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Center for Grassland Studies

E-mail: grassland@unl.edu
www.grassland.unl.edu

Phone: (402) 472-4101
Fax: (402) 472-4104

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2016 Leu Distinguished Lecturer Shares Vast Knowledge on Agricultural Systems

Each year the Center for Grassland Studies brings to campus a nationally known person with expertise in an area related to the CGS mission to present the Leu Distinguished Lecture and to meet with faculty and students. Funding for the annual Leu Lecture comes from a donation by the Frank and Margaret Leu family.

This year the Center for Grassland Studies collaborated with the University of Nebraska–Lincoln Engler Agribusiness Entrepreneurship Program and the Rural Futures Institute at the University of Nebraska to bring in agricultural systems expert Dr. Paul Genho. Genho is a Visiting Professor at the University of Florida and independent consultant for various agricultural firms. Throughout his career he served as Chairman of the Board of AgReserves, Inc., vice president and general manager of King Ranch in Texas, and manager of Deseret Ranches of Florida. He has held numerous leadership positions within the National Cattlemen's Beef Association, scientific, agricultural and academic communities.

In addition to meeting with several small groups of faculty, students and leaders in the agricultural industry, Genho gave two formal presentations dealing with the future of agriculture: the Leu Lecture on Oct. 31 as part of the Grassland Studies Fall Seminar Series, and an evening lecture on Nov. 1 that focused on the global market. Below are summaries of each talk. The links to view the online videos can be found on the CGS website.

Genho provides a glimpse into the future of the beef industry by Haley Steinkuhler, IANR Media, UNL



Agricultural systems expert Dr. Paul Genho was the 2016 Leu Distinguished Lecturer.
Photo by Haley Steinkuhler.

Over the past 50 years, there have been unprecedented changes in the beef industry, but it's nothing compared to what's to come in the next 50. Agricultural systems expert Paul Genho offered his thoughts on the changes to come during the 2016 Leu Distinguished Lecture on Oct. 31 at the University of Nebraska–Lincoln.

During the lecture, Genho presented ideas

he believes will affect the beef industry of tomorrow. The ideas were garnered from his five sons who are deeply involved in the beef supply chain from production through processing and merchandising.

One of the most visible changes Genho expects to occur over the next 50 years is the decline of the smaller operations, primarily less than 100-head. This will result in the size of operations increasing.

Fifty years from now we will have a much different dynamic than we have today," Genho said. "We will have fewer small hobby-farm operations and more wealthy investors buying ranches."

One reason investors are turning to agriculture is the growing international middle class. As the middle class increases in size, there will be a higher demand for U.S. beef to be exported. According to Genho, the primary beef customer of the future may live overseas, which will be a great opportunity for our export market.

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The Center for Grassland Studies is a unit within the University of Nebraska–Lincoln Institute of Agriculture and Natural Resources. It receives guidance from a Policy Advisory Committee and a Citizens Advisory Council.

Note: Opinions expressed in this newsletter are those of the authors and do not necessarily represent the policy of the Center for Grassland Studies, the Institute of Agriculture and Natural Resources or the University of Nebraska.



Martin A. Massengale CGS Director
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FROM THE DIRECTOR

At the 2016 Nebraska Grazing Conference held in August (see pages 3-5 of this newsletter), most attendees agreed that forages are the foundation upon which a successful beef cattle enterprise is built and sustained, and they believe the health of their grasslands is an essential component of that production system. Feed comprises about 80% of the costs incurred in a beef cattle operation, and a large portion of that cost comes from the forage component.

There are millions of acres of land in the United States as well as worldwide that have little or no economic use except to provide feed for grazing animals. Further, we know that grazing is the least expensive way of harvesting forages. When we look at growing the cattle industry, especially in Nebraska, there seem to be two primary ways of doing that: 1) increasing the amount of feed (primarily forages) and harvesting more efficiently that which is produced, or 2) developing cattle that are more efficient in using the current or additional feed that is available. Therefore, the entire system of beef cattle production must be considered and evaluated.

Tremendous improvement has been made in recent years in row crop plants through research and extension programs. Improvement in yield and quality of these plants along with enhanced resistance to different kinds of stresses have seen significant advances. Perhaps similar improvements could be achieved in the production of forage crops in the future, if adequate resources for research and technology transfer were available.

