates, and putting individuals with ag-related degrees and experience in demand, says Marshall.

What's Hot?

Marshall says that while employment opportunities in general have weakened during the recent economic downturn, agriculture has held up better than most sectors.

“Many of the traditional career areas, such as agronomy, livestock, feed, natural resources, food and dairy processing, and financial institutions, are still in demand, but there are also new career areas that are growing,” says Marshall. As examples he cites careers in food safety, agro security, biofuels, genetic technology, precision farming, and technical support emerging for the future.
Growing Career Fields

The opportunities – and occupations – in agriculture are diverse, with growth projected in many career fields. Specifically, the U.S. Department of Labor projects significant growth in selected food, renewable energy, and environment jobs through 2018. Among those occupations and the anticipated percent increase in jobs include:

- Agricultural Inspectors (12.8%)
- Animal Scientists (13.2%)
- Biochemists and Biophysicists (37.4%)
- Computer and Information Systems Managers (16.9%)
- Credit Analysts (15%)
- Environmental Engineers (30.6%)
- Environmental Scientists and Specialists (27.9%)
- Financial Analysts (19.8%)
- Food Scientists and Technologists (16.3%)
- Hydrologists (18.3%)
- Market Research Analysts (28.1%)
- Natural Sciences Managers (15.5%)
- Pest Control Workers (15.3%)
- Public Relations Specialists (24%)
- Recreation Workers (14.7%)
- Sales Managers (14.9%)
- Soil and Plant Scientists (15.5%)
- Technical Writers (18.2%)
- Veterinarians (33%)

Source: Monthly Labor Review (November 2009)

The USDA report pinpoints a few career fields that will particularly be seeking employees in the future as well. They include:

- More graduates from the allied fields of biological and health sciences will be required to fill positions that address consumer preferences for a safe and nutritious food supply.
- Likewise, more earth and atmospheric scientists and environmental engineers will be required to address the evolving public policy choices in energy and the environment.
- Shortfalls of qualified graduates to work as plant geneticists and plant breeders, climate change analysts, and food safety and security specialists are anticipated during 2010-15.

Marshall adds that as the global population and need for food grows, it could also create increasing challenges related to land and resource use, environmental management, animal welfare and keeping rural communities viable. “Agriculture will face complex issues, and those issues will create careers in and of themselves. We will need people in those career areas who can provide leadership for agriculture and rural communities,” he says.
Preparation for the Future

To assist students in preparing for the ag career opportunities that await, Marshall says the ABS College and its departments offer several formats to help students plan for their future.

As examples, Career Planning Services on campus offers students assistance in exploring career options, locating potential employers, preparing a resume, and finding internships. Likewise, many departments maintain physical or electronic bulletin boards to publicize intern and career opportunities. Guest speakers in classrooms and to student organizations, as well as judging team opportunities can also expose students to industry leaders and beneficial experiences.

The College also sponsors the annual Ag Bio Career Day each fall as a networking venue to bring employers together with students. “We’ve had a record participation in the number of employers coming to campus and the number of students participating,” Marshall says of the past few years.

Last but not least, Marshall emphasizes the importance of students gaining work experience as they prepare for graduation. He notes that part-time student positions on campus provides an opportunity for students to gain experience related to their major, as does undergraduate research.

Internships can also be invaluable. “Internships are a great way for students to get their feet wet in the job market and start making contacts for permanent jobs,” Marshall concludes.

Editor’s Note: SDSU’s College of Ag and Biological Sciences graduates nearly 400 students annually. In addition to pursuing industry careers, several of those graduates go on to graduate school or professional schools – such as pre-vet or human medicine, optometry or dental school for students with biological science degrees.

DEMAND FOR DAIRY SCIENCE GRADS

SDSU’s Dairy Science Department definitely has a lot of things to be proud of:

- They are one of only two university programs in the nation that offers degrees in dairy production – producing milk on the farm – and dairy manufacturing – processing dairy products into foods.
- Nearly 100% of SDSU’s dairy science graduates find jobs directly out of college, with starting salaries typically in the $45,000 to $50,000 range.
- And, there’s that famous SDSU ice cream.

As of this summer, the Dairy Science Department will add another thing to their list of accomplishments – an addition and renovation to the dairy science building and dairy processing plant on campus.

“We’ve been very fortunate,” says professor and SDSU Dairy Science Department Head Vikram Mistry of the support from the dairy industry in offering scholarships and employment opportunities to graduates, and now private funding to help make the improvements to the dairy plant.

The price tag on the project is $9.5 million with $8.5 million coming from donations from producers, processors, alumni and friends. It will add 10,850 square feet of additional space and completely renovate the dairy processing facility – which has not seen major updates in 53 years.

Mistry says the building enhancements will allow the SDSU dairy program to continue its prominence as a leader in dairy science production, research and manufacturing, which benefits students and industry.

Mistry anticipates demand for dairy science graduates to continue to remain strong, saying, “We are part of the food industry. Whether there’s a recession or not, there’s a demand for food.”

Dairy science majors often pursue positions as dairy plant managers, quality control lab technicians, family farmers, business owners, government officials or university faculty.

Editor’s Note: Typically SDSU has about 85 undergraduates and 15 graduate students enrolled in the dairy science program. Students can earn Bachelor’s, Master’s or PhD degrees in the department.
Beginning with the Fall 2011 semester, the College of Agriculture and Biological Sciences will offer introductory agricultural courses at the new University Center in Rapid City. Course offerings will include introductory curriculums in plant science, range science, animal science and other areas as demands dictate. These introductory classes would allow students to lay the foundation for pursuing a major in Animal Science, Agronomy, Ag Business, Range Science, Ag Education or General Agriculture.

"By offering the classes locally, we hope we can help those in the region to start their educational journey with SDSU," says Sue Blodgett, head of the Department of Plant Science.

The South Dakota Board of Regents is constructing the new center in Rapid City to meet growing demand for higher education for those who cannot attend one of the existing university campuses in the state.

Gail Dobbs Tidemann, Dean of SDSU's Continuing and Extended Education program, says students who enroll in the courses can get most of their first-year, and possibly more, course work completed in Rapid City.

“Our plan is to provide an opportunity for students in the West River area to take some introductory agriculture courses, along with general education courses, that will be available at the University Center, Rapid City,” Tidemann explains. “For many, it’ll help them get their educational directions mapped out, and they then can continue a degree on campus.”

Don Marshall, director of academic programs for SDSU’s College of Agriculture and Biological Sciences, sees the new center as an opportunity to help SDSU continue its ongoing service to the agricultural industry in South Dakota.

“I am very optimistic that career opportunities related to agriculture will continue to grow in the future due to expected dramatic increases in global demand for food, fiber, and fuel,” says Marshall. “The new University Center in Rapid City will provide a convenient way for students to begin their educational careers closer to home and provide additional educational options for working adults.”

Likewise, Barry Dunn, South Dakota Corn Utilization Council Endowed Dean of SDSU’s College of Agriculture and Biological Sciences, anticipates that the new course offering in Rapid City will open the door for a more people to further their education.

“With this addition, we will see new faces who before felt careers in agriculture were geographically too far away for them to attain,” Dunn says.

For more information on the fall courses offering in Rapid City, contact Don Marshall at 605-688-5133.

MORE ABOUT RAPID CITY’S UNIVERSITY CENTER

The Center will offer college courses through South Dakota State University, as well as the University of South Dakota, South Dakota School of Mines and Technology, Northern State University, Dakota State University and Black Hills State University all under one roof.

