



GROWING SOUTH DAKOTA

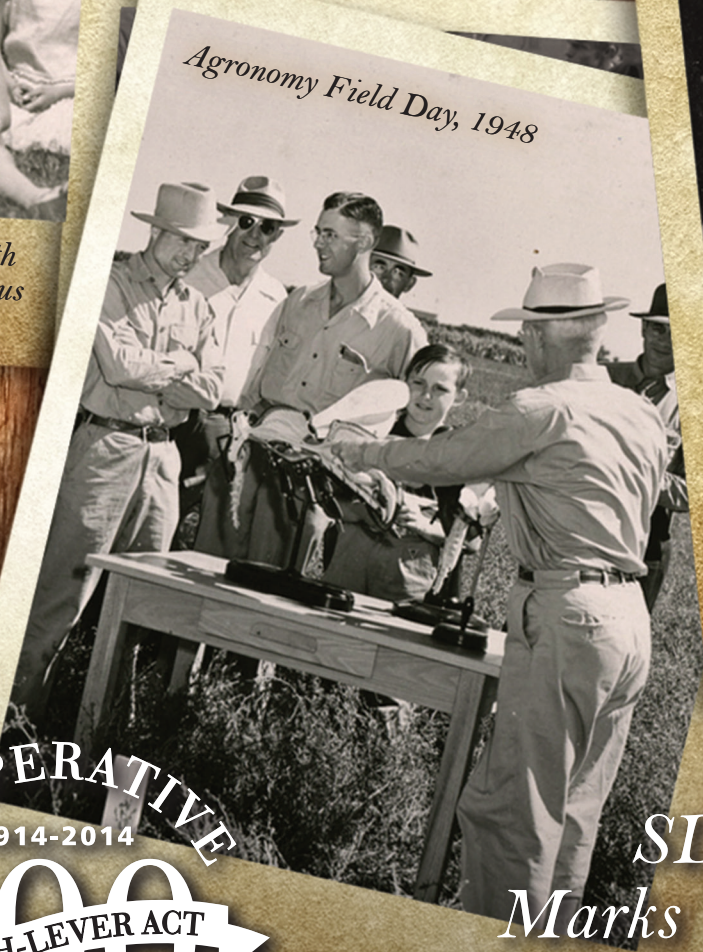
A MAGAZINE BY SOUTH DAKOTA STATE UNIVERSITY
COLLEGE OF AGRICULTURE & BIOLOGICAL SCIENCES / SUMMER 2014



*4-H Youth
On Campus*



Home Extension Canning Workshop, 1944



Agronomy Field Day, 1948



*SDSU Extension
Marks 100-Year Milestone*

**PRECISION AG PROGRAM
EVOLVES, EXPANDS**



FROM THE DEAN:

Important Lessons For A Challenging Future

"It's like déjà vu all over again." –Yogi Berra

A highly contagious and very deadly disease has emerged as a serious threat to our nation's swine industry. Porcine Epidemic Diarrhea Virus (PEDV) was first reported in the United States about a year ago, and has since cut an ugly swath through our nation's swine industry, including South Dakota.

Its ripple effect is enormous. Not only are our pork producers suffering large losses, but PEDV has also decreased the demand for feed grains and soybean meal due to the deaths of hundreds of thousands of baby pigs. It will also negatively impact the community of Sioux Falls, as there are, and will be in the foreseeable future, fewer pigs to process at plants like John Morrell & Co., one of the largest employer's in our entire state.

As I assimilate information about the situation, I am struck by the simple irony expressed in the famous quote by the great baseball player Yogi Berra; "It's like déjà vu all over again." For in the mid-1980's, a 'mystery swine disease' emerged across the country. What is now widely known as Porcine Reproductive and Respiratory Syndrome (PRRS), was in the 1980's and early 1990's, a deadly and destructive mystery.

While PRRS remains a health challenge for the swine industry today, the impact of the disease can now be managed with customized tools; including strict biosecurity techniques, vaccine and diagnostic testing at swine production facilities. The backstory around PRRS remains one of the great examples of the importance and effectiveness of the dynamic food animal health system that is in place in South Dakota and our nation to protect our food supply and the agricultural sector of our economy.

Much like its responsibility for protecting human health through our nation's public health system, each state, including South Dakota, has long assumed responsibility for protecting the health and productivity of its food animal industry. At the core of the system is the presence of an animal disease research and diagnostic laboratory (ADRDL), most frequently associated with each state's flagship land-grant university. In South Dakota, our state's ADRDL is located at SDSU and is managed by the College of Agriculture and Biological Science along with an engaged advisory board made up of stakeholders from across the state.

Our ADRDL may be South Dakota's best-kept secret! While it has modern scientific laboratories and a talented, dedicated, and hardworking team of veterinarians, scientists, technicians and support staff, it is the unique and highly efficient organizational system that I am most impressed with.

It works something like this: Veterinarians from across our state and region send samples from a client's herd to the ADRDL for the diagnostic identification of the cause of the illness or mortality of an animal. The team at the ADRDL not only

reports back to the veterinarian to assist them with treatment or prevention, if necessary, they network that information through our State Veterinarian in Pierre and labs in other states. This network helps our entire state be aware of, and prepared for, the challenges associated with animal disease outbreaks. Again, this whole system works with amazing speed and accuracy to help not only treat infected animals, but also to prevent the spread of infectious diseases. A second response of the ADRDL quickly kicks in. The research portion of the lab studies the disease in order to help improve treatments and, perhaps most importantly, develop preventative vaccines, and production techniques.

This is exactly what happened with PRRS. Veterinarians from around the state and region sent samples to the ADRDL at SDSU. Its diagnosticians, working with colleagues at other land-grant universities and the USDA, identified this new disease. Researchers at SDSU, in collaboration with colleagues at the University of Minnesota, then developed the first vaccine for PRRS. In addition, the SDSU ADRDL has since developed new diagnostic tests and reagents which are used worldwide to identify the disease causing virus.

In working with new and emerging diseases, our ADRDL team is truly working on a mystery, just like we see on TV shows like "CSI." Yet the system has an amazing track record of success, and as a result, food animal production in our state has reached incredible levels of efficiency and productivity, in large part because of the control and management of infectious diseases.

This success has spilled over and has created economic prosperity for South Dakota. According to the US Bureau of Economic Analysis, last year the agriculture sector of our state's economy grew a whopping 14.4%, driving our total state's economy to a 6.8% growth level, fourth-best in the entire nation!

In 2014, PEDV is a major, and very serious, problem for our state. Our ADRDL team is working in partnership with veterinarians, producers and biologics companies to lessen its impact. But we must not let our guard down. New food animal diseases will emerge and old diseases may re-emerge or find their way to our state's borders. Today, and in the future, our effectiveness in meeting those challenges will be a direct result of our willingness to invest in the required resources of people, equipment and facilities in South Dakota's ADRDL at SDSU.


BARRY H. DUNN, PH.D

GROWING SOUTH DAKOTA

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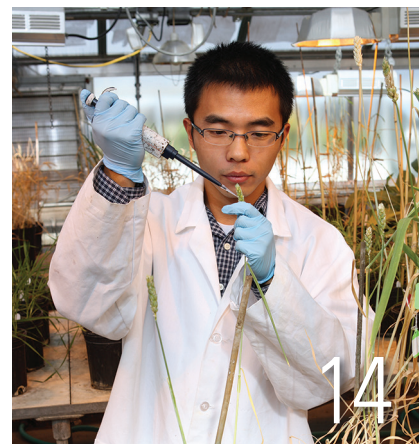
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On the Cover:

Historical photos from the SD State Agricultural Heritage Museum Photographic Collection help depict activities hosted by Extension during its 100-year history. From left to right: 4-H members gather on the campus of South Dakota State College in Brookings, undated; Farmers gather for an agronomy field day, 1948; a home Extension workshop provides information on canning spoilage, 1944. Read more about Extension's 100th anniversary starting on page 2.