Cattle producers have many different management practices or systems that they can use to improve productivity, efficiency and sustainability. However, each producer will need to develop a system that will best fit their own production enterprise. That system might be tweaked by use of more intensive grazing, rotational grazing, better distribution of water, plants better adapted to a given environment, the use of cover crops and/or crop residue, or other such practices to extend the length of the grazing season. It is important to remember that cover crops offer many benefits in addition to forage production. They provide cover for the soil to help control wind and water erosion, they add organic matter and plant nutrients, and they help sequester and add carbon to the soil. All of these activities contribute to improving soil health.

Efficient, productive and sustainable beef cattle producers will look at their production practices as a total system and determine where the weak links are and what can be done to strengthen them. This indicates that we as researchers and extension workers also need to evaluate the total production cycle in our work and determine where we can make the greatest contributions. The University of Nebraska–Lincoln has hired a team of research and extension professionals to work in the beef cattle production system for that purpose. If we can develop different options for the producers and share with them the impact one option has versus another, then producers will know the likely results of changes in production practices for their operations. When producers keep detailed records and know what changes in production practices mean to their operations, they will be better able to cope with events or unforeseen circumstances such as drought, fire or floods in maintaining a profitable and sustainable beef cattle enterprise.

M. A. Massengale

Increased Attendance Shows Continued Value of Annual Nebraska Grazing Conference

The Nebraska Grazing Conference has been held every August in Kearney since 2001. This year's near-record-breaking attendance of 238 demonstrates that the event is still valued by the participants. Of particular note was the largest number of students: 46, most of which were in college, although some were younger.

Files from the 2012-2016 conference proceedings are online at nebraskagrazingconference.unl.edu. The conference has several sponsors including this year's underwriters: Farm Credit Services of America, Nebraska Grazing Lands Coalition and the University of Nebraska–Lincoln Center for Grassland Studies.

The 2017 NGC will again be in Kearney on August 8-9. If you have not attended previous conferences but would like to be on the mailing list to receive notice of the next conference, simply send your name and address to the CGS office. Details of the 2017 program will be posted on the website as they become available.

For your reading pleasure, below are comments from the 2016 NGC evaluations (comments from different evaluation forms are separated by semicolons). See speaker photos on pages 4-5.

On the Speakers...

Mary Drewnoski on cover crops for fall forage: great science and very useful in NE right now; effective use of data, useful analysis; excellent, good graphs and charts

Wayne Rasmussen on how he uses annuals and cover crops in his grazing operation: very hands-on and real; very thorough, good points; very practical, compelling data on economics of approaches; thinks out of the box, I enjoyed; well presented, useful practical information; great points on mix of species & benefits to soil; enjoyed all the photos and how he talked about the positives and negatives of how this works on his operation; good use of photography, good illustrations of "bottom line"

Ron Rosati & Doug Smith on the Heifer Link program at the Nebraska College of Technical Agriculture: great program & opportunity for young producers; very interesting, what a neat program; very important, a must for all future producers to get and have a good education

Lyle Perman and Ryan Sexson on giving/getting opportunities to start a grazing operation: speakers of real life are the best; enjoyed hearing each one's story; I would intern at Lyle Perman's ranch, looks like an amazing setup; [Ryan's] was the most inspiring and useful speech for me since I am a young person wanting to get into ranching, enjoyed meeting with Ryan afterward

Sam Fuhlendorf on use of prescribed burning to promote livestock production and wildlife conservation: good info on fire/grazing role in ecosystem outcomes; well presented, useful information; thought provoking and entertaining; very informative, will use this information; this information was extremely interesting

Maggi Sliwinski on grazing systems and bird habitats: great and important topic; understood her subject

Brian Shaw, 2015 Leopold Conservation Award winner: good information, useful, presented well; it is important to recognize successful conservation which is profitable

Darrell Peel on forage and future U.S. beef production: very pertinent information, great speaker; one of the best economic presentations ever; excellent breakdown of the market movement and cattle production; thankful for the economic overview

Trey Patterson on economics of larger grazing operations: very effective, interesting, informative, and organized presentation; actual ranching application I could relate to; thanks for bringing up the fact that rest & roots are very important for future production; always good to hear from Trey, he always has some good suggestions, even for smaller operators; Trey Patterson was excellent – more of this type of thing; really liked this one!

Bob Kinford on holistic herding: many good and helpful advices; excellent, great message

Tonya Haigh on building resilience to drought: great topic to bring to conference; very useful presentation, good information

Jim Faulstich on drought planning for his ranch: optimism is contagious, good information and ideas, well presented; good speaker and engaged the audience; excellent insight into drought prep; great comments on soil health, diversity of plants, & value of soil health tests/infiltration; excellent, excellent!!!