Classes from several of these universities have been offered in Rapid City for many years, but since losing its location at Ellsworth Air Force Base in 2006, the Center, which caters to part-time and non-traditional students, has not had a visible, central location. And, with the opening of the new facility, new courses – such as the offering from SDSU’s College of Ag and Biological Sciences – will now be available to Rapid City students.

The facility includes 24 classrooms, seven seminar/conference rooms, administrative offices, a lecture hall that seats 150, and a small bookstore with a coffee bar. There are also two multi-purpose laboratories that will be capable of handling basic chemistry, as well as biology, geology and physics classes. The University Center is located just off Interstate 90 at Exit 61 on the east edge of Rapid City.
The third consecutive year of substantial cuts in state appropriations to South Dakota State University's budget resulted in unprecedented changes to the university, the Cooperative Extension Service and the Agricultural Experiment Station for Fiscal Year 2012 and beyond.

Announcements of restructuring university-wide were made in April in response to the 10% reduction in state support from the South Dakota legislature – amounting to a loss of $1.85 million to SDSU, $1.7 million to Ag Experiment Station and $1.2 million to the Cooperative Extension Service.

SDSU President David Chicoine acknowledges that the reduction in state appropriations will have a noticeable impact on the university, but he emphasizes, “We remain committed to the core mission as South Dakota’s land-grant university and to providing the best possible academic experience for students.”

In the effort to create a leaner, more efficient academic, Extension and research driven land-grant institution, changes are being made to all facets of the university.

On campus, adjustments include larger class sizes, limited numbers of sections in certain disciplines, eliminating all faculty overloads and employee overtime, utilizing more lecturers and graduate teaching assistants and elimination of one master’s degree and some baccalaureate degrees.

Within the College of Ag and Biological Sciences, university officials announced the closure of two service units – Olson Biochemistry Analytical Services Laboratory and the Soil and Plant Tissue Testing Laboratory – by Oct. 21.

Also closing later this year will be two of the university’s Ag Experiment Stations at Highmore and Miller. Five experiment stations will continue to operate in the state.

The reorganizations include the dissolution of one administrative department – AgBio Communications – and one academic department – Horticulture, Forestry, Landscape and Parks – and the creation of a Department of Natural Resources. This new department will include existing program elements in wildlife and fisheries sciences; horticulture, forestry, landscape and parks; biology; and animal and range sciences.

A total of 90.8 employee positions were eliminated from the University in conjunction with the April announcements – 14 from the university, 31 within the Agricultural Experiment Station and 10 from Cooperative Extension Service offices on campus. Another 27 positions will be eliminated through vacancies and 8.8 through retirements.

Additionally, a total of 105 people associated with research and the Ag Experiment Stations will be reduced to a 10-month appointment. The cut back is equivalent to a 17% loss in salary.

In response to the structural deficit – as well as changes in technology and the state’s demographics, dramatic restructuring of the South Dakota Cooperative Extension Service is also underway.

The plan calls for establishment of seven regional Extension centers across the state staffed by Extension field specialists, a new job classification that will require a Master’s degree. The regional offices will be in Aberdeen, Faith, Mitchell, Pierre, Rapid City, Sioux Falls and Watertown and staff will offer statewide programming. In addition, SDSU Extension will continue to maintain federally recognized tribal extension programs in Eagle Butte, Mission and Porcupine.

The regional Extension centers will be operational by mid-October. With that transition, Extension educators will no longer be located in county Extension offices, and the position of educator will cease to exist on Oct. 21.

To assure the uninterrupted delivery of 4-H programs, SDSU Extension will create the position of 4-H advisor beginning in October. South Dakota counties are being invited to participate in monetary support of these 4-H positions.

The restructuring will also change how Extension will develop and deliver educational programs. Barry Dunn, dean of the College of Agriculture and Biological Sciences, explains that future Extension programs will be market-driven and based on a business plan. Programs will include a strong communications technology, delivery component, making them much more accessible on the Internet, via social media and by videoconference. Some SDSU Extension programs also will include a cost-recovery component in full compliance with USDA regulations.
GEARING UP FOR DAKOTAFEST
Replicated SDSU Campus, Educational Forums and Fundraising Auction Planned

The 16th Annual Dakotafest is set for August 16-18, 2011 at the Schlaffman Farm in Mitchell, South Dakota, and SDSU's presence will be hard to miss - thanks in part to a three-story inflatable replica of SDSU's signature campanile.

The campanile is just one piece of a simulated SDSU campus that was unveiled at the 2010 Dakotafest and will return in 2011. The recreated campus features a SDSU tent with nearly 60 exhibitors and five separate pavilions representing plant science, seed technology, animal science, rural health, politics and the SDSU bookstore with logoed merchandise for sale.

“We are excited to partner with SDSU again this year at Dakotafest, and we have several activities planned,” says Ray Bianchi, farm show director for Cygnus Farm Shows which hosts the annual event.

“The SDSU campus format is very visible and offers a great opportunity for SDSU to share its wealth of knowledge on agricultural research, Extension outreach, and the variety of curriculums offered to students,” Bianchi adds. Approximately 32,000 people visited the three-day event in Mitchell last year.

A fundraising auction to benefit the SDSU Cow-Calf Unit Expansion is also being planned for Thursday, Aug. 18 – the final day of the show. In 2010 an impromptu auction came together during the last day of Dakotafest to raise money for the Cow-Calf Unit, and it was such a success the intention is to build upon that this year.

“The auction was planned in just a few hours last year with vendors donating livestock equipment and items they had at the show. All total, $3,200 was raised for SDSU. We will solicit donations well in advance this year – from ag products and services to trips – and hope to aid the University in raising significant funding for the Cow-Calf Unit,” Bianchi explains.

Information about iGrow, the innovative web portal launched by SDSU's College of Agriculture and Biological Sciences this winter, will be available at SDSU exhibits throughout Dakotafest as well.

One of the things that hasn’t changed at Dakotafest is the commitment to delivering pertinent information to attendees. Throughout this year's three-day event the SDSU pavilion will continue to host educational sessions - from coffee shop talks with Extension specialists each morning to forums on current industry and political topics. “We are planning to have a panel to discuss the next generation of the Farm Bill, as well as a forum on the budget pressures to education and how that impacts K-12 and collegiate curriculums,” Bianchi says.

Editor’s Note: The 2011 Dakotafest event will be held Tuesday, Wednesday and Thursday, August 16-18 in Mitchell, SD. The $8 entry price for the show will remain the same as 2010. The full schedule of events for Dakotafest will be released in June, visit http://farmshows.com/DFST/ for details.

Pictured: A three-story inflatable replica of SDSU's campanile will again greet visitors at Dakotafest in Mitchell, SD, Aug. 16-18.
Continuing a Legacy

$1 Million Livestock Judging Endowment Being Established

The trophies, plaques, and ribbons that SDSU's livestock judging teams have accumulated over the decades are a testament to the long-standing success of the program.

However, those who have been privileged to be a judging team member, will also tell you that the real legacy from SDSU's livestock judging program goes far beyond the awards.

"Unless you've been on a judging team, it's hard to explain. It's a bond you form with your team and the teams that came before you and after you. It's a camaraderie that then becomes a valuable network of people after you are out in the world," says Robert Hanson, Hudson, WI, as he explains why the SDSU livestock judging team experience was so meaningful to him.

A native of southwestern Minnesota, Hanson was an animal science major at SDSU from January 1964 through 1967. He was on the livestock judging team in 1965 and still has annual reunions with his former teammates.

