



# Center for Grassland Studies

Grazing Livestock Systems | PGA Golf Management | Beef Systems Initiative

Photo by B. Goetsch

## Recap: 2017 Nebraska Grazing Conference

Over 200 individuals participated in the 17th Annual Nebraska Grazing Conference (NGC) held August 8 and 9 in Kearney, NE. This annual conference brought in regional and national speakers. Featured keynote speakers included **Jim Gerrish**, grazing consultant/owner, American GrazingLands Services LLC, and **Peter Ballerstedt**, forage product manager, Barenbrug USA.



Diverse presentations offered something for everyone at the NGC.

*“This is a consistently excellent program, and is the ONLY program that I absolutely attend yearly.” - 2017 NGC Participant*

Fall 2017

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Attendees visit with exhibitors.

**Kenzie Choquette**, a fourth-generation producer and grazer, said, “I’m always impressed how the Conference Planning Committee, the presenters, exhibitors, and sponsors thoroughly embrace increased productivity, reduction of costs, and wildlife conservation. Choquette went on to say, “The common-sense presentations and boots-on-the-ground research engaged a diverse group of participants for a fast-paced and rewarding conference applicable to Nebraska producer success.”

*“Very good presenters. Usable information.”  
- 2017 NGC Participant*

**Ron Bolze**, Coordinator of the Nebraska Grazing Lands Coalition states, “The NGC is the most significant singular event in Nebraska that brings Nebraska’s grazing community together. This event represents an in-depth educational opportunity to hear from graziers who have a long track record of effective grazing management, and from the academic community about the latest research findings as it relates to grazing concepts. From the invited speakers to the well attended trade show to the hallway discussion, the NGC provides the setting for sharing of timely information. It is the one place that graziers can get together and share practical experience about more effective grazing management of Nebraska’s most valuable resource...our grazing acres.”



Social time provides networking opportunities.

**Next NGC: August 6-8, 2018, Kearney, NE**

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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-Lincoln.

## Director's Comments by Dr. Steven S. Waller, Interim Director, Center for Grassland Studies



These are exciting times in the Center for Grassland Studies. So much is happening across our three grass-based priority areas (Beef Systems Initiative, and the Grazing Livestock Systems and PGA Golf Management undergraduate degree programs).

The newest program administered by the Center is the Beef Systems Initiative funded by Agricultural Research Division, Nebraska Extension, and the affiliated units. The faculty leaders across multiple IANR departments and state and federal agencies indicate that the goal of this initiative is to develop and support implementation of beef production systems that optimize feed resource use, natural resource conservation, and producer success in Nebraska through improved management of perennial grasslands and systems of integrated crop-beef cattle production. The unique combination of forage and water supply, crop and ethanol production, and feeding and packing infrastructure positions Nebraska to be a regional and international leader in beef production. The initiative has already received a multi-million dollar grant to leverage its initial support.

The science of golf at UNL expands with new collaborations with the faculty and students in Biomedical Engineering and Mechanized Systems Management. Some of the most sophisticated sensor technology on campus is part of the new PGA Golf Management teaching laboratory and can be the foundation for collaborative science. The program also had its first qualifier for the PGA Championship this summer—a significant achievement for such a young program.

The Grazing Livestock Systems undergraduate degree program has two new initiatives this fall. Students are in the process of creating a student club and becoming a Recognized Student Organization (RSO) within Student Involvement. Also, the students have initiated a fall semester producer seminar.

Enjoy the newsletter.