Rick Rasby on impact of removal of corn residue: excellent – again, one of the best, good units of measure; info that people need to know; interesting study, glad this was included

On the Program...

very well put together, had a variety of perspectives from different people; excellent, as always; good diversity of topics and presentations; good information, a lot of that can be applied to my operation, one of the best overall that I have been to; loved how it was set up, the variety of speakers is always great to have, and to have them talk about events that are current is great, I always learn something coming here; once again a well done, thoughtful group of excellent presentations, good variety; best conference yet, high quality speakers overall, really good job on organization; very good overall, topics were relevant to my grazing operation; presentations did an excellent job of emphasizing that production systems need to optimize the resources available and how to go about achieving that optimization; enjoyed this conference more than most due to varying perspectives and ways to help younger people get started in the industry; a nice mix of producers and industry

Editor's Note: The following photos were courtesy of Troy Smith: Kinford, Patterson, Perman, Rasby, Shaw and Sexson.



The NGC producer participants range from those with small farms to those with very large ranches, so the planning committee tries to have “something for everyone.” This year Trey Patterson, President and CEO of Padlock Ranch Co. in Wyoming, discussed factors to consider when making economic decisions in larger grazing operations.



Rancher, writer and humorist Bob Kinford from Texas has spent many years observing and working with grazing cattle. During the Tuesday banquet he shared some funny experiences he has had, and then got down to the serious stuff in his Wednesday presentation on holistic herding and planned grazing.



Nebraska College of Technical Agriculture Dean Ron Rosati and faculty member Doug Smith teamed up to tell the audience about NCTA’s Heifer Link program that helps young people get started in ranching.



Former UNL Beef Specialist and now Associate Dean of Extension, Rick Rasby, reported on a study he and colleagues did on the impact of removal of corn residue on grain yield and forage measurements.



Producers Lyle Perman (South Dakota) and Ryan Sexson (Nebraska) provided their perspectives on what it takes to enter and be successful in the ranching industry.



Extension Livestock Marketing Specialist Darrell Peel from Oklahoma State University discussed several aspects of the current U.S. cattle and beef situation including supply and demand and available land resources to support the beef industry.



Two speakers addressed drought planning for grazing operations. Rural sociologist and Ph.D. candidate at UNL, Tonya Haigh, has worked with ranchers, advisors and researchers to develop the Managing Drought Risk on the Ranch website, drought.unl.edu/ranchplan. She talked about her current research that explores how South Dakota and Nebraska ranchers managed through the 2012-2013 drought. One of the South Dakota ranchers she has worked with is Jim Faulstich, who followed Haigh with a detailed discussion on his drought planning process.



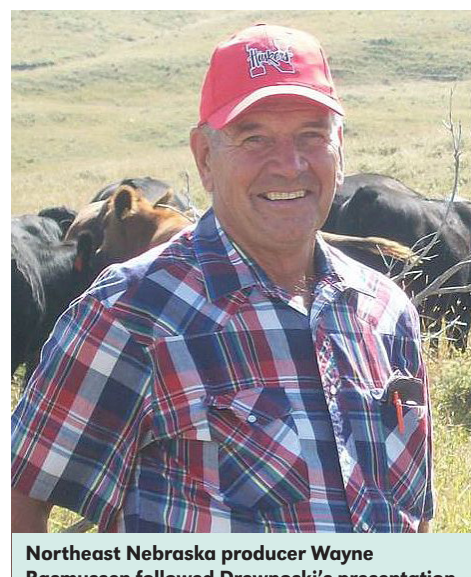
UNL graduate student Maggi Sliwinski discussed research she is conducting on the effect of grazing system type on bird habitats and bird communities in the Nebraska Sandhills



Don Adams, Director of the UNL Eastern Nebraska Research and Extension Center and beef nutritionist, provided opening comments.



UNL animal scientist Mary Drewnoski reported on research she and colleagues have been doing on the use of cover crops for fall forage.



Northeast Nebraska producer Wayne Rasmussen followed Drewnoski's presentation with "real-world" examples of how he is using annuals and cover crops in his grazing operation.



Oklahoma State University rangeland ecologist Sam Fuhlendorf gave a presentation on the use of fire to manage grassland for livestock production and wildlife. He addressed questions such as: Does fire alter grazing behavior? What impact does fire have on forage quantity and quality? On soil quality and plant diversity? On grassland birds, small mammals and insects?