In addition to the lifelong friendships that were fostered, Hanson values the decision-making and communication skills he mastered through livestock judging and oral reasons, as well as the confidence those experiences gave him as he went into the working world.

Hanson, who worked for John Deere, then owned and operated a dairy farm with his family, and spent the last 25 years of his career in ag banking, says, "Throughout life you have to make decisions and back them up. I used my livestock judging experience every day."

Dave Anderson - who was one of Hanson's SDSU livestock judging teammates in 1965 - shares similar anecdotes. "There was a lot of pride in being on the judging team; you were exposed to industry and introduced to livestock leaders. It had a great influence on my life," he says, as he reflects on that time more than 40 years ago.

Giving Back

Today, Hanson and Anderson are teaming up again - this time to lead an effort through the SDSU Foundation to establish a $1 million livestock judging endowment in the Animal and Range Sciences Department.

The endowment will support 50% of the salary of a full-time livestock judging coach and lecturer. It will also fund summer programming to support 4-H, FFA and youth judging contests and educational clinics that are fundamental to student recruitment at SDSU.

MEMORIES FROM 1965

Each judging team that has spent a "season" practicing together and traveling to contests across the country also creates a long list of unforgettable memories.

Dave Anderson and Robert Hanson, who were on the 1965 SDSU livestock judging team, still laugh and reminisce about their experiences. Their team, pictured above, included front row (left to right) Howard Hesby, Volga, SD; Boydon Frericks, Redfield, SD; Hanson and Anderson. Back row (left to right) Art Gengerke, Groton, SD; Roger Tilberg, Montivideo, MN; Jim Hegg, Bruce, SD; and coach "Buck" Kohler.

Hanson tells that this team of seven big guys plus a coach traveled in a station wagon to get to their contests. "They didn't have vans back then," he states.

He also recalls the American Royal contest in Kansas City, when the team stayed in a hotel that still makes them shudder - and laugh - to this day. Hanson comments, "It didn't even have blinds on the window." At that contest, he also recalls that he and his SDSU teammates placed one of the horse classes in reverse - which was particularly embarrassing for coach Kohler who was sought nationally as a horse judge.

For Hanson, a highlight of his judging experience was taking the train to their final contest the International Livestock Show in Chicago. Hilton M. Briggs was the president of SDSU at that time and was a well-known sheep judge. Briggs happened to be on that same train with the SDSU team because he was going to the International to judge the sheep show. "We visited and shared our sandwiches with him and played cards. It was a very memorable experience," Hanson recalls.
The endowment is being named in honor of former SDSU livestock judging coaches Dr. Paul “Buck” Kohler and Dr. Dan Gee. Kohler joined the SDSU animal science faculty in 1951; Gee came on board in 1967 – each dedicated 17 years to coaching the SDSU livestock judging team. Kohler coached Hanson and Anderson in ’65.

“Our goal with this endowment is to ensure that future students will continue to have the opportunity to be on a livestock judging team at SDSU, and with a full-time livestock judging coach, we can build continuity in the program like we had in the past,” says Hanson. For Hanson, it’s also a personal cause. He credits his coach Buck Kohler with inspiring him as a student and mentoring him even after he graduated from SDSU. Hanson says, “That’s why I have such a passion for this endowment. To me, it’s extremely important that SDSU continue to offer livestock judging experience in the educational process.”

Anderson, who spent the bulk of his career in animal research for Elanco Animal Health and is now retired and living in Loveland, CO, concurs. He says, “I want to see students of the future have a chance to be a part of that same competitive environment we experienced.”

He continues, “Being retired, I’ve had a chance to reflect on the important influence SDSU had on my career, and I’m grateful for the role SDSU faculty and staff had in contributing to my – and other students’ – success. This endowment effort goes beyond my interest in judging. It’s about strengthening SDSU as an exceptional teaching and advising university for the future.”

A Call To Former Teams
Past SDSU judging teams are encouraged to show their support for the Kohler-Gee Endowment effort. A kickoff to the fundraising campaign will be held June 10-11 in conjunction with a Livestock Judging Teams Reunion on the SDSU campus. Hanson and Anderson are working with Animal and Range Sciences Department Head Clint Rusk, animal science professor Kelly Bruns and Dan Gee to coordinate the event.

The reunion will begin at noon on Friday, June 10 and conclude with a noon luncheon on Saturday, June 11. Activities will include a livestock judging team contest, a Friday evening BBQ, tours of the Animal and Range Sciences facility and the SDSU campus, golf, and ample time for reconnecting with alums. Hanson and Anderson say they hope this endowment will spur other SDSU judging team alumni from the wool, meats, range and dairy products teams to contribute to their former programs as well. “We want to continue the strong judging traditions at SDSU,” Hanson concludes.

For more information about the Kohler-Gee Endowment or to contribute, contact Craig Russow at the SDSU Foundation at 605-697-7475 or Craig.Russow@sdsufoundation.org.

MORE ABOUT KOHLER & GEE
Paul Kohler and Dan Gee, pictured left to right, for whom the Livestock Judging Endowment at SDSU is being named, have both earned national recognition for their contributions to the livestock industry. Moreover, many livestock judging team members that were under their direction have risen to national prominence in the livestock industry. Following are highlights from their careers.

PAUL “BUCK” KOHLER
Born in Redwood Falls, MN, in 1922 he received his B.S. degree in Animal Husbandry and Wildlife Management in 1949 from South Dakota State College; then served the College as research assistant for the Agricultural Experiment Station from 1950-51 and obtained his Master’s degree in Animal Science in 1951. He joined the animal science faculty at South Dakota State in 1951, and while continuing to teach, he earned his Ph.D. from the University of Minnesota in 1959.

Kohler successfully coached the SDSU livestock judging team for 17 years and his 1962 team won the national contest at the International Livestock Show in Chicago. During his tenure at SDSU, Kohler gained national prominence as a horse specialist and judge. His greatest research contribution was in the area of fly and grub control.

Kohler retired from his career in 1985. He and his wife Phyllis continue to reside in Brookings, SD.

DAN GEE
Born in Cottonwood, MN, in 1943 Gee attended the University of Minnesota and graduated in 1965. He obtained his Masters of Science from South Dakota State University in 1967 and was hired as an instructor and livestock judging team coach while pursuing his Ph.D., which he completed in 1970.

Gee’s involvement as coach of the livestock judging team spanned 17 years. A popular teacher at SDSU and a respected meat scientist, he chaired the Department’s teaching and undergraduate curriculum committees for 13 years. He implemented many new and innovative practices in animal evaluation and marketing in his classes to aid his students. Gee also coordinated numerous livestock producer-related activities for the university such as the Beef Bowl, Pork Classic and Lamb Bonanza. He also served on the carcass and grading committee for the National Cattlemen’s Beef Association.

Gee retired from teaching in 2000 and was named Executive Director of the South Dakota Rural Leadership Program. He and his wife Rae Jean still make their home in Brookings, SD.
4-H Fun
Unique 4-H Activities Spark Student Interest in Science

It's not difficult to imagine the squeals of delight kids have as they design and program their very own robot or build a table-top trebuchet – a counterweight contraption that can launch small items like a piece of candy as far as 25 feet.

Youth across South Dakota are experiencing these out-of-the-ordinary activities via workshops and camps through the Cooperative Extension 4-H program. And, along with the fun, some very important learning about science, math, engineering and technology is also taking place.