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EXTENDING KNOWLEDGE, CHANGING LIVES

SDSU Extension Marks 100-Year Milestone

On May 8, 1914, President Woodrow Wilson signed the Smith-Lever Act into law, establishing the Cooperative Extension Service, a state-by-state network of educators to deliver information from land-grant universities, such as SDSU, to the people of the states. Today, SDSU Extension is celebrating the 100-year milestone of Extension education and outreach in the state, while also looking forward to Extension's role for the future.

Governor Dennis Daugaard, himself a former member of the Logan Patrol 4-H Club, signed a proclamation establishing May 8, 2014, as Cooperative Extension Service Day in South Dakota. The proclamation (*pictured at right*) recognized Extension's research-based education for farmers and ranchers for its role in helping establish the United States as a leading agricultural nation in

the world. It also stated, "Cooperative Extension provides numerous valuable services, including disaster response, educational outreach to farmers and ranchers, and youth engagement, among many others."

In a letter published in the May 7, 2014 Argus Leader, current SDSU president David Chicoine also noted the important role that SDSU Extension has had within the state. He wrote, "Supported by federal and state funds, SDSU Extension is a means by which university knowledge and innovations are shared with families, communities and industries across the state. Bringing together research, education and outreach, Extension epitomizes the university's historic land-grant mission. South Dakotans have come to trust SDSU Extension, an essential part of the

state's landscape for a century, as a go-to resource for unbiased, research-based information."

Throughout the past century, SDSU Extension has established a credible reputation for providing information, research, and programs on an array of topics, including livestock production, agronomy, horticulture, food nutrition, family relations, consumerism, community development as well as 4-H youth activities.

Karla Trautman, associate director of SDSU Extension, credits Extension staff across the state with working to build relationships and engage communities of learners in vibrant and relevant programs. Trautman says, "They have developed strong collaborations and partnerships which support the land-grant mission."

Pictured below: Dr. Fred Schubeck (right) and Paul Evenson present agronomy information at the Southeast Research Farm Field Day, 1971. **Inset photo:** Farm & Home Week is celebrated; 1952.



Executive Proclamation

State of South Dakota

Office of the Governor

Whereas, May 8, 2014, marks the centennial of the Smith-Lever Act, which established Cooperative Extension, the nationwide education system operating through land-grant universities in partnership with federal, state, and local governments; and,

Whereas, The Act expanded vocational, agricultural, and home-demonstration programs in rural America by bringing knowledge from land-grant universities to people where they live and work; and,

Whereas, Cooperative Extension, along with teaching and research, form the mission of our land-grant university system; and,

Whereas, Cooperative Extension's research-based education for farmers and ranchers helped establish the United States as a leading agricultural nation in the world; and,

Whereas, Cooperative Extension provides numerous valuable services, including disaster response, educational outreach to farmers and ranchers, and youth engagement, among many others; and,

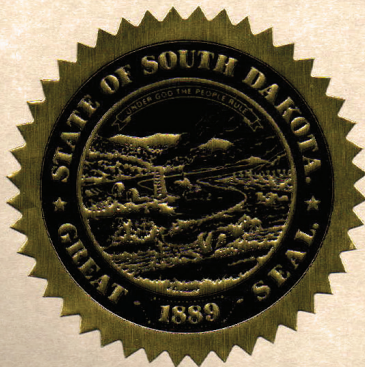
Whereas, The United States Department of Agriculture adopted the clover emblem in 1924 to represent 4-H, Cooperative Extension's successful, and wide-ranging youth development program that has reached millions of young people; and,

Whereas, On the 100th Anniversary of the Smith-Lever Act, it is fitting to recognize the value of Cooperative Extension and 4-H to the citizens of South Dakota:

Now, Therefore, I, Dennis Daugaard, Governor of the state of South Dakota, and former member of the Logan Patrol 4-H Club, do hereby proclaim May 8, 2014, as

COOPERATIVE EXTENSION SERVICE DAY

in South Dakota.



In Witness Whereof, I have hereunto set my hand and caused to be affixed the Great Seal of the state of South Dakota, in Pierre, the Capital City, this Twenty-eighth Day of April in the Year of Our Lord, Two Thousand and Fourteen.

Dennis Daugaard
Dennis Daugaard, Governor

Attest:

Patricia K Miller Deputy
Jason M. Gant, Secretary of State

As well, she credits SDSU Extension for striving to provide unbiased information for South Dakota's citizens to base their choices upon.

Alvaro Garcia, SDSU Extension Agriculture & Natural Resource Program Director, adds, "SDSU Extension specialists strive to filter research and information and provide individuals with what they are looking for in a way they can understand and implement. Just as our world is constantly changing, SDSU Extension is evolving. Our specialists continually look for innovative ways to furnish information."

Remaining Relevant

While SDSU Extension has much to celebrate, it has not rested on its laurels. In 2011, SDSU Extension underwent a dramatic reorganization in order to address decreases in federal and state funding support and to evolve with changing technology and information needs among South Dakota's citizens.

The new system transformed SDSU Extension from a place-and-person-bound system to a regional, technology-based system that delivers innovative outreach services demanded by its changing client base.

SDSU Extension Specialists now operate from the Brookings campus, the West River Ag Center in Rapid City or one of eight regional centers opened throughout the state, featuring high-tech learning classrooms that use videoconferencing to connect learners to one another and to topical experts in real time. Regional field specialists also have Master's degrees in their areas of expertise. Additionally, the importance of youth programming was reinforced via 4-H advisors hired to focus solely on youth development education and volunteer development at the community level.

Perhaps the most visible change was iGrow.org, launched as a web-based learning platform that embraces a 24/7 "virtual extension office" where clientele can access information at their convenience. In 2013, the website saw 300,000 unique inquiries, which was a 224 percent increase from the previous year.

TWO SOUTH DAKOTA'S SHARE VALUE THEY'VE SEEN FROM EXTENSION

Rich Howard and Chuck Langner each had an integral role in Extension programming in South Dakota for a large part of its past. Howard, who is now retired, had a 30-year career with SDSU – initially as a county agent in Spink County, then 28 years on the state 4-H staff. Langner also devoted three decades to SDSU Extension. His path began as an assistant county agent in Lincoln County for 1 year, then becoming an extension agent in Clark County for 13 ½ years; serving as an Extension Pesticide Impact Assessment Program (PIAP) Coordinator at SDSU for 2 years and an Extension Educator/Agronomist in Watertown for 16 years. He retired from Extension in 2010 and is now the Ag Director at KWAT Radio in Watertown, SD.

What impact have these men seen Extension have within the state? Langner says, "Extension was built over the last 100 years by developing personal, trusting relationship with producers, whether they were large or small, to provide them the latest researched-based information and put it in useable form. Producers could learn from the information to help them make more informed decisions in the years to come."

Likewise, Howard says, "Extension's impact for farmers, ranchers and families has resulted in helping both ag producers and South Dakota families make sound production and family decisions based on unbiased research information from SDSU."

Looking ahead, Langner adds, "Extension has changed over time to better serve the clientele, and I have personally seen the impacts Extension programs have had to assist producers in improving management practices, increase profitability and incorporating the latest research to enhance their operation. Extension will not only continue to take leadership in educating the clientele on the latest research-based information, but also incorporating it into the operation."

Howard adds, "I really feel SDSU Extension's purpose in the future remains similar to how it has helped people in the past – continuing to help 4-H youth learn valuable leadership and life skills and become productive, self-reliant citizens and to help the people of South Dakota make ag and other family decisions based on sound scientific research. For many citizens of South Dakota, Extension is their link to SDSU."