Each year this conference features the previous year's winner of the Leopold Conservation Award for Nebraska. The 2015 recipient was the Shaw Family, represented by Brian Shaw, who described some of the management practices on the Fairfield farm/ranch that led to the family receiving the award – particularly those related to their experiences with grazing wetlands.

2016 Leu Distinguished Lecturer Shares Vast Knowledge on Agricultural Systems *(continued from page 1)*

"I think there's an incredible future for American beef over the next 50 years because we're going to sell more beef to China than we will eat," he said.

The need to feed the middle class, and the growing population of the world in general, will lead to a number of industry changes in the future. Genho expects that over-the-counter sales of antibiotics may be virtually gone. Instead, there will be innovations in vaccines, better diagnostics and new non-antibiotic treatments that will result in improved animal health options.

Technology will play a critical role in the future of the beef industry. In addition to equipment that automatically operates, Genho envisions a future where every cow will be "online." Data will be available to ranchers on heat detection, calving difficulty, nutritional deficiencies, location and more.

"Existing hardware is adequate enough to support profound changes, but software technologies are rapidly improving," Genho said. "Integration of new technologies will open the door for all other changes."

Genho also offered his thoughts on genetic technology during the lecture. With today's genetic programs featuring more genomics, he sees a future where gene expression can be managed by turning genes on or off.

"Genetic technology will become commonplace," he said. "It's like a smartphone; we won't understand new technologies, but we will use them."

Genho is very excited about the potential of pharming for pharmaceuticals. This is an emerging, but very challenging field that combines basic principles of agriculture with biotechnology. In the case of molecular pharming, the genetically modified protein of animals can be used as a source of pharmaceutical products.

By offering these ideas, Genho hopes they will provide a framework for moving the industry forward.

"The beef industry of tomorrow will be very different than the industry of today, just like the industry of today is very different than it was a few decades ago," he said. "There will be big challenges, but there will be lots of opportunities."

Genho addresses future of U.S. agriculture in a global market
by Katelyn Ideus, Rural Futures Institute, University of Nebraska

Drawing from five decades of experience as a systems thinker, manager and leader, Paul Genho, Ph.D., provided insight and perspective into the role of U.S. agriculture in a competitive and ever-changing global market on Nov. 1 at the University of Nebraska–Lincoln.

In his presentation, Dr. Genho focused on the current and imminent need to feed the world as the global population

continues to increase, with an estimation of more than 9 billion people worldwide by 2050. The United Nations estimates the world will need 70 percent more food by 2050.

"What are you young people going to do about it?" he asked the many students in attendance from University of Nebraska–Lincoln, the Nebraska College of Technical Agriculture and Southeast Community College.

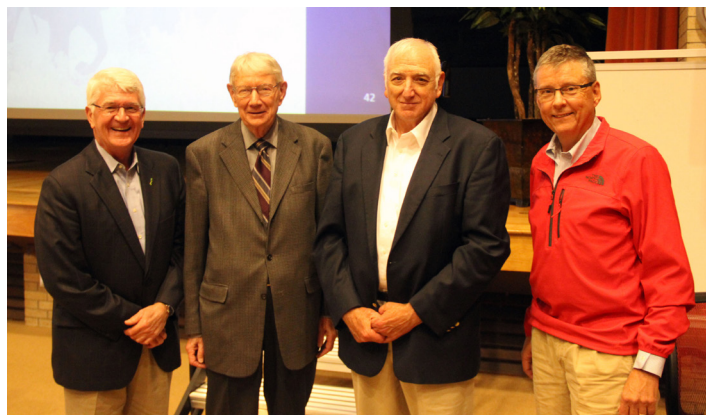
According to Genho it will be up to "bright, talented young people" in agriculture in North and South America to research, innovate and work efficiently with resources in order to meet this food demand.

His focus on North and South America stems from the fact that these areas have "the best, most productive soils in the world"—mollisol, alfisol, ultisol and oxisol. These four soils with quality water can feed the world with corn, soybeans, rice and wheat.

He also discussed the need for improvements with water infrastructure, research and investments.

In closing, Dr. Genho offered his broad-based recommendations, including:

- Less regulations on agriculture
- Increased global competition
- Increased research in agriculture production
- Facilitated entry to agriculture for the next generation



Posing for a photo with Paul Genho after his Nov. 1 lecture are those representing the three programs that sponsored his visit to Lincoln: (from left) Chuck Schroeder, Rural Futures Institute at the University of Nebraska; Martin Massengale, University of Nebraska–Lincoln Center for Grassland Studies; Genho; and Tom Field, University of Nebraska–Lincoln Engler Agribusiness Entrepreneurship Program. Photo by Katelyn Ideus.