"These 4-H activities offer a great opportunity to take lessons from science and math and demonstrate to students in a fun setting how those principles work," explains Mark Rowen, Lincoln Co. Extension educator at Canton, SD.

In turn, Rowen and others in Extension education hope the experience will turn kids on to careers in the science, engineering and technology fields. Currently, projections indicate that America faces a startling shortage of such scientists in the future.

In fact, only 5% of current U.S. college graduates earn science, engineering, or technology degrees compared to 66% in Japan and 59% in China, according to data collected by the National Assessment of Educational Progress (NAEP).

To help spark more interest in science and technology as a career choice, Rowen reports that 4-H is working to engage one million new young people in science programs by 2013. "We are hoping that by offering these unique activities we will pique interest in science not only among 4-H'ers, but among their friends as well, and we can share science, engineering and technology with as many youth as possible," Rowen says.

Bringing Science to Life

As one example of the 4-H Science projects being offered, Rowen and Steve Munk, a Minnehaha Co. Extension educator in Sioux Falls, are the masterminds behind a trebuchet kit that allows kids to build their very own model of a catapult-like launcher. The trebuchet originated as a medieval siege engine used to throw stones to beat down castle walls.

Rowen explains that the kit allows students to build their own table top trebuchet which they can then experiment with to the counterweight or length of the strings on the pouch to alter the trajectory and distance of the item being launched.

"It provides a great example to kids of how different variables can change the outcome," Rowen states.

Response to the trebuchet idea has been phenomenal. The duo has presented workshops and camps to kids across the state, and via distribution through Extension, over 300 trebuchet kits have been provided to South Dakota youth to date.

Rowen reports, "We're seeing as many young ladies enjoying building..."
these as boys, and we've had some neat opportunities to share 4-H and science with a broader audience." One such instance was at a Sioux Falls Canaries (now the Pheasants) baseball game two summers ago. A 4-H Science group in Sioux Falls built a larger trebuchet that was used to throw the first pitch from center field.

As interest in the project area grows, Rowen says ultimately he'd like to see a "trebuchet challenge" competition among youth teams at the State Fair. "We haven't gotten to that level yet, but it certainly has potential," he states.

Extension 4-H/Youth Development educators Jackie Kessler in Ipswich, SD, and Becca Wolff in Aberdeen, SD, are also bringing the excitement of science to youth in their communities in a very unique way. They are using robotics.

This winter the pair offered Robotics NXT programming to 20 Ipswich Elementary fifth graders. Students were able to build a Lego Mindstorm NXT robot, program it and complete a maze.

Kessler says, "Robotics provides a fun and engaging way to teach fundamental technology, math and science concepts. Students also learn about programming language to dictate how they want their robot to perform." Along with that, the students also gain important life skills such as teamwork, problem solving and how to think creatively. "Students learn it is acceptable to make mistakes, especially if it leads them to better solutions," Kessler adds.

Kessler and Wolff hope Extension and schools will have the opportunity to collaborate through the 4-H robotics program in the future to help youth explore their interests in science, technology, math and engineering.

Rowen and Munk are also collaborating on a new science experiment to share with youth—building a hovercraft out of a CD, balloon and snap-up water cap. They have also developed a larger-scale hovercraft that can lift an adult off the ground. It uses a leaf blower.

The Value of 4-H

Just how beneficial are 4-H activities to kids – and communities?

- Recent findings from a Tufts University study indicate that young people in 4-H are three times more likely to contribute to their communities than youth not participating in 4-H.
- Additionally, the research indicated that youth in 4-H thrive through the health and science education and career preparation experiences they receive through 4-H programming. Compared to non-4-H youth, 4-H'ers are more likely to spend more hours exercising or being physically active.
- 4-H youth also have higher educational achievement and higher motivation for future education – reporting better grades, higher levels of academic competence, and an elevated level of engagement at school.
- Notably, the Tufts research discovered that the structured learning, encouragement and adult mentoring that young people receive through their participation in 4-H plays a vital role in helping them actively contribute to their communities.

Reaching New Audiences

Kessler and Rowen both say an added benefit of sharing these out-of-the box science projects with youth is that it also helps give non-traditional audiences a glimpse of what 4-H has to offer.

"Extension and 4-H aren't just for rural communities. So science-related projects like the trebuchet help put a new face on 4-H so that it appeals to youth who live in urban settings like Sioux Falls or Canton," Rowen points out.

And, most importantly Kessler emphasizes that these hands-on projects still stay at the heart of what 4-H has always been about: teaching youth life skills that will inspire them in their future endeavors.

She concludes, "4-H is helping prepare and train youth for the future. And particularly the 4-H Science project area is committed to helping develop the next generation of science, engineering and technology leaders."

Editor's Note: Kits for the trebuchet project are available for a fee of $5 each. To request kits for 4-H or classroom projects, contact Steve Munk, Minnehaha County Extension 367-7877 or Mark Rowen, Lincoln County Extension at 764-2756. For more about the Robotics program contact Jackie Kessler at 605-426-6971.

UPCOMING 4-H SCIENCE ACTIVITIES

Fun 4-H science activities for students in grades 3-8 will be featured at two summer camps hosted by South Dakota Cooperative Extension educators from across the state:

- A South Dakota 4-H Science Camp will be June 13-16, at Camp Bob Marshall near Custer.
- A Get "SET" for Fun 4-H Day Camp will be July 13, in Huron at the South Dakota State Fairgrounds.
- Additionally, 4-H will host a National Youth Science Day on October 5, 2011. This annual event is designed to engage youth around the country in science through a project experiment. Last year's experiment focused on water quality.

For more information about the upcoming South Dakota 4-H science camps contact your local Extension office. For more about the National Youth Science Day visit https://site.4-h.org/nysd/index.php
Innovative Outreach
BBQ Boot Camps Connect Consumers To Meat Industry

The thrill of the summer grilling season is much anticipated after a long cold winter. And SDSU Extension meat specialist Keith Underwood sees the enthusiasm for grilling as a perfect opportunity to educate consumers on the meat industry as well.

Underwood and his SDSU meat science colleagues have designed a series of BBQ Boot Camps as a means to teach consumers about everything from proper grilling techniques, food safety, and new beef cuts to the benefits of lean protein as part of a healthy diet.

Underwood explains, "Our BBQ Boot Camps offer an informal setting to educate consumers and producers about the meat industry and promote the positives of beef, lamb and pork. Our goal is to demonstrate how to utilize different meat products and have an enjoyable eating experience no matter what cooking method is used."

He continues, "Ultimately, we hope that by connecting with consumers we are able to enhance meat consumption and dispassion some of the myths that exist about including meat in a healthy diet."

Three BBQ workshops were held last summer in Watertown, Brookings and at the Opportunities Farm near Lennox. During the summer of 2011, Underwood reports that BBQ Boot Camps are planned near Aberdeen, Sioux Falls, Brookings, Pierre and a yet to be determined location West River.

Each Boot Camp will feature several different stations highlighting: food safety and cooking meat to proper temperatures; grilling and cookery methods for beef, pork and lamb; using seasonings, spices and marinades; the health benefits from including protein in a balanced diet; and information on new tender beef cuts.

The BBQ Boot Camp program lasts for about 2 hours and includes sampling the grilled meat products as well as recipes for consumers to take home and try.

If you'd like more information about an upcoming BBQ Boot Camp, contact Keith Underwood at (605)688-5439 or Keith.Underwood@sdstate.edu.