Additional indications suggest that the adaptations made to SDSU Extension have been successful. The SDSU Extension Benchmark Survey, conducted by a third-party in 2013, included information gleaned from interviews with 400 South Dakota crop and livestock producers, as well as users of one or more of SDSU Extension's five additional key program areas, which include: community development, food and families, urban/rural initiatives, Native American programs and 4-H Youth development.

Combined, the common theme from all respondents is that SDSU Extension is a leader and trusted source of unbiased, relevant information. Nearly 95% of respondents surveyed already utilize SDSU Extension services and reported positive experiences.

Barry Dunn, Dean of the College of Agriculture and Biological Sciences

and Director of SDSU Extension, acknowledges that while change isn't easy, these results demonstrate that it was necessary.

Dunn calls the results of the survey "affirming," and says, "While we are 100-years-old, in the age of information overload, SDSU Extension remains a safe and trusted place where South Dakotans know our only agenda is their success. It was positive to know we are on the right track and that if we continue to follow this path we will be even more successful in serving our state."

Garcia adds, "Not only are we providing information needed today, but our specialists are visionaries. They look ahead to identify future issues so we are ready to respond quickly with research-based information and resources".

PREPARING FOR SDSU EXTENSION'S FUTURE

As SDSU Extension embarks on its second century, results of the SDSU Extension Benchmark Survey conducted in 2013 are helping set the future leadership direction for outreach, research and program efforts. Here are some additional findings from the survey:

- The survey confirmed that more and more South Dakotans are going to iGrow.org for information on everything from crop and livestock production to community gardens, food preservation and nutrition. A younger demographic, ages 18-49, are the largest user group of iGrow.org.
- With the crop and livestock industry having the greatest economic impact on the state, a portion of the survey effort was focused on those producers. The survey confirmed that crop and livestock producers trust Extension. SDSU Extension ranks second highest behind veterinarians for being the most trustworthy source of information about ag science or best practices in agriculture.
- SDSU Extension is best known for its involvement with 4-H and youth development programs. Producers carry this connective experience throughout their careers as farmers and ranchers. For example, 4-H families are more likely than non-4-H families to be aware of and use SDSU Extension services.
- The Benchmark study also indicated a high likelihood that farmers will turn first to SDSU Extension when they need reliable information on ag science or best practices.
- According to survey respondents, the most needed types of information to be a competitive producer in the future include information about chemical/pesticide usage, seed hybrids/genetics, marketing and exports and best practices for managing input costs and increasing profits.

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Pictured below: Feeders Day, 1950



SUMMER COLLEGE NEWS



McCausland to lead State Agricultural Heritage Museum

Gwen McCausland has been named director of the South Dakota State Agricultural Heritage Museum. She began her new role on May 22, 2014. McCausland has spent the past 12 years working in nonprofit organizations in museums, education, libraries and theater, including the past two years as the marketing coordinator and exhibit designer for

the Historical and Cultural Society of Clay County in Moorhead, Minn. She also served four years as the curator of collections for the Hubbard Museum of the American West in Ruidoso Downs, N.M.

“She has just the right combination of degrees, experience, and career background to lead our wonderful museum into the future,” said Barry Dunn, dean of South Dakota State University’s College of Agriculture and Biological Sciences and director of SDSU Extension.

McCausland received her bachelor’s degree from North Dakota State University and added a master’s degree from Cardiff University in Cardiff, Wales.

The South Dakota State Agricultural Heritage Museum displays the important role of agriculture in South Dakota’s past, present and future. Exhibits include farm equipment, an original 1882 homestead claim shack and a recreated 1915 farmhouse, as well as historic photographs.

Student Highlights

■ SDSU’s Soil Judging Team placed second in the 2014 North American Colleges and Teachers of Agriculture National Collegiate Soil Judging Contest held in Missouri April 7-12. Seventeen collegiate teams from across the U.S. competed. SDSU individuals who placed were Hannah Wilkerson, fourth place, Nathan Odegard, ninth place, Brandon Splinter, thirteenth, and Joseph Gerber, twenty-eighth overall. Other team members were Caleb Buisse, Tyler Carda, Derek Guthmiller, Tanner Sjomeling, and Stuart Tillma. The SDSU Soil Judging team is coached by Rachel Owen, Graduate Research Assistant, and Doug Malo, Distinguished Professor of Plant Science.

■ Four SDSU students were among the 18 college students awarded scholarships from the National Pork Board as part of its strategy to develop the pork industry’s human capital for the future. SDSU’s four winners were the most by any university. SDSU students receiving the scholarships were Dustin Compart, \$5,000, and Caitlin Hupp, Evan Koep and Emily Scholtz each receiving \$2,000 scholarships. The winners were selected based on scholastic merit, leadership activities, pork production industry involvement and future pork production career plans.

Faculty News

■ **Steve Pohl**, Professor of Agricultural and Biosystems Engineering, retired May 21, 2014 after 27 years of service. His SDSU Extension and research work, with a focus on the health and performance of livestock and ag workers, has been integral to establishing industry standards.

■ Distinguished Professor **W. Carter Johnson** of SDSU’s Department of Natural Resource Management was awarded the National Wetlands Award for Science Research by the Environmental Law Institute on May 8 in Washington, D.C., honoring his forty years studying wetlands in the Prairie Pothole Region from Canada through the Dakotas to Iowa.

■ During the spring 2014 semester, faculty members from the College of Agriculture and Biological Sciences were presented the following Excellence in Teaching and Research awards:

- **Pat and Jo Cannon Intellectual Property Commercialization** to Alan Young, professor and research leader of veterinary and biomedical science;
- **F.O. Butler Award for Excellence in Research** to William Gibbons, professor of biology and microbiology;
- **F.O. Butler Award for Excellence in Teaching** to Donald Auger, associate professor of biology and microbiology;
- **F.O. Butler Award for Excellence in Service** to Suzanne Stluka, food and family program director for SDSU Extension;
- **Excellence in Graduate Student Mentoring** to Jonathan Jenks, distinguished professor of natural resource management;
- **Excellence in Outreach and Engagement** to Alvaro Garcia, professor/extension specialist in dairy science.
- Additionally, the 2014 Distinguished Researchers and Scholars award for the College of Agriculture and Biological Sciences was presented to David Clay, professor of plant sciences and director of the South Dakota Drought Tolerance Center.



Local Leadership Important For Ag's Future

*By Joseph P. Cassady,
Professor and Head, Department of Animal Science*

Agriculture faces many challenges, and strong, effective leadership has never been more critical to the future of agriculture than it is today. In order to meet the nutritional demands of an ever-increasing global population, we must find solutions to the problems that limit our capacity for producing and transporting food. This will require visionary leadership and strong rural communities.

Leadership can take many forms, and at times we fail to recognize the greatest leaders among us. We can all name leaders in high-profile positions, but much of the leadership that will shape the future of agriculture happens in subtle ways in local communities. It is the leadership of the farmer, rancher, manager of the local farm store, 4-H volunteer, or ag teacher in the local community that many times has the greatest collective impact on the direction of that community.

These are the individuals who will encourage our youth to pursue their interests in agriculture and allied industries. If the local leaders are positive and hopeful about the future, youth of the community are more likely to be excited about those opportunities, and I believe these youth will be more likely to remain in or return to those rural communities.

Look around your own community. Are the members of your community excited about the future? Do they welcome new opportunities which may improve the future viability of the community? When new people move into the community, who welcomes them? How many years or generations does someone have to live in your community before the "locals" consider them "one of us?"

Communities are constantly changing. Some are growing and some are dying. Very few communities are "staying the same." Who are the true leaders in your community? Are those leaders positive and excited about the future? Do they actively seek out opportunities that will lead the community to a brighter tomorrow?