Turfgrass Summer Research Field Day Moves to East Campus

By Bill Kreuser, Department of Agronomy and Horticulture, UNL

On July 20 of this year, the University of Nebraska–Lincoln Turfgrass Program hosted its annual Summer Research Field Day at our new research facility on East Campus. Past field days have been held at the John Seaton Anderson Turfgrass Research Center at the University of Nebraska–Lincoln Agricultural Research and Development Center near Mead, NE. While we still actively use our ARDC facility, the new East Campus Turf Plots have increased the research, teaching, and extension offerings in the University of Nebraska–Lincoln Turfgrass Program.

The hot and sunny weather didn't prevent over 200 people from showing up to learn about the latest turfgrass research. We

were very fortunate to have Interim Vice Chancellor of the Institute of Agriculture and Natural Resources (IANR), Dr. Ron Yoder, Dean of the Agricultural Research Division, Dr. Archie Clutter, and Agronomy and Horticulture Department Head, Dr. Roch Gaussoin, in attendance to help kick off the morning. Their support has been instrumental in the development of this new facility.

There were nine research stops with a range of topics including advanced water management, turfgrass experimental soil pedology, herbicide scheduling and efficacy, low input turf establishment, and plant growth regulator use on golf and sports turf. Dr. Jonathan Larson from Douglas and Sarpy County Extension hosted a stop on turfgrass entomology, and Associate Professor Kim Todd led a lively discussion on trees vs turf. A trade show and lunch followed the morning research tours.

In addition to showing off our new facilities, it was a great opportunity for the University of Nebraska–Lincoln Turfgrass Program to formally introduce its newest faculty member. Dr. Cole Thompson was hired on July 1 as the state's Integrated Turfgrass Management Specialist. Dr. Thompson is originally from Kansas and served on the faculty at Cal Poly San Luis Obispo. He brings fantastic teaching experience and a strong background in turfgrass weed and disease control research to our program. He's a great fit and we were excited to introduce him to the Nebraska turfgrass industry at our field day.

The Summer Research Field Day was a great success. Participants were excited to visit the new East Campus Turfgrass Plots and see the research they help fund by attending Turf Program events and through their membership in the Nebraska Turfgrass Association. The construction and development of these new plots would not have been possible without the support of the NTA, the Department of Agronomy and Horticulture, and the Agricultural Research Division of IANR.



Native and amenity grasses establishment practices under recommended and low maintenance scenarios were discussed by Dr. Keenan Amundsen at the University of Nebraska–Lincoln Turfgrass Program's annual Summer Research Field Day, held for the first time on East Campus this past July.



Research topics at the 2016 Summer Research Field Day ranged from mowing height and frequency, to fertilizer and surfactant programs, to control of weeds in warm-season turf. Dr. Jonathan Larson spoke to this group about control of troublesome insect pests and resistance management.



Dr. Roch Gaussoin (center) and Interim Vice Chancellor of IANR, Dr. Ron Yoder (right in tie), welcomed the 200+ attendees to the 2016 Turfgrass Summer Research Field Day.

A Year in the Life of a PGA Golf Management Alumnus at His Club that Hosted Ryder Cup: Part 3

Editor's Note: Nick Sage from Bloomington, MN, graduated from the University of Nebraska–Lincoln PGA Golf Management Program in December 2013. He is now an Assistant Golf Professional at Hazeltine National Golf Club in Chaska, MN, site of the 2016 Ryder Cup matches. We thought it would be fun to follow Nick through the year as Hazeltine prepared and then hosted this prestigious international event. Below is his third and final installment submitted shortly after the conclusion of the Ryder Cup.

I remember vividly when I interviewed with Chandler Withington, PGA Head Professional at Hazeltine, about a job at Hazeltine National Golf Club. When he offered me the job in the fall of 2013, he asked me if I was ready to be a part of something special. All of my expectations were exceeded, and the week of the 2016 Ryder Cup was one of the most incredible of my life. I was indeed a part of something special, and it is a memory I will have for the rest of my life.

There was so much buildup to the 2016 Ryder Cup at Hazeltine. The PGA of America started the buildout of the chalets and grandstands on June 1st. It was truly amazing to see how much would be built every day – and all for 6 days of actual activity! Overall, there was 1.5 million square feet of infrastructure built on the property. Starting on August 1st, all shots from the par-three tee boxes, fairways, and closely mown areas around the greens were played from a small turf mat. This would ensure that the golf course was absolutely pristine come late September when Team USA and Team Europe showed up. The golf course was completely shut down on September 5th as the PGA of America finished all of the work to get the golf course and clubhouse ready.