PROMOTING NEW MEAT CUTS, TOO

As part of his Extension meat specialist role, Keith Underwood also works with the SD Certified Beef Program, SD Meat Processors Association, the state’s animal industry board, and meat retailers.

Underwood points out that helping share meat industry research and product development information in turn helps ensure quality meat products are available to consumers and contributes to keeping meat demand strong.

As one example of such efforts, Underwood and Extension educators Heather Larson, John Keimig and Kevin Vaith partnered with Affiliated Foods last summer to take meat cutting demonstrations for beef value cuts to retailers in five locations across the state. Chuck Carlson, Affiliated Foods merchandiser specialist, helped coordinate the demonstration locations.

Underwood explains that beef checkoff-funded research has helped develop palatable new cuts from the chuck roll, including the Denver cut steak, Sierra cut, Delmonico steak and country-style beef chuck ribs. "These new cuts were traditionally ground into hamburger or sold as roasts. By cutting the chuck roll differently, retailers can offer consumers a palatable new product that adds value back to the industry,” says Underwood.

More workshops featuring new beef cuts are planned with retailers this summer.

Underwood is also involved in several research projects on campus evaluating fetal programming and feedlot nutrition regimens and their impact on carcass traits and palatability.

Editor’s Note: A native of Shallowater, TX, Keith Underwood completed his PhD at the University of Wyoming and joined the SDSU faculty in January 2009. In addition to his SDSU Extension and research duties, he teaches the Introduction to Meat Judging course each fall.
Beef Leaders Lectureship Brings Temple Grandin To Campus

SDSU students and faculty had the opportunity to hear a presentation from world-renowned livestock handling expert Temple Grandin on Feb. 9. Grandin presented a seminar on animal handling to nearly 900 people in the Larson Concert Hall of the Performing Arts Center on campus.

Grandin’s visit to the SDSU campus was made possible through sponsorship from the Beef Leaders Program which hosts a monthly lecture series and other industry activities for students to gain a better understanding of current beef industry issues.

Pictured above: Grandin also met with students to review plans for SDSU’s Cow-Calf Unit Expansion that will begin this summer near Volga, SD.

SD Extension offers iPhone apps for weeds, grazing

The South Dakota Cooperative Extension Service has developed two new applications that owners of iPhones or iPod Touch devices can download and use. The applications, or apps, include “South Dakota Rangeland and Pasture Grazing Records,” and “Noxious Weeds of South Dakota.”

The grazing records app was designed to help ranchers and grassland managers keep accurate records of grazing use and to keep track of changing conditions in pastures and rangeland. The noxious weeds app features an easy-to-use guide for both statewide and locally noxious weeds, and it can help landowners identify the species of weeds.


The apps were developed with input from SDSU Extension experts in the fields of weed identification and rangeland management.

South Dakota Horizons Program Helps Communities Generate $1.4 million In Funds

A recent report highlights the resounding success of the Horizons program in rural communities across South Dakota. By the numbers, SD Cooperative Extension staff working on the Horizons program served 43 South Dakota communities, engaged 980 citizens in leadership training, and involved almost 3,900 citizens in local strategic planning processes. To date, South Dakota Horizons communities have obtained approximately $1.4 million in additional grant funds for community projects and activities.

Nationwide, the Horizons program helped a total of 283 high-poverty, small, rural and reservation communities in South Dakota and six other states use insight gained through the locally-led program to earn more than $21 million in grants and other forms of fundraising.

SDSU Associate Director of Extension Karla Trautman and Extension Horizons project director Kari Fruechte both say the summary report indicates the value of the Horizons program to South Dakotans and the nation.

“Across seven states, the program has shown success, increased engagement, and in many cases, profound changes in leadership that benefit the towns and small cities where it has taken place,” says Trautman. “The three-fold partnership between the Northwest Area Foundation, Extension, and the citizens of Horizons communities stands strong and shows that with support and encouragement, a shared vision of community improvement can take root and thrive.”

Scramlin joins Animal and Range Sciences Department

Assistant professor Stacy Scramlin joined the Department of Animal and Range Sciences at SDSU in January. Her new duties will include teaching and research in meat science.

Scramlin comes to SDSU from the University of Wisconsin, where she worked as a meat safety Extension specialist. She completed her doctoral degree at the University of Illinois in 2009, and has extensive experience in teaching, research and coaching Intercollegiate Meats Judging Teams.
New, More Efficient Products Result From Researchers’ Efforts

Research takes place year-round at SDSU, but the spring and summer field season are a particularly prime time for College of Ag and Biological Sciences (ABS) researchers to collect their data. This year, test plots of grain varieties will be planted, cattle synchronization and grazing trials will be monitored, and wildlife populations will be observed in addition to many other ABS research efforts underway.

The result is important data beneficial for improved yields, enhanced management and long-term sustainability for South Dakota’s land and resource managers. Here, we take a closer look at a sampling of the SDSU research projects being conducted as the upcoming field season moves into high gear.

Pursuing Production Efficiency

Several SDSU researchers across multiple disciplines are collaborating to address research related to improving production efficiency, reducing the impact of agricultural activities on the environment, and reducing the carbon and energy footprints in South Dakota range and crop systems.

David Clay, director of the SDSU Drought Center, reports that the multidisciplinary approach includes experts in Agriculture, Weed Science, Entomology, Agricultural Engineering, Computer Science, Mass Communications, Remote Sensing and Geographic Information Systems, Computer Science, Ecology, Soil Biology, and Molecular Biology.

“These scientists routinely visit with producers and ranchers to identify the critical issues and to target project activities. We believe working in a team approach is the best way to address these issues for the future,” states Clay.

Their research efforts include:

- Evaluating the importance of linking animal agriculture, crop production, and ethanol production for South Dakota agriculture to enhance profitability and productivity. Clay explains that this entails helping producers recognize the value of corn stover for grazing, protein rich distiller’s grain as a supplement, and the manure nutrients that are added to fields by grazing livestock.

- Investigating the energy balance of South Dakota corn production. An analysis showed that in South Dakota corn production has a positive energy gain—and compared with other States—has one of the highest energy efficiencies. High energy efficiencies are the result of climate and soil conditions that interact to maximize energy efficiency.

- Use of molecular biology to better understand plant responses to stress as well as identify specific genes that improve the ability of plants to respond to stress. Examples include evaluating techniques in soybeans to reduce iron deficiency chlorosis (IDC), as well as improving the plant’s response to water and other stresses. This research is being funded by a variety of sources including the SD 2010 Research Initiative, USDA, SD Soybean Research and Promotion Council, SD Wheat Council, and the SD Experiment Station.
In a related project plant scientists Sharon Clay and Gregg Carlson are using molecular approaches to better define the physiological responses between adjacent plants and to better understand yield variability across landscapes.

Studying the impact of cover crops on energy, carbon, water, nutrient recycling, soil biology, and profitability with the use of remote sensing tools to assess the treatment impacts on crop growth.

Clay concludes, “The results from each of these projects will ultimately lead to improved Best Management Practices and reduced carbon footprints.”

**Improving Winter Wheat**

SDSU winter wheat breeder Bill Berzonsky reports that several projects are being investigated - in the lab and in the field - to glean useful information to apply to the development of new winter wheat varieties for South Dakota growers and the wheat industry.

One example is a collaborative project with Ducks Unlimited and Bayer CropScience in which doubled-haploid technology is being applied to hasten the development of winter wheat varieties with desirable traits. The procedure is being initiated at the new Seed Technology Lab in Brookings, and it entails pollinating wheat with corn and rescuing the resulting wheat embryos and growing them on artificial media in test tubes.