Many books have been written on leadership, describing leadership style, effectiveness, and alternative approaches. For those of us in professional leadership roles, it is important to have an understanding of these various mythologies. However, being a leader requires no special training. If you influence individuals in your family or local community, then you have the opportunity to provide leadership.

In some cases just your willingness or unwillingness to lead may have a major impact on a community. Some people are reluctant to accept leadership roles because they are uncomfortable speaking in public, but these same people may lead more by their actions than their words.

While agriculture faces many challenges, there are tremendous opportunities for the future. People around the world need food, and South Dakota is well-positioned to be a leader in meeting the nutritional needs of the world. We have bright young people who are excited about the future and are seeking opportunities to pursue careers in agriculture. If those young people are not returning to your community, it may be time for the leaders in the community to ask the difficult questions regarding the direction of the community.

Who is leading the change in the community? Do they have the best long-term interest of the community at heart? What leadership role do you take in your community? Look for opportunities to be a leader. Talk to your neighbors and the youth in the community about the tremendous opportunities in agriculture. Agriculture needs visionary leadership and strong rural communities. Our future depends on it.



ADVANCING AGRICULTURE

SDSU Precision Ag Program Evolves, Expands

“Even if you’re on the right track, you’ll get run over if you just sit there,” said Will Rogers. In the fast-paced, ever-changing world of precision agriculture, that sentiment is especially true.

Addressing the Western Corn Belt Precision Ag Conference in Sioux Falls this spring, SDSU Dean of Agriculture and Biological Sciences Barry Dunn pointed out, “If the last five years hasn’t seen the fastest rate of change in technology and information in the history of agriculture, I can’t imagine when it was faster. The only thing I can say is ‘watch out’ because the rate of change will be even greater in the next 10 years.”

Additionally, Dunn noted that society is looking to all of agriculture for “sustainable practices.” In anticipation of these evolving changes and needs, SDSU professors, instructors, researchers and Extension staff in plant science and ag engineering are striving to strengthen their precision agriculture curriculum and knowledge.

Nicholas Uilk teaches precision ag classes in SDSU’s Agricultural and Biosystems Engineering Department. He emphasizes that at SDSU the precision ag effort is a collaborative one. “It’s no longer two separate systems, the machinery ties into the agronomic side. So by collaborating across departments and with teachers, researchers and Extension, the goal is to improve the productivity and efficiency of South Dakota’s cropland while minimizing the producer’s inputs and optimizing outputs.”

As well, SDSU is working to ensure its graduates are prepared for the future of precision ag. “Technology has really advanced within the agricultural industry and manufacturers are really looking for these graduates – and students with agricultural backgrounds are showing interest in this line of study,” Uilk says.

Within the Ag Systems Technology (AST) program, curriculum additions in 2013 allowed students to elect for a “precision ag emphasis.” With this coursework, they take more electronics and computer classes to prepare them for careers in equipment manufacturing or with a dealership.

The fall 2014 semester will mark the first time students can declare a precision ag minor.

A sampling of some of the courses related to precision ag include testing simulation models within the lab; trouble shooting ag electronics, and precision mapping. Courses specific to wheat, corn and soybean production and the use of precision ag have also been added in the last couple years.

Students gain hands-on experience at the SDSU Opportunities Farm near Beresford – from driving tractors with real precision systems in them to developing prescription maps. Uilk explains that mapping programs are a big part of precision ag to aid in developing optimal seeding and fertilizer rates.

Additionally, data is collected on stand counts, seed populations, population strips, as well as developing yield-response curves for different hybrids on specific soils.

Both Uilk and Dunn credit a successful partnership with Raven Industries for bolstering SDSU’s precision ag projects – from supplying the students and farm with equipment and lab space to support for development of a new multi-hybrid planter.

Dunn anticipates there is much more that can be done in cooperation with industry in the precision ag field. He says, “This state’s future is dependent on what’s happening in precision ag.”

Uilk adds, “The technology in ag has really expanded; As we strive to keep up, our goal is to better prepare SDSU students for a career in agriculture.”

What’s next? Uilk reports the Agricultural and Biosystems Engineering Department is working to secure funds for a state-of-the-art precision ag computer lab. It would include 30 to 35 computer stations with cutting-edge programs to enhance the current curriculum. The goal is to have the new lab in place for the 2015 spring semester.

Pictured above: Students in AST 203 – Intro to Precision Agriculture have the opportunity to test drive tractors and learn about different guidance systems. Schuneman Equipment, Farmers Implement and Irrigation, and Brookings Equipment each supply a tractor and demonstrate the technology used in the tractors.

On the **FRONT LINE**

ADRDL Leads Important Effort For Animal Health Diagnostics

Within the animal industry, when a suspicious illness or disease affects an animal, from a dog or deer to cattle and swine, a laboratory on the SDSU campus is among the first to aid with the diagnosis, and often development of prevention or treatment approaches.

The state laboratory is called the Animal Disease Research and Diagnostic Laboratory (ADRDL). It is housed within the Veterinary & Biomedical Sciences Department, with department head Jane Hennings, DVM-MS, serving as director.

Hennings notes that while much of the work the ADRDL does assists the South Dakota animal industry, the lab's work also contributes to animal health locally, nationally and globally. She reports that the ADRDL tests approximately 400,000 to 600,000 samples per year that are submitted from South Dakota and veterinarians across the nation.

She shares, "Our expertise is in infectious disease research and diagnostics, particularly in livestock species such as cattle and swine. We also perform national export testing for livestock being transported to other countries."

The ADRDL has a particularly unique – and critical – role when a new disease impacts the livestock industry. Hennings explains that through the lab's diagnostic sections, which include virology, pathology, molecular diagnostics, bacteriology, serology, food safety, clinical pathology, histopathology and research, they are tasked with testing samples and working towards developing new detection tests, vaccines and other biosecurity measures to help alleviate disease losses.

When a mystery disease struck the U.S. swine industry in the 1990's, the ADRDL had an integral role in identifying the disease and developing effective diagnostics and control procedures. *(For more, see the Dean's column on the inside front cover of this issue.)*

Currently, the swine industry is dealing with another disease that is fatal to pigs – Porcine Epidemic Diarrhea Virus (PEDV), first found in the U.S. in May 2013.

Hennings emphasizes that this virus does not affect people, but within a year it has moved quickly and affected



Research Associate Travis Clement works with samples in the Animal Disease Research and Diagnostic Laboratory.

swine herds in 29 states, which has had a devastating economic impact to the industry.

When the ADRDL received the first sample last May, South Dakota scientists quickly collaborated with other diagnostic laboratories to help characterize and develop a rapid polymerase chain reaction (PCR) test which detects the genetic material of the virus. South Dakota's ADRDL was a leader in the development of additional diagnostic tests and commercially available reagents to better characterize the virus and the

immune response of the pig. ADRDL and Veterinary and Biomedical Sciences Department scientists are now focusing on applied research projects examining critical questions about the behavior of PEDV, in an effort to better understand control and prevention of the disease, and develop a PEDV vaccine and biosecurity protocols.

Research grants from the National Pork Board are assisting this work, and the ADRDL has a key role supporting the research work of others by providing diagnostic and technical support to a wide variety of investigators, veterinarians, and biologics companies across the country.

And, already the ADRDL is working on another relatively new disease to the swine industry. In late January 2014, the lab helped a Nebraska swine operator identify porcine deltacoronavirus (PDCoV) in his herd. SDSU has already helped develop a real-time PCR test for quick detection of PDCoV. With little known about this newest potential pathogen threatening North American swine herds, the ADRDL has ample work ahead of them.

Editor's Note: With the significant growth in diagnostic testing, research, outreach and teaching of undergraduate and graduate students in hands-on diagnostics and research, the ADRDL is hoping to gain funding to update and expand their space in the future to accommodate the significant state, national and international needs of animal and public health.