I had a unique job during the Ryder Cup. I became close friends with the Executive Producer of European Tour Productions

during the Year-Out celebration, and he called me in the middle of the summer asking if I would like to be a part of their team during the week. My duties would be to follow a camera crew that filmed live golf and then interviewed the European players immediately after their matches were completed. It was an incredible experience to see the Live TV side of a major event. I was lucky enough to have an “All-Access” pass that allowed me to go anywhere I wanted inside the ropes of the golf course. From Monday-Thursday, I was able to show the European crew I worked with around the golf course so they were familiar with the property. We spent a lot of time on the range, the media center, and walking the golf course. It was a truly remarkable experience being able to walk inside the ropes of the biggest golf tournament in the world!

The week of the Ryder Cup started with the news of the passing of Arnold Palmer. The King loved the Ryder Cup, and to honor him all week was a class act by the PGA of America and Hazeltine National. What was special about that was when Team USA swept the morning session; ironically, the last time that happened was in 1975 – the last time Arnold Palmer was Captain.

When Friday started, we were either on the range filming the players or on the first tee. The first tee at the Ryder Cup is one of the most thrilling places in sports (see photos). From the first tee we would go over to certain spots on the course and film, and toward the end of the matches, we would walk with groups and try to plot where they would finish so we could be there to conduct the interviews.

(continued on page 11)



Players warm up behind the first tee grandstand on Friday morning of the Ryder Cup.



Nick Sage (second from left) with Hazeltine staff members in front of the first tee. Nick is the one with the Live TV “All-Access” pass.



Panoramic view from first tee at Hazeltine during the Ryder Cup.

CGS Director Massengale Awarded Nebraskan of the Year by Rotary

At a luncheon on October 18, Lincoln Rotary Club #14 honored Martin Massengale as the recipient of its 2016 Nebraskan of the Year Award. Master of Ceremonies Rod Bates provided a list of accomplishments that led to Massengale receiving the award.

Martin Massengale currently holds three titles at the University of Nebraska: President Emeritus, Director of the University of Nebraska–Lincoln Center for Grassland Studies, and Foundation Distinguished Professor. He earned his B.S. degree at Western Kentucky University and his M.S. and Ph.D. from the University of Wisconsin–Madison. Following military service, he joined the faculty at the University of Arizona in 1958 where he progressed through the professorial ranks to Department Head and Associate Dean of the College of Agriculture and Associate Director of the Arizona Agricultural Experiment Station. He came to Nebraska as the Vice Chancellor of the Institute of Agriculture and Natural Resources in 1976, then became Chancellor of the Lincoln campus and later President of the four-campus university.

He has been President or Chairman of many groups and organizations, served on corporate boards, and is the former Chair of the U.S. Secretary of Agriculture's National Advisory Board for Research, Education, Extension and Economics. He has received many honors and awards, including the prestigious Fellow Award from the American Society of Agronomy, Crop Science Society of America and the American Association for the Advancement of Science, the Distinguished Career Award from the Crop Science

Society of America and served as its President, the Distinguished Service Award from the American Society of Agronomy, two Honorary Doctoral degrees and inclusion in the Western Kentucky University Hall of Distinguished Alumni, a Charter Member of the United States Department of Agriculture (USDA) Cooperative State Research, Education and Extension Service Hall of Fame, and an Alpha Gamma Rho Brother of the Century. He was recently inducted into the American Biographical Institute's Hall of Fame for Distinguished Accomplishments in Education and Agriculture, and received the University of Nebraska–Lincoln College of Agricultural Sciences and Natural Resources and its alumni association's Distinguished Service and Legacy Awards.

Massengale served as Chairman of the Board of the College Football Association and two terms as Chair of the President's Commission of the NCAA. He was a Charter Member of the prestigious Knight Foundation Commission on Intercollegiate Athletics and served on behalf of the NCAA as a mentor on college athletics for new chancellors and presidents. He was a member of numerous accreditation committees for both private and public universities for the Higher Learning Commission. He is a recipient of the coveted Wagonmaster Award from the NEBRASKAland Foundation for leadership and distinguished service to the State of Nebraska, and was selected as the 2008 recipient of Gamma Sigma Delta's Distinguished Achievement in Agriculture Award.