As part of this same project - which is titled Winter Cereals, Sustainability in Action or WCSIA, Berzonsky says a short video documentary will be filmed this summer on the importance of winter wheat hardiness and the scientific basis for winter hardness as we know it today.

Additional graduate student research projects related to wheat include:

- A study funded through a USDA grant looking at pyramiding leaf rust genes and determining the “cost” of doing so to the plant, especially under drought conditions in South Dakota.
- A study that analyzes scanned images of root systems to determine the wheat types that might be better adapted to drought.
- A study to evaluate flour traits that might influence the end-use quality of wheat flour tortillas, which is a growing sector of the wheat end-use market.
- A study in which a unique seed color-sorting machine developed by the USDA is being used to determine the ability to select between red and white wheat types to develop varieties in the different wheat classes.
- A study examining differences in the accumulation of dangerous fungal mycotoxins in the seed of red compared with white wheat.

Wheat breeding research at SDSU includes evaluating varieties for stem rust resistance. Pictured left to right: undergraduate student Shawn Jenkins, research specialist Steve Kalsbeck, and Pravin Gautam, a plant pathology post-doctoral student.

Berzonsky says some of the students working on these projects are part of the Monsanto PhD Plant Breeding Fellowship Program at SDSU, which he assists in coordinating.

**Mapping Plant Genetics**

SDSU plant geneticist Jose Gonzalez and his colleagues are continuing their research efforts on mapping the genes of prairie cordgrass, one of the crops that may help produce the next generation of biofuels.

Their research has already produced the “transcriptome” of the species, which is a partial map of the genes the plant uses to reach certain goals. Gonzalez estimates they’ve calculated about 40% of the genes in prairie cordgrass, or more than 20,000.

Gonzalez says one obvious benefit from studying the transcriptome of a plant such as prairie cordgrass is to enable plant breeders to use marker-assisted selection in order to deliberately include gene sequences that confer desirable traits.

As an example he explains, “We’re starting to be able to look at the genes involved in particular traits. For example, for cellulosic ethanol production, cell wall composition is very important. We can actually look at the genes that are related to that cell wall composition so that we can study the variations of those genes. It can help the breeders eventually to select populations of prairie cordgrass with better composition.”

As their research continues, the SDSU researchers will further evaluate the synthesis of cellulose or hemicellulose and the morphological development of prairie cordgrass – how the plant develops underground and starts growing at
the beginning of the season, how it goes into dormancy in fall, and how it reactivates itself next season. The research is funded in part by a federal grant of $420,000. The grant is from a joint program of the U.S. Department of Agriculture and the Department of Energy to promote biofuels research.

Cost-Effective Synchronization Protocol

In the Animal and Range Sciences Department, Extension beef reproduction specialist George Perry is conducting field trials evaluating the development of an estrous synchronization protocol for cattle that can reduce the cost of synchronization in both estrous detection and timed AI settings.

The protocol – which was initiated four years ago as an undergraduate research project – includes administering prostaglandin to cattle three days prior to the start of a typical synchronization protocol. This increases the control of follicular development and results in a more uniform egg being released at time of insemination.

Perry explains that with the prostaglandin, approximately 50% of the animals that have initiated normal estrous cycles will exhibit estrus prior to the start of the rest of the protocol. Because of this, the protocol can be used both to reduce the cost of the synchronization protocol if estrus is detected, and can be used as a diagnostic tool to see approximately what percentage of the herd has initiated normal estrous cycles.

Already, the use of this protocol with estrous detection was approved to be included as a recommended protocol for both heifers and cows in all the sire directories for 2011. It is listed as the PG 6-day CIDR protocol.

The protocol has been utilized for fixed-time AI in beef cows in research trials – with a 64% conception rates across three separate herds totaling 248 cows. Preliminary data indicates the protocol will work as a fixed-time AI protocol in beef heifers, so this year Perry and his colleagues will be investigating the effectiveness of the protocol in that setting. The multi-state project will include over 1,100 heifers in five different states this summer.

Perry adds, “The only way to test if what is learned in basic research settings is applicable to producers is by conducting field trials with producers. To date, we have utilized almost 1,500 heifers, and over 1,000 cows for this on-going project.”

Studying Ultra-High Stocking Density

Range science professor and researcher Sandy Smart is planning a second field season studying ultra-high stocking density or mob grazing in rotational grazing settings. This management practice is reported to increase forage production by two to four fold and to enhance grassland health.

Research evaluating mob grazing cattle in rotational grazing settings is yielding management information to enhance use of this practice.

Smart’s research is focusing on determining the harvest efficiency of cattle grazing at ultra high stocking densities compared to typical rotational grazing stocking densities, while also considering animal performance.

This year’s research will build on the inaugural study that was conducted last summer in collaboration with the University of Nebraska-Lincoln (UNL) at a ranch in the eastern Sandhills near Rose, Nebraska and at the SDSU Cow/Calf Unit in Brookings. Funding for the project is from USDA’s 5-State Ruminant Consortium Special Grant Program.

Smart explains that the purpose of ultra-high stocking is to trample uneaten forage to build soil. He says, “Our ultra-high stocking densities of >200,000 lbs/acre certainly achieved this. However, practitioners also must know how much forage the cattle will eat in each paddock so he/she may calculate the appropriate size paddock and the number of paddocks needed to meet the daily forage demand of the herd. Our study showed that cattle consumed between 35-40% of the available forage under ultra-high stocking densities and trampled 50%, for a utilization of about 90%. This level of utilization is well above the recommended rate of 50% as practiced under moderate grazing. Therefore ultra-high stocking must be conducted with care and for a specific goal.”

Smart also notes that ultra-high stocking density grazing requires more management and grazing mistakes – such as not moving livestock often enough – could cause a reduction in animal performance. Through continued research he aims to develop additional management information for graziers.

Smart is also collaborating with David Clay in the Drought Center to assess range health, productivity, and sustainability in these mob grazing settings compared to previous grazing systems at those locations. Water quality improvements to the watershed are also being monitored.
Wildlife & Fisheries Work

Pheasants, mountain lions, and walleye are among the species SDSU researchers in the Wildlife and Fisheries Sciences Department will be studying this summer.

Of their research efforts, Wildlife and Fisheries distinguished professor Jon Jenks says, "These studies will help collect valuable information that will improve management of wildlife species in the Northern Great Plains."

Jenks and professor Dan Hubbard will be working with a graduate student to develop a predictive model for projecting the statewide population of pheasants in South Dakota.

Hubbard explains that habitat "wetness" will be a component that the model evaluates, because both wet wetlands and dry wetlands have differing seasonal importance to pheasants.

Additionally, a primary focus of this research is to clarify the impact of the Conservation Reserve Program (CRP) on pheasant numbers. Hubbard indicated that while biologists have seen the increase in pheasants – and other species – as CRP has increased over the years, unquantified casual observation does not necessarily validate cause and effect. With CRP acres decreasing over the next several years, the assumption that pheasant numbers will drop as CRP deceases needs to be quantified, he says.

Hubbard says, "As the amount of CRP acres has varied (both up and down) in differing areas across the state, constructing a model using South Dakota Game Fish and Parks brood-count data along with the land-use in the areas where the data were collected will allow us to elucidate the effect of CRP on pheasant numbers."

Overall, the research would allow the Department of Game, Fish and Parks to predict the statewide pheasant numbers from wetness conditions and Farm Bill conservation programs. Given the economic importance of pheasants to the state in revenue generated from hunting, the prediction model will provide an important tool to ensure future viability of the state's treasured bird.