THE VETERINARY AND BIOMEDICAL SCIENCES DEPARTMENT ALSO PARTICIPATES IN:

- The **National Animal Health Laboratory Network (NAHLN)** which is among the laboratories that tests for foreign animal diseases and other infectious diseases including: Foot and Mouth Disease, Rinderpest, Highly Pathogenic Avian Influenza, as well as national surveillance for several swine diseases.
- The **FDA Food Emergency Response Network (FERN)** which provides an early means of detecting threat agents in the American food supply and the ability to respond to food-related emergencies, such as contamination.
- The **Veterinary Laboratory Investigation Response Network (Vet-LIRN)** which conducts testing for high-priority chemical and microbial feed/drug contamination events, such as in pet foods as requested by FDA.

The lab's co-location and supervision by the university enables the lab to also contribute to biomedical workforce development.

4-H Philanthropy

Supporters Continue Campaign For New 4-H Exhibit Hall

Across South Dakota 4-H supporters are coming together around a common goal – a \$4 million capital campaign to build a new 4-H exhibit hall on the state fairgrounds in Huron.

“This building is essential to the continued success of the State Fair,” explains Loren Noess, chairman of the capital campaign.

The new facility is anticipated to feature more than 35,000 square feet of exhibit space, multiple classrooms, a large kitchen for 4-H Special Foods competitions, concessions and a performance stage.

In April 2014 it was announced that long-time Huron philanthropist Earl Nordby has given a gift of \$1 million to the campaign. In honor of his contribution, the 47,000-square-foot building will be known as the Nordby Exhibit Hall for 4-H, Youth and Community.

As a youngster, Nordby wasn't in 4-H because at the time town kids couldn't be members. But he said he always admired what the 4-H program did for everyone. When the capital campaign began, Nordby who has a long history in the soft drink industry, said he wanted to be as generous as he could, and noted that philanthropy was instilled in him as a family tradition since his childhood.

Investment In The Future

Noess said the capital campaign has raised a little over \$2 million thus far. The old Clover Hall, built in the 1950's, was



4-H Youth in Edmunds County made and sold apple pies as a fundraiser for the 4-H Exhibit Hall campaign.

structurally unsafe and was demolished last November.

South Dakota Agriculture Secretary Lucas Lentsch noted that Nordby has shown through his gift that agriculture is not only part of the state's past and present, but its future as well. He is embracing youth and the community, too. “This is an example of leadership at its core,” Lentsch said during a press conference announcing Nordby's donation.

The new 4-H exhibit hall will benefit generations of young people, emphasizes Barry Dunn, director of South Dakota State University Extension. Currently, there are 9,000 4-H members across South

Dakota, and about half of them participate in the State Fair each year.

In his role at SDSU, Dunn said he witnesses how the 4-H program pays dividends every day. “I get to see the harvest of 4-H as I interact with young people on campus, leaders across the state and young people across the state,” he says. “It changes lives, it improves our communities and it will improve our future.”

The South Dakota State Fair will be held Aug. 28 through Sept. 1, 2014. Those wishing to donate to the 4-H exhibit hall campaign can visit www.sdstatefairfoundation.com.

4-H Youth Raising Funds, Too

South Dakota 4-H members and leaders have come together in counties across the state and are sponsoring a variety of events to raise funds for their new exhibit hall. As one example of their efforts, the Wily Wizards 4-H Club of Edmunds County made and sold apple pies for Thanksgiving. They picked the apples, peeled, sliced and prepared the filling, made the crusts, and put them all together. Their pie sales raised \$800 for the building campaign.

In many cases, philanthropic individuals and businesses have pledged matching funds towards these events. If donors would like to maximize their gifts, they are encouraged to contact the South Dakota 4-H Leaders Association (www.southdakota4hleaders.com) or their county 4-H Advisor to learn more.

OTHER 4-H HAPPENINGS ACROSS THE STATE

- In late April the South Dakota State 4-H Shooting Sports Finals were held at the Expo Center in Fort Pierre. This was the 31st annual State Shoot, and the three-day event has grown to be one of the largest shooting sports events in the country. Statewide more than 3,000 youth are enrolled in shooting sports, and about 1,300 participate in the state finals. The primary focus of the program is on safety.

- “Around The World” was the theme of the annual Teen Leadership Conference held on the SDSU Campus in Brookings June 2-6. The conference is planned and coordinated by high school 4-H students who are members of the State 4-H Youth Council. For 2014, a 4-H Youth Forum was held in conjunction with the event allowing 4-H youth from across the state to provide their opinions and input to improve state 4-H events.



Growing Global Citizens

AgBio Courses Offer International Learning Opportunities

Several SDSU students are going to have a very interesting answer to the question: “*What did you do this summer?*” Through their enrollment in the International Experience in Ag-Bio course (ABS 482/582), one group of students and faculty traveled to Australia, while another group visited China. Both travel groups left in May, just a day after commencement. A travel course to the Canadian Arctic is being planned for August.

Julie Walker, Associate Professor of Animal Science, led SDSU’s first student travel experience to Australia, with the objective of exposing students to the agricultural practices and issues facing producers and consumers within the country. Additionally, students gained an appreciation for Australian culture and experience in travelling internationally.

Walker reports that students were given an overview of the Australian cattle sector, including international trade and access issues. They had the opportunity to make several site visits including the Sydney fruit and vegetable markets; a 3,000 cow dairy operation; the U.S. Embassy and a meeting with the agricultural attaché; and the Commonwealth Scientific Industrial Research Organization (CSIRO) which is a major Australian research institution.

Students also experienced two farm stays, visited several farms and feedlots, and toured the Agricultural Business Research Institute (ABRI), the Dalby sale yards, the historic Jondaryan Woolshed, a fresh water crayfish operation, and the Australian Parliament House.

Professor of Animal Science Bob Thaler has taught the course that culminates with a trip to China each spring for the past three years. It has attracted about

30 students each time, and for 2014, the SDSU student group was also accompanied by several SDSU faculty including College of Agriculture and Biological Sciences Dean Barry Dunn.

Cities visited included Beijing, Xi’an, Guangzhou, and Hong Kong. Agricultural visits range from a two-acre family farm to a 70-acre grass carp farm as well as visiting with the leadership of Pioneer Genetics in China to visiting the U.S. Agricultural Trade Officer at the U.S. Consulate.

Other stops feature a soybean crushing plant, a port tour, a John Deere plant, and beef, swine, and dairy farms. Cultural stops include the Great Wall, the Terra Cotta Warriors, Tiananmen Square, The Forbidden City, and “wet” markets selling meat, fish, vegetables, and fruit.

Students share that another highlight of the trip is the opportunity to spend an afternoon at China’s premier agricultural university, China Agricultural University in Beijing, and interact with their peers and see what college life in China is like.

Also this summer, Lan Xu, Associate Professor of Natural Resource Management, is planning a travel course that will focus on the Canadian Arctic in August 2014. The Arctic Biosystems and Culture course had previous trips in 2008, 2010, and 2011, with about 10 students each year.

This course is unique in that it is a camping expedition. The group will travel by bus, and then train, to reach the Churchill Northern Studies Centre. During the trip, the students will experience multiple biomes from prairie, parkland, and coniferous forests, to tundra, marsh, and tide pool ecosystems.



Above top: A delegation of 30 SDSU AgBio students traveled to China in May to learn more about their culture and agricultural needs.

Bottom: A group of SDSU students also toured Australia to learn about its agriculture industry – and see a koala bear in person.

At the Churchill Northern Studies Centre, the students will meet with a member of the International Arctic Council, participate in natural and social seminars, and interact with researchers and scholars from around the world, as well as college students from Canadian universities.