## Grazing Livestock Systems Internship by Austin Holliday, Senior, Grazing Livestock Systems Degree Program, University of Nebraska-Lincoln

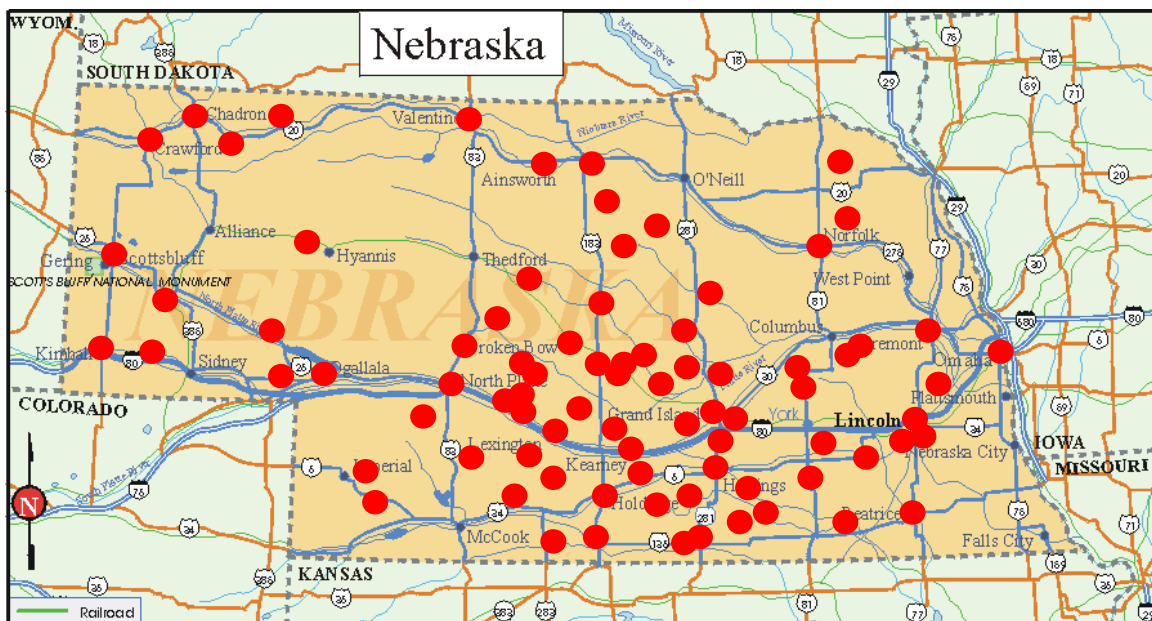


Austin Holliday

**Austin Holliday**, from Fairbury, NE, is a senior pursuing a bachelor of science degree in grazing livestock systems (GLS) at the University of Nebraska-Lincoln. He earned an associate degree in diversified agriculture from Southeast Community College at Beatrice (SCC). He did his GLS internship this past summer at Bar Arrow Cattle Company, a family farm/ranch located five miles north of Phillipsburg, KS. Austin worked there from May 15 to August 11, 2017, and has much to report on the quality of his experience.

This was my second time interning with this farm and ranch. I first interned with them in the summer of 2015 while I was at SCC. For that internship, I was there from July 13 to December 18 and my responsibilities focused on checking cows for health, repairs, maintenance on equipment, etc. I took this second internship because I would experience a different part of the operation. When I arrived in May,...(Continued on Page 7)

## 2017 Nebraska Grazing Conference (NGC) by the Numbers



Map Source: Pinstake.com

2017 NGC attendees came from a wide variety of locations across Nebraska. However, a number of other states were represented including Colorado, Idaho, Indiana, Kansas, Minnesota, Missouri, New Mexico, Oklahoma, Oregon, South Dakota, Tennessee, Texas, and Wyoming.

**Total Participants:** 214    **Sponsors:** 23    **Gender:** Male = 68%, Female = 32%

**Occupation:** Producer = 75%, Government = 13%, Educator/Researcher = 6%, Other = 6%

**Age:** 31-35 = 15%, 56-60 = 15%, 61-65 = 15%, 26-30 = 11%, 51-55 = 9%, 20-25 = 7%, 36-40 = 7%, Other = 61%

**Previous Conferences Attended:** One = 25%, Two = 21%, Three = 10%, Ten = 10%, Other = 34%

**Likelihood of Making Changes Based on Program:** Likely = 74%, Very Likely = 21%, Not Likely = 4%

**Top Ranked Presentation:** Fencing and Water Development Workshop by Jim Gerrish

**Top Five Topics for Future Conferences:** 1) Winter Grazing