Another species of great interest in the state is the mountain lion. Jenks and several graduate students will continue their on-going research on this population in the Black Hills. As the number of mountain lions in the region has grown over the past decade, so has the need for information about properly monitoring and managing the animals while also considering livestock and public safety.

Jenks explains that the information generated from these studies will allow the South Dakota Department of Game, Fish and Parks to assess the impact of mountain lions on other species, like deer, elk, and bighorn sheep, and to determine what effect current harvest levels – from the annual hunting season – are having on mountain lions.

On the fisheries front, assistant professors Katie Bertrand and Brian Graeb are working to determine the status of invasive Asian carp in the Missouri River and the lower James, Vermillion, and Big Sioux Rivers.

NEW FUNDING FOR CORN RESEARCH

South Dakota State University is one of nine land-grant universities and two USDA Agricultural Research Service institutions to receive funding to participate in a new research effort by the U.S. Department of Agriculture's National Institute of Food and Agriculture (USDA-NIFA).

The $20 million grant will facilitate research focused on keeping Midwest corn-based cropping systems resilient in the face of future climate uncertainties. A team of 42 scientists from the institutions involved in the project, comprising eight states in the north central region of the United States, will collect and analyze data over the next five years. This region produces 8 billion bushels of corn, 64% of the U.S. annual harvest.

Researchers will begin collecting data on carbon, nitrogen, and water movement this spring from 21 research sites in eight states. Special equipment will be used to monitor greenhouse gas emissions at many of the sites. The team will integrate field and climate data to create models and evaluate crop management practices.

South Dakota researchers will contribute Extension and education components to the project, interacting with producers to help them make use of climate information. They also will work on various education projects that aim to help students and teachers understand the basics of climate and climate-agriculture system interaction.

www.sdstate.edu/abs
With the current high cattle prices and the beef industry calling for expansion to keep up with global consumer demand, there are opportunities on the horizon for beef producers.

But there will also be challenges to navigate as the industry faces changes in environmental, welfare and global trade issues, along with high production costs and competition for resources. An additional concern is the transition of family farms and ranches from one generation to the next.

To better prepare beef’s next generation for those opportunities – and challenges – that exist, the beefSD program has been launched for beginning producers. The program – which is being administered by the Cooperative Extension Service at SDSU in partnership with the South Dakota Farm Bureau Federation – will train more than 40 aspiring South Dakota beef producers over the next three years in the areas of livestock production, natural resource stewardship, marketing, business and financial planning, and risk management. The effort is being funded through a $748,892 grant from the U.S. Department of Agriculture (USDA).

Goal setting, networking, learning from experienced ranchers, and traveling to various segments of the beef industry to gain a full perspective from producer to consumer are all part of the journey that participants in the beefSD program will experience, say the program’s coordinators.

Jump-Start For The Future

Wacey Kirkpatrick, Midland, SD, knows the beefSD program is giving him a once-in-a-lifetime chance to achieve his goal of being a full-time rancher.

Kirkpatrick, who graduated from SDSU in 2008 with a degree in Range Livestock Production, currently runs a few cows with his parents while also working as a resource management specialist at the NRCS office in Murdo. Kirkpatrick says, “I have continually been trying to find a ranch to lease, or a ranch to buy, but in our area land competition is so fierce there is not much room for a young person to get started ranching. When I heard about the beefSD program, I felt that it would give me the tools that I need to be a successful rancher someday.”

Bridget and Jason Twedt are also working to grow their future in the beef industry – and believe the beefSD experience will be beneficial to them. The couple lives on an acreage near Beresford, SD, with their three young children. Both Bridget and Jason grew up with livestock backgrounds. He attended vo-tech school and has worked for several large ranches in Montana and South Dakota, and today works for VanderLaan Feedlot near Beresford. She graduated from SDSU in 2006 with an Ag Education degree, and currently works as an Ag Ed teacher and FFA advisor for the Centerville School District.

Last spring they purchased five cow/calf pairs, sold the calves in the fall, and plan to buy more bred cows and heifers this spring. Jason says, “Our plan is to be at 75 pairs in the next 10 years. Even though this may be a small goal for most farmers and ranchers in the state of South Dakota, it’s an ideal goal for our young family whose full time jobs are both currently off the farm. We would also like to become more involved with the cattle industry in South Dakota by working with 4-H and FFA youth programs and serving in beef organizations.”

“We truly feel that this program will give us as young producers an opportunity to see all aspects of the beef industry, help us to improve our cattle herd and management skills, and give us ideas to market our cattle and increase our productivity,” Bridget adds.

Luke Perman has similar sentiments. A 2006 SDSU graduate in Range Science, Perman returned to the family’s ranch near Lowry and runs cows on shares with his dad and a neighbor. They run about 400 commercial Angus pairs and operate about 7,000 acres of pasture and farmland.

Of his participation in beefSD, Perman says, “In college, the focus was on understanding the concepts. With this program, the focus is how those concepts apply to me and my operation. I am hoping to learn more about the industry and find out how to take advantage of opportunities to become more successful and attain my goals.”

Networks & Mentors

A key part of the beefSD learning format will include numerous Extension specialists along with experienced South Dakota ranchers
and ag professionals sharing their expertise with participants.

"The beefSD participants will be visiting different case study ranches and cattle feeding operations around the state that demonstrate different production settings and allow these young producers to learn from an experienced manager," explains SDSU's Stacy Hadrick, who is coordinator for the program. The real world examples are designed to help young producers explore their own goals related to seedstock, grass-fed, backgrounding, and cattle-finishing beef operations.

In February, the beefSD participants made their first case study visits. In central South Dakota, participants

**YOUNG PRODUCERS EMBARK ON EDUCATIONAL JOURNEY**

The beefSD program kicked-off in January 2011 with more than 40 beginning beef producers selected from an application process to be in the new program — some of the participants are husband-wife teams, one pair is brothers. All of the participants have less than 10 years of experience during their adult life in beef production.

Participants are clustered into two groups — one has meetings in western South Dakota, the other in the central part of the state.

Each groups' inaugural training sessions were held in January and participants will continue to meet six to eight times a year for the next three years.

SDSU Extension beef specialists Ken Olson and Julie Walker, who are both based at the West River Ag Center in Rapid City, are serving as project directors for the program, with Stacy Hadrick serving as coordinator. Lowell Mesman with the SD Farm Bureau Federation is also a project partner.

The USDA grant for the beefSD program will provide a scholarship of $30,000 to each individual beefSD participant or team to defray time and travel costs to participate in the three-year program.

In addition to traveling to beef operations within the state, the beefSD participants will also travel to three regions of the U.S. to be introduced to different aspects and marketing opportunities within the US beef cattle industry. Their national trip for this first year of the program will take them to Chicago in August.

"The focus of this experience is to give the beefSD participants insight into the consumer and retail sector as it relates to beef production," explains Hadrick of the planned trip.