By providing international opportunities for students, the College of Agriculture and Biological Sciences aims to prepare the next generation to be active global citizens and knowledgeable participants in the global marketplace. These courses offer a spectacular opportunity for students to integrate course learning with hands-on observation and interaction, say the faculty involved.

Editor’s Note: In addition to Australia, China, and the Canadian Arctic, the college has recently sponsored travel courses to West Africa, South America, Northern Europe, and New Zealand. For more information, contact the International Studies office at www.sdstate.edu/international-affairs/study-abroad/index.cfm



GUIDANCE FOR GARDENERS

Several SDSU Programs Help Foster Gardening Skills

After enduring a long winter, gardeners know there's nothing more-anticipated than the summer gardening season. And fortunately, for those without a green thumb, many SDSU programs across South Dakota are in place to assist all ages in learning about gardening and being successful in their endeavors.

Giving back to the community through gardening is a large focus of the Master Gardening program, says SDSU Extension Consumer Horticulture Field Specialist, Mary Roduner, who serves as Program Coordinator for the SDSU Extension program.

She explains that to receive their certification, Master Gardeners take a course and then volunteer 50 hours working in their community to promote and teach gardening. "This training gives gardeners a well-rounded education preparing them to help their communities," Roduner says.

Opportunities include; writing articles, giving talks, working at fair booths,

helping in community and school gardens, teaching and answering garden questions. In 2013 Master Gardeners contributed almost 10,850 hours, worth over \$206,600 to South Dakota communities.

In 2013, the South Dakota Master Gardeners began offering training with online lessons for the first eight weeks allowing trainees to study on their own schedule. The second part of the training is four days of in-person, hands-on instruction. Roduner reports that participants have expressed appreciation for the online format because of the freedom to study at their own pace and on their own time.

Although Cleone Thompson didn't have the online option when she took the Master Gardener course almost 20 years ago, she is excited for the new format which includes online classes covering the following topics: basic botany, soils, turf, trees, insects, fruit, vegetables, ornamentals and weeds. As well as hands-on courses to teach skills in pruning, plant



Above: The Youth Community Garden in Sturgis is one of 12 projects across the state that received a mini-grant from SDSU Extension and the South Dakota 4-H Foundation to help cover start-up costs.

and insect identification, turf problems, weeds, soils and ornamental plants.

"Thanks to this online option, you don't have to be retired to be a Master Gardener," says Thompson, a Sioux Falls Master Gardener.

Even when she was working fulltime and raising her family, Thompson found

time to garden, saying that for her, gardening is therapeutic. Thompson says, "I feel so good after gardening. It really gets the endorphins flowing, and, it's a great workout."

She adds that Master Gardener training enhanced her hobby. "There was so much I didn't know. It gave me such a good basic knowledge that now I really enjoy sharing what I've learned with others," explains Thompson.

All Master Gardener lessons are taught by SDSU Extension field specialists and faculty. Online training starts annually in mid-April. The hands-on portion is offered in four locations; Sioux Falls, Huron, Mission and Spearfish in June. The training cost is \$160 with 50 hours of volunteer payback during the first two years after training.

For more information, application forms and schedules for the 2015 session, contact Mary Roduner at mary.roduner@sdstate.edu or 605-394-1722. To learn more about Master Gardeners, visit <http://hortmg.sdstate.edu>.

Growing Green Thumbs

Several additional efforts are underway to help promote a gardening connection in communities and particularly among South Dakota youth. Activities include:

> Twelve mini-grants of \$125 each were awarded to youth and school gardens across South Dakota to launch or enhance garden programs. Funding was provided by the Community and Family Extension Leaders, which is administered by SDSU Extension and the South Dakota 4-H Foundation.

The gardens can use the funds to purchase seeds, plants or small garden equipment or utilize the award to purchase programming materials. The twelve garden programs selected will work with an SDSU Extension partner, such as a Master Gardener, a county 4-H Youth Program Advisor or Food and Nutrition Program/Expanded Food and Nutrition Education Program assistant. They will provide programming to a school-age group and incorporate hands-on learning experiences for a 4-12 week period.

This year's awardees include: Meade County 4-H, Sturgis (pictured); Andes Central Afterschool Program and Charles Mix Co. 4-H; Christian Center Daycare, Sioux Falls; Harding County School

District & Harding County 4-H; Lemmon Jr. Master Gardeners; Lutheran Social Services of S.D.- New Beginnings Center, Aberdeen; M & M Day Care & Jungle After School Program, Huron; North Rapid Community Schools, Rapid City; Rosebud Juvenile Detention Center, White River; S.D. Discovery Center, Pierre; Wall Afterschool Program; Wounded Knee School District.

> SDSU Extension and the South Dakota Discovery Center hosted S.T.E.M in the Classroom, Kitchen and Garden, a free, two-day training in Rapid City and Sioux Falls to demonstrate creative ways to connect science, technology, engineering and math (S.T.E.M.) with garden-based

learning and food science and nutrition education for teaching youth.

The program was designed for PreK through middle school teachers, after-school program leaders, school administrators, garden-focused educators, 4-H advisors, food service staff, and wellness committees.

Participants discussed resources available to implement programs like Harvest of the Month to promote children's consumption of fruits and vegetables and to raise a school or learning garden. Additional topics included food safety science, tools and tips for cooking with kids, Pick It! Try It! Like It! resources and USDA Team Nutrition curriculum activities to take back to the classroom.

RESOURCES FOR LEARNING MORE

With gardening season comes questions: Is this a bad bug or good one? What's wrong with my cabbage plant? How do you transplant petunias? Can I grow these two plants side by side? How much water is too much?

For 2014, Master Gardener hotlines are back in communities across the state to help answer all gardening questions. Gardeners can call, email or stop in with a sample plant or bug for them to look at. The hotlines will be open from April 1 to October 1 at the following locations:

> **ABERDEEN:** 13 Second Ave. SE; 605-626-2870 or email coordinator cindy.schnabel@sdstate.edu.

> **RAPID CITY:** 1530 Samco Rd.; 605-394-6814 or email coordinator Mary Hercher at pennington2012@gmail.com.

> **SIoux FALLS:** 2001 E. Eight St.; 605-782-3298 or email coordinator Elizabeth.blaalid@sdstate.edu

If you do not live near a hotline office you can call the Rapid City hotline for the name of a Master Gardener near you to help answer your questions.

Also available to South Dakotans this summer is AnswerLine, which is a toll-free connection to Extension family and consumer science specialists dedicated to answering questions and directing consumers to research-based resources related to gardening, food preservation, food safety, cleaning tips or balanced nutrition.

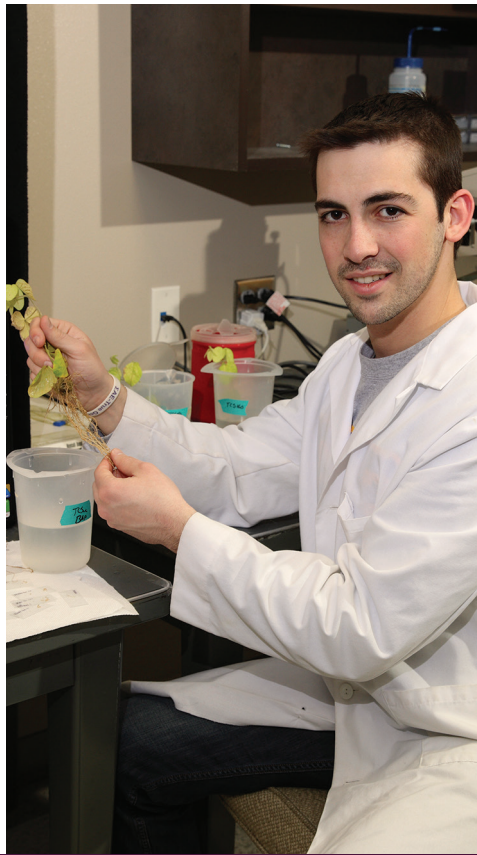
"This is a one-stop-shop for answers to family and consumer science questions," says Suzanne Stluka, Food & Families Program Director.