Martin Massengale (center) shakes hands with Gov. Pete Ricketts, who joined (from left) Rotary District 5650 Governor Gary Bren, Lincoln Rotary Club President Mark Stephens and City Councilman Carl Eskridge in congratulating him for receiving the 2016 Nebraskan of the Year Award from Lincoln Rotary Club #14.



No, that's not "Father" Martin Massengale bestowing a priestly blessing upon the crowd. He is motioning for the people, who were giving him a standing ovation, to be seated. Also pictured are (from left) Gov. Pete Ricketts, Martin's wife, Ruth Massengale, and City Councilman Carl Eskridge.

Is Corn Silage a Forage?

By Terry Klopfenstein, Andrea Watson, Galen Erickson, Department of Animal Science, UNL

Of course the answer is yes and no. About half of the corn plant is grain and about half is forage – making corn silage a unique “forage.” The corn plant is highly productive, so yields of dry matter are greater than about any other forage, about two times alfalfa. In the distant past, corn silage was commonly used as a forage for cattle because of the large yield of nutrients per acre. The wet silage also added moisture to otherwise dry feedyard rations. With the advent of the ethanol industry, most cattle in Nebraska feedyards are fed wet byproducts like distillers grains or gluten feed. Therefore, the moisture from corn silage was not needed and the distillers grains provided more protein than needed. Cattle feeders then replaced silage and alfalfa with inexpensive baled cornstalks.

About six years ago we realized we were harvesting high moisture corn that was stored in a silo and then baling the residue after it dried. It seemed logical to just harvest the two together as corn silage. That logic led to five years of intensive research on corn silage.

Some of the research has been directed to the use of corn silage as a substitute for corn grain in finishing diets for feedyard cattle. This type of research had been conducted 40 years ago. The difference today is the availability of distillers grains. We conclude that corn silage can replace 30 to 45% of the corn grain in finishing rations when 25 to 40% distillers grains are fed. Feed efficiency declines some as the silage level increases, but that is offset by the lower cost of the silage.

The other important use of corn silage is as a primary energy source for growing (backgrounding) calves or for beef cows. (Clearly corn silage has good value for dairy cows, but we will leave that for more qualified experts to discuss). Again, in the distant past we fed rations of 90% corn silage and 10% soybean meal to growing calves, and they gained 1.8 to 2 lb/day. When distillers grains became readily available, we fed 15-30% distillers grains and 80-85% corn silage, and the calves gained 3 lb/day. That caused us to take a closer look at the protein in the corn

silage. We found that there was much less “bypass” protein in the silage than we had believed previously. The distillers grains are an excellent source of “bypass” protein and complement the corn silage very well.

The economics of silage use are a bit complicated. Market prices for corn, alfalfa and grass hay are reported routinely. That is not the case for corn silage. Typically corn silage is priced based on the price of corn grain because the alternative for a farmer is to just harvest the crop for grain. Therefore, we choose to price silage based on the price of corn grain in the field. Corn price typically increases from harvest to the following summer, and the increase is roughly equivalent to storage cost. So the value of corn grain in the field is equal to fall price minus harvest costs.

If the cash price for corn in October is \$2.86/bu, then the value in the field is \$2.39/bu and silage is about \$20.44/ton at 38% dry matter. Silage harvest removes more plant nutrients than accounted for in the grain. However, if manure produced from feeding the silage is applied to the field, then the net is a value of \$3.54/ton, giving the silage in the field a price of \$16.90. The cost to the cattle producers for harvest, storage and manure spreading is \$15.83/ton, for a price at the silo of \$32.73. With a 10% shrink in the silo, the silage ready to be fed would be \$36.37/ton. Obviously the shrink and manure credit are very important to the economics.

One method for comparing the value of forages is to calculate the cost per unit of energy; in this case we are using total digestible nutrients (TDN). Using the prices listed above, silage would cost \$0.0665/lb of TDN. Corn grain would be \$0.0790 and distillers grains would be \$0.0607. Hay at \$70/ton would be \$0.084. These estimates suggest corn silage, especially when fed with distillers grains, can be a very economical forage.

The use of corn silage for feedyard cattle, backgrounded cattle and cows was thoroughly discussed at a conference on June 17, 2016. The information can be accessed at <http://beef.unl.edu/silage-beef-cattle-conference>.