The beefSD participants from across the state include:

Mark Beitelspacher, Bowdle
Dustin Burggraf, Selby
Ryan Edwards, White River
John Egleston, White River
Brandon and Laurie Johnson, Claremont
Kotton and Abby Krull, Chamberlain
Jason Kuhlman, Lake Andes
Justin and Taylor LaMont, Carpenter
Chris and Dawn Letellier, Norris
Lon Medbery, Browns Valley
Luke Perman, Lowry
Mike and Joann Shock, Spencer
Patrick Shaffer, Burke
Jason and Bridget Twedt, Beresford
Baxter Anders, Wall
Chad and Mary Blair, Vale
Jace Booth, Timber Lake
Clinton and Stephanie Crowley, St. Onge
Reid and Barbara Grate, Isabel
Matthew Jones, Midland
Riley and Jimmie Kammerer, Piedmont
Wacey Kirkpatrick, Midland
Ryan Kjerstad, Quinn
Justin and Brandi Marler, Piedmont
Curtis McGuigan, Spearfish
JT and Jami Moon, Creighton
Jared Parker, Volga
Neal Richter, Enning
Jay and Jenn Stomprud, Mud Butte
Al Wind, Newell
Wall, South Dakota rancher Myron Williams (center) shared his beef industry experiences with West River participants in the beefSD program when they visited his operation in February. The beefSD program will enable beginning beef producers to network with and visit several different case study ranches and feeding operations in the state over the next three years.

visited Ross Nielsen’s ranch operation near Fort Pierre, while the West River group visited Myron Williams’ ranch and feeding operation near Wall.

Of the exchange, Hadrick says, “It was exciting to see the groups interact with experienced producers, and it was impressive as to how much those producers were willing to share of their past experiences and lessons learned. That’s what makes this program so valuable.”

Bridget and Jason Twedt also appreciate the perspective they gained through the on-site visit. Bridget says, “We learned the many benefits of planning, marketing, and goal setting in a real-world application, and the information is something we will put to use in our own business.”

Jason adds, “Our goals include growing our herd and improving genetics as we add to our herd. As we go to the different case study ranches, we hope to continue to bring back ideas on how to improve our own herd and facilities and finding a niche market to help with selling our calves.”

In addition to the ranch visits, ag professionals and Extension specialists – from bankers and estate planners to range managers and nutritionists – will be sharing knowledge and ideas with the beefSD participants over the next three years. Hadrick says the goal is to develop a mentoring network or “management team” that these beginning producers can seek advice from for years to come.

NEW THINKING

As they prepare for their future as beef producers, beefSD participants Luke Perman, Wacey Kirkpatrick and Jason and Bridget Twedt say they recognize new ideas and new ways of doing things will be essential to success. They are confident the beefSD program will inspire them to find those innovative approaches. Here they share their outlooks for the future:

Luke Perman says, "I think the industry needs to take note that we are not in the same social and political climate that our grandfathers were in. Many consumers are two or three generations removed from the farm, and their perception of how we do things is important. I think our future depends on connecting with the consumer in more ways than just providing a tasty steak."

"With beef in high demand, the future of the cattle industry looks prosperous for young producers," adds Bridget Twedt. She and her husband Jason recognize that several niche markets now exist for marketing cattle, which they believe will offer them vital opportunities as they advance their beef operation.

Kirkpatrick recognizes that future success will require balancing opportunities with challenges. He says, "I am very optimistic about the future of the beef industry, however, I think in order for young ranchers just starting out, our success is going to require a lot of out-of-the-box thinking. We are going to have to be very clever and very adaptive to the ever-changing business environment we live in. We are going to have to be extremely efficient with the tools and resources we have, and be readily adaptive to changes as they affect us."

He concludes, "Since a very young age, I’ve had a vision to build a large and magnificent ranch in western South Dakota. I really feel the beefSD program is going to be a major step in the right direction to accomplishing that dream. I want to conserve, protect and enhance the land which I hope to someday ranch on, as well as raise a family in this great way of life."

Kirkpatrick is excited about that aspect of the program. He says, “I hope to expand my knowledge of financial management and business management, as well as the different enterprise alternatives for a ranch. The opportunity to network with like-minded fellow beginning ranchers and industry experts has already been very valuable, and the program is just beginning. I am very excited about what’s ahead.”
Brockings’ beloved McCrory Gardens grew from a vision SDSU Professor S.A. McCrory had in the early 1960s for a research garden that would showcase trees, shrubs, grasses, and flowers that were—or could be—a part of South Dakota’s landscape.

Today, over 50 years later, the 20-acre McCrory Gardens and 45-acre Arboretum are a thriving testament to McCrory’s vision becoming reality. The outdoor campus offers an educational, outreach and research setting woven together for the benefit of SDSU and the public.

Now, the capstone to McCrory’s foresight is being added—an Education and Visitor Center that will link the formal display gardens and arboretum while also providing an educational hub for students, visitors and events. The $4.2 million facility is being built through the generous contributions of private donors.

Martin Maca, associate director of planning and development at McCrory Gardens, says, “We feel very fortunate to have had such generous support, and we’re very pleased with the plans for this eco-friendly, multi-purpose facility.”

The 9,350-square-foot building will feature space for classes, gatherings and presentations, as well as a help desk and gift shop. Specifically, two rooms will each have the capacity to seat 30 people, and a great hall will have space for 300 when arranged with auditorium-style seating or about 180 when set up for dining.

The design of the building accentuates an ‘indoor-outdoor’ approach to architecture with a terrace that will feature exposed glass looking out to a perennial garden and the surrounding landscape. Two event lawns, a water feature, and a new perennial bed will create a sweeping connection between new and existing elements at McCrory. Additional space near the center’s parking lot also will give the staff an opportunity to showcase five different species of woody plants that were originally developed at SDSU.

Moreover, the McCrory Gardens Education and Visitor Center is utilizing recycled materials in the building plan and will receive the “Silver” LEED-certified “green” designation.

The new center is scheduled to open in November 2011, and will provide a setting for a variety of events—from field trips for SDSU classes to workshops and continuing education courses, as well as community gatherings, banquets, weddings, conferences, and family or class reunions.

Maca says, “We see this center as a place where groups as varied as Extension Master Gardeners to public school classes can come to use the facility’s excellent classrooms and spaces. In addition, it gives visitors an excellent starting point to their explorations of the grounds.”

For more about SDSU’s McCrory Gardens, visit www.sdstate.edu/hflp/mccrory/index.cfm. The SDSU College of Agriculture and Biological Sciences conducts ongoing research within the Gardens and Arboretum on the introduction, cultivation, and arrangement of native and domesticated plants, as well as testing turfgrass varieties to lower inputs of fertilizer, water and maintenance, and demonstrating the effectiveness of native plant horticulture in the northern Great Plains.

SUPPORT THIS PROJECT

The McCrory Gardens Education and Visitor Center is a project of “It Starts with STATE: A Campaign for South Dakota State University.” Naming opportunities for the new facility are available. For more information or to contribute, contact Lucy Forman, SDSU Foundation, at 888-747-7378 or Lucy.Forman@sdufoundation.org.
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SDSU Plant Science department head Sue Blodgett and Animal & Range Sciences department head Clint Rusk serve SDSU ice cream to attendees at the 2010 Dakotafest.

JOIN US FOR ICE CREAM AND A WHOLE LOT MORE!

Visit the SDSU CAMPUS at DAKOTAFEST in Mitchell, August 16-18, 2011

It’s the state’s largest summer Farm Show and SDSU’s College of Agriculture and Biological Sciences will be there – along with the SDSU bookstore and a three-story replica of the campanile.

- Exhibits from the ABS College will represent plant science, seed technology, animal science, and rural health.
- You can also learn more about iGrow, visit with Extension specialists, and tune into forum discussions addressing current industry and political topics.
- On Thursday, Aug. 18, don’t miss the SDSU auction with proceeds to benefit the Cow-Calf Unit Expansion.
- ...and of course, you can also enjoy SDSU ice cream.