To call AnswerLine, simply dial 1-888-393-6336. South Dakotans can also access credible food and family experts by visiting www.extension.org and using the "Ask An Expert" option.

As well, the third Thursday of each month McCrory Gardens adjacent to the SDSU campus in Brookings provides gardening enthusiasts with educational programs.

Programming is designed for gardeners of all levels, with each event instructed by McCrory Gardens staff, SDSU Extension Specialists, Master Gardeners or other South Dakota State University faculty. The programs are open to the public.

For more information visit www.mccrorygardens.com or email david.graper@sdstate.edu or call McCrory Gardens at 605-688-6707.



RESEARCH REVELATIONS

Significant studies are underway in the College of Ag & Bio Sciences, here's a snapshot of current projects

Seeking Keys To Scab Resistance

Fusarium head blight is considered the worst plant disease to hit the U.S. since the rust epidemics in the 1950s. Wheat and barley farmers have lost more than \$3 billion since 1990 from blight outbreaks. The fungal disease, commonly known as scab, not only dramatically shrinks yields, but it also produces toxins that make the grain unfit for human or animal consumption.

And, despite major research funding – including the U.S. Wheat and Barley Scab Initiative – scientists admit that efforts to control this devastating disease have been met with limited success.

However, SDSU professor Yang Yen in the Biology and Microbiology Department is inching closer to combating this disease. Using advanced genetic and molecular technologies, Yen has begun tracing the biochemical pathways that make wheat susceptible or resistant to head blight. Three graduate students and two

postdoctoral scientists have worked on this research over the last 16 years.

He compared the most resistant varieties of wheat with the most susceptible ones. By looking at how genes were expressed, the molecular biologist narrowed the possibilities from thousands of genes to 608, then to 47 and eventually to three. These genes are functional in both resistant and susceptible varieties. How they respond to regulatory pathways triggered by the fungal infection makes the difference, he says. “That’s why normal gene cloning didn’t work.”

Essentially, Yen hypothesizes that the fungus softens the host cell wall during infection and triggers a chain of host resistance responses.

In the resistant wheat, the key resistance gene may delay this chain of reactions until the host tissue is too hard for the disease to develop, Yen explains.

In addition, Yen must find out where the signal is coming from and how the fungus suppresses the gene expression.

Yen has received a three-year USDA grant for nearly \$363,000 to test this hypothesis, along with funding from the South Dakota Wheat Commission.

Above Left: South Dakota State University doctoral student Charles Halfmann has genetically engineered cyanobacteria, also called blue-green algae, to produce limonene, a natural citrus scent that has potential as a solvent and biofuel.

Center: Through a fellowship from the American Society of Plant Biologists, undergraduate student Spencer Schreier is investigating the genetic factors that affect soybean root development.

Right: Graduate student Yinjie Qiu inoculates one wheat kernel with *Fusarium graminearum* spores. He is involved with a study using advanced genetic and molecular technologies, to trace the biochemical pathways that make wheat susceptible or resistant to head blight.

Studying Sustainable Solvents & Fuel

A natural citrus scent called limonene may be the key to sustainability when it comes to making fragrances, solvents and possibly even jet fuel, according to South Dakota State University doctoral student Charles Halfmann.

The Luverne, Minnesota, native has been working with associate professor Ruanbao Zhou of the SDSU Department of Biology and Microbiology to create genetically engineered cyanobacteria, commonly known as blue-green algae, that are capable of producing limonene.

Limonene is among a class of naturally emitted plant long-chain carbon chemicals called isoprenoids with biofuel potential.

Anything in the grocery store with an orange or lime scent contains limonene,

according to Halfmann. However, the extraction process consumes energy and produces greenhouse gases.

Thus, Halfmann proposes genetically engineering cyanobacteria to directly convert carbon dioxide, water and sunlight into limonene. The separation process would be simpler because the cyanobacteria emit the substance like a fragrance. “That’s really an attractive feature,” he explains.

Beginning in 2012, Halfmann took a wild type of cyanobacteria and inserted a gene from the Sitka spruce tree to make it to produce limonene. He and other SDSU researchers envision using carbon dioxide and possibly even wastewater—byproducts

of the ethanol industry—to produce green chemicals and biofuel.

Halfmann admits, “the technology is in its infancy.” Scientists need to know more about the metabolic pathways and the mechanisms that regulate them to increase limonene production.

A paper on Halfmann’s work has been published in *Green Chemistry*, a journal that features research on sustainable technologies. His work is supported by the Sun Grant Initiative, which promotes collaboration among researchers from land-grant institutions, government agencies and the private sector to develop bio-based transportation fuels.

Quest To Create More-Efficient Soybeans

Investigating the genetic factors that affect the development of soybean root nodules is the focus of a research project being conducted by SDSU undergraduate student Spencer Schreier.

He explains that breeding soybeans that capture more nitrogen can reduce the amount of fertilizer needed and lead to more sustainable farming practices. “Nodules are very important in relieving our reliance on nitrogen fertilizers,” Schreier says.

Schreier’s began his research work last summer under the supervision of plant scientist and assistant professor Senthil Subramanian, whose specialty is plant genomics. This spring, Schreier received a fellowship from the American Society of Plant Biologists for his work. The Belle Fourche native is the first SDSU student to receive this award.

He says, “I didn’t realize how accessible research was here for an undergraduate student.”

Advancing Renewable Energy Storage

Doctoral student Hong Jin has been named recipient of the Joseph P. Nelson Graduate Scholarship Award. Since August 2011, Jin has been working in the Agricultural and Biosystems Engineering Department as part of a project to use biochar, a byproduct of transforming plant materials into biofuel, to develop more cost-effective ways of storing renewable energy. His adviser is assistant professor Zhengrong Gu.

The research is supported by the U.S. Department of Agriculture and the North Central Regional Sun Grant Center. The Nelson scholarship, which is given each year to an outstanding graduate student, recognizes original scientific research and provides up to \$8,900 for tuition and expenses.

Through his research, Jin’s goal is to produce nanostructured carbon materials that will hold more energy and reduce dependence on petroleum.

Microbiologists Validating Test To Detect Salmonella In Raw Pet Food

A team of SDSU researchers is working on a project to develop a new method of detecting salmonella in pet food. “If the pet food is contaminated with salmonella, it goes from the pet food to you,” notes SDSU Senior Microbiologist Seema Das.

As a result, FDA has made this a priority and has awarded a five-year FDA grant for nearly \$500,000 to the SDSU researcher. Das and her colleagues will determine whether a test that detects salmonella in human food can do the same in raw pet food.

The SDSU team includes veterinarian Russ Daly, bacteriologist Laura Ruesch, microbiologists Marciel Aguiar and Cindy Watt and two undergraduate students. They began working on the project last September.

The first year the test will be validated, and then either adjustments or expansion of the testing will be done in subsequent years. The work will involve multi-lab validation with collaborators at Iowa State, Texas A & M, the University

of Minnesota and the New Jersey Department of Agriculture.

From a production standpoint, the testing procedure will minimize the economic impact on the company. In addition, the FDA will have a valuable tool with which scientists can deal with a threat to human health while also protecting the pet food supply, Das explains.

REFUGEES TAUGHT ENTREPRENEURSHIP, GARDENING & FOOD PRESERVATION SKILLS



Refugees in Sioux Falls are learning the skills of horticulture and gardening, nutrition, cooking and food preservation as well as skills related to local food entrepreneurship. They are being taught by SDSU Extension staff in partnership with the Somali Bantu Community Development Councils of South Dakota and HyVee.