New Healthy Farm Index Publication

Out of research conducted as part of a USDA organic farming grant came a new (May 2016) University of Nebraska Extension publication, *The Healthy Farm Index – Including Bird Observations in a Multi-factor Assessment (EC307)*. The 12-page publication provides an overview of the Healthy Farm Index and how farmers can use it to move toward goals they see as important for their farm. It includes a section on how to survey farm birds.

As the publication states: “The goal was to develop a tool to help farmers monitor and improve the long-term health of their farm. Here, the HFI is framed around four major categories of production (farm production), protection (protection of soil and water), biodiversity (variety of crops, livestock, wild birds,

and natural habitats), and family (satisfaction related to farm, family, community). Birds are included as a measure because their associations with various habitats and insect foods reflect farm health in a variety of ways.”

Although developed on organic farms, the concepts apply to most farms and could be adapted to ranches or other lands. Access the publication at <http://extensionpubs.unl.edu/publication/9000016369664/the-healthy-farm-index>.

CGS Coordinator Pam Murray to Retire

Yes, you read that right. For more than a year I've been telling anyone who would listen that I planned to retire at the end of January 2017 – after 42 years of employment at University of Nebraska–Lincoln! Interestingly, while I've had several positions in that time period, none of those jobs existed before me, which means I got to be involved in a lot of “firsts.”

As the coordinator of the Center for Grassland Studies since its formation in 1994, “firsts” included two new multi-disciplinary undergraduate majors: Grazing Livestock Systems and PGA Golf Management; the annual Nebraska Grazing Conference (16 and counting); Grassland Studies Fall Seminar Series (since 1995), and this newsletter (the 77th issue).

I have been fortunate to have some excellent faculty mentors along the way: Mike Turner and Jim Kendrick in the Department of Agricultural Economics, Chuck Francis in the Center for Sustainable Agricultural Systems, and of course, my current supervisor, Director of the Center for Grassland Studies and NU President Emeritus, Martin Massengale. I am very grateful for the things that I learned from each one... about work and about life.

As people always say when they retire (because it is probably always true), I've enjoyed the work, but even more so, the people I've met and worked with along the way. Thanks for the memories!

Editor's Note: By way of full disclosure, the photo accompanying this article is about a decade old. But hey – the editor of this newsletter gets to decide what photos to include, and since that is still me for this issue, I exercised my editorial prerogative!



Pam Murray retiring after 4+ decades.

A Year in the Life of a PGA Golf Management Alumnus at His Club that Hosted Ryder Cup: Part 3 *(continued from page 8)*

Team USA played incredible golf all week. Every player contributed a point to the team as they won the Ryder Cup with a score of 17-11, the first time Team USA has won since 2008.

I often think about when Chandler asked me if I wanted to be a part of something special. Not only was it special, but it will go down as one of the greatest Ryder Cup matches in history. Everything was first class at Hazeltine. I am honored to have been a part of golf's biggest event at a place I love so much.

I know I would have never been a part of something so great if it wasn't for the PGA Golf Management Program at the University of Nebraska-Lincoln. The tools they gave me to succeed are why I am where I am today.

I hope you have enjoyed the three-part installment of my life during the Ryder Cup. I hope you learned a little about the event, golf, and why the PGA Golf Management Program at Nebraska not only helps shape careers, but allows people like me to live out their dreams.



"Smile pretty" is usually said to the person in front of the camera, but Nick Sage just couldn't stop smiling the entire week of the Ryder Cup, even when *behind* the camera.



CGS Associates

Roch Gaussoin has been appointed to the USDA National Agricultural Research, Extension, Education, and Economics Advisory Board by U.S. Secretary of Agriculture Tom Vilsack. He will be filling a three-year term for Category G: National Crop, Soil, Agronomy, Horticulture, or Weed Science Societies.

Robert Wright was honored with the Distinguished Achievement Award in Extension from the Entomological Society of America at the International Congress of Entomology in Orlando, Florida in late September. This annual award recognizes outstanding contributions to extension entomology. Wright's research and extension program in agronomic insect pest management has had local, regional and national impacts.

At a September banquet, Governor Pete Ricketts presented **Ward Laboratories, Inc.** the Nebraska Diplomats Business of the Year Award. Accepting the award was the agriculture testing lab's founder Ray Ward, a member of the CGS Citizens Advisory Council for many years. Ward started the company in 1983 with his wife and two employees. Today it employs 35 full-time staff members (up to 55 seasonally), and does business in 12 countries and all 50 states. Ray was also recently presented the Henry Beachell Distinguished Alumni Award by Steve Waller, Dean of the University of Nebraska–Lincoln College of Agricultural Sciences and Natural Resources.