The beginning farmer incubator program is called “New Roots for New Americans,” and the program

was launched when SDSU Extension designed a six-month, intensive classroom and garden-based training program that began in January and ran weekly through June. Thirty-eight individuals participated.

Through the program, participants gain community garden plots at the New American Garden and an opportunity to sell produce at the New American Garden Farmers Market.

The program is funded through a Refugee Agricultural Partnership Program (RAPP) grant which the Somali Bantu Community Development Councils of South Dakota acquired to assist aspiring, limited-resource refugees in developing their skills as gardeners, to encourage healthy diets and to sell their produce. This grant helped fund the establishment of a community garden, a program director and horticultural educator/garden mentor. A partnership with the East 10th Street Hy-Vee provides the ground for 102 raised garden beds at the New American Garden.

SD FARMERS UNION & EXTENSION PARTNER TO HOST TEMPLE GRANDIN

South Dakota Farmers Union and SDSU Extension partnered to host two workshops in the state featuring animal behaviorist Temple Grandin. With the theme “Raising the Best: Livestock Husbandry and Handling for Today’s Market” the workshops were set for July 1 in Rapid City and August 5 in Watertown.

The purpose of the free workshops was two-fold – to provide a valuable educational opportunity for producers to learn from one of the world’s renowned experts on livestock handling, as well as to foster connections between producers and SDSU Extension’s various regional livestock specialists.

FALL MEANS SDSU FOOTBALL

The SDSU Jackrabbit football team is gearing up for their 2014 season. If you are visiting campus, bring your blue and gold and cheer on the team. The schedule and themes for home games is:

- September 6 vs. Cal Poly (Dairy Drive)
- September 20 vs. UW-Oshkosh (Beef Bowl)
- October 11 vs. Missouri State (Hall of Fame Game)
- October 25 vs. Youngstown State (Hobo Day)
- November 15 vs. Western Illinois (Military Appreciation)
- November 22 vs. South Dakota (Showdown Series)

SDSU’S SALVERSON AMONG MONEY MAGAZINE’S 50 HEROES



Robin Salverson

SDSU Extension Cow/Calf Field Specialist Robin Salverson represents South Dakota in the July 2014 issue of *Money Magazine*. She is among 50 heroes featured, one from each

state in the nation, who have made extraordinary efforts to improve other people’s personal finances.

“The objective of the publication is to highlight the work of those unsung heroes who have gone out of their way assisting others, either by formerly determined programs or by their own initiative,” says Alvaro Garcia, SDSU Extension Agriculture & Natural Resources Program Director.

Salverson was recognized because of her work performed with Annie’s Project, a national program found in 34 states including South Dakota. It consists of a series of workshops: *To empower farm women to be better business partners through networks and by managing and organizing critical information.*

Annie’s Project started in South Dakota in 2007 with two sites and has grown to 24 sites. Over that time there has been funding from the USDA Farm Service Agency and three grants from the North Central Risk Management Education Center to support Annie’s Project Level 1 and 2. Most recently, Farm Credit Services of America has become a regional sponsor.





Great things are happening

These are exciting times – made possible by an incredible grassroots effort.

As you review the list of families and organizations on this page that have invested so much into the new Cow-Calf Education and Research Facility at SDSU, keep in mind that there are literally hundreds of other donors who gave what they could to move this project forward. To all those who have chosen to be a part of this important cause, we extend a sincere thank you.

Whether it was through a one-time gift, a pledge spread out over multiple years, the donation of a cull cow through the “Send a Cow to College” program, or the donation or purchase of an item at the Dakota Fest Auction (through the efforts of Dr. Dave Barz of NW Veterinary and Supply, the Mitchell Livestock Auction and others who have made that event possible), each and every donor has made a difference.

We still need your help! If you have heard about this project and perhaps considered making a gift, but just never got around to it, please consider doing so. We need your financial contribution to bring this down the homestretch and across the finish line. There is a real chance we could break ground on this facility within the coming year, but we will need everyone’s help to get there.

By the way...if you find yourself wondering, “What about the new Swine Facility?” there’s good news coming on that, too. Stay tuned!

MIKE BARBER '97



COW-CALF EDUCATION AND RESEARCH FACILITY

Individuals and Families

\$50,000 +

Bieber Red Angus
(Ron and Lois Bieber)
Beitelspacher Ranch
(Richard and Sharon Beitelspacher)
Fred and Joan DeRouchey Family
Barry and Jane Dunn
Christiansen Land and Cattle, Ltd.
(Christine and Dr. Eddie Hamilton)
Jorgensen Land and Cattle
(in honor of Martin Jorgensen)
Bill and Rita Larson
Allen and Becky Walth
Wilkinson Ranch
(Bill and Mary Wilkinson,
Dan and Amy Wilkinson,
Mark and Brittani Wilkinson)

\$25,000 - \$49,999

Bones Hereford Ranch

\$10,000 - \$24,999

Pat and Lyle Anderson
Lewis and Charlene Bainbridge Family
(in honor of Harold C. and
Mildred R. Nelson)

\$10,000 - \$24,999 (continued)

Bieber Red Angus
(Craig and Peggy Bieber)
Brad and Barb Bonhorst
DeJong Ranch
Bruce and Lynette Durheim
Jim and Carol Faulstich Family
Moes Feedlot, LLC
(John G. and Donita Moes)
Nagel Cattle Company
Eichacker Simmentals
(Steve and Cathy Eichacker)
Dave and Avis Jennings
Joe and Judy Schwartz
Symens Brothers Limousin
Thomas Ranch
(Troy and Veabea Thomas,
Cally Thomas, Harry & Kay Thomas)
Wienk Charolais
(Arnold and Carol Wienk,
Jeff and Jody Eschenbaum,
Sterling and Courtney Eschenbaum,
Ty, Calder and Stetson Eschenbaum)
Yackley Ranches
(Bob and Elaine Yackley,
Todd and Tanya Yackley, Blake Yackley)

Corporations and Organizations

\$200,000 +

First Dakota National Bank

\$100,000 - \$199,999

BankWest
Zoetis

\$50,000 - \$99,999

CorTrust Bank
Dakotaland Feeds, LLC.

\$50,000 - \$99,999 (continued)

East River Electric Power Cooperative, Inc.
Farm Credit Services of America
First National Bank in Philip
Grossenburg Implement Inc.
Schuneman Equipment Company

\$25,000 - \$49,999

First Fidelity Bank
Northwest Veterinary and Supply
(Dr. Dave Barz, DVM)

For more information or to make a contribution, please contact the SDSU Foundation:

Mike Barber, Development Director
Toll-Free: (888) 747-SDSU
Mike.Barber@SDStateFoundation.org
www.SDStateFoundation.org

SOUTH DAKOTA
STATE UNIVERSITY®
FOUNDATION

The Pieces Are Coming Together... But We Still Need Your Help

Please consider the "Send a Cow to College" campaign
to benefit SDSU's Cow-Calf Education and Research Facility



How To Send a Cow to College

1. Complete a Deed of Gift form.
2. Notify the sale barn on the day of the sale that you have gifted your cow to the SDSU Foundation.
3. Ask the sale barn to issue the payment to the SDSU Foundation and to note that the gift came from you.

It's that simple! Your cull cow will make a big difference in helping SDSU raise funds to complete this new facility, and remember, your gift has tax advantages as it will diminish your taxable income.

You can also make this type of charitable gift to the project with grain or other livestock.

Please talk with any of the following individuals for further details about the Send a Cow to College campaign: Cory Eich, Donnie Leddy, Jim Krantz, Fred DeRouchey, Dr. Dave Barz, Ty Eschenbaum, Lewis Bainbridge, Craig Dybedahl, Ryan Eichler or Mike Barber.

The Deed of Gift form can be obtained at the sale barn or by printing it from www.sdstatefoundation.org/cow-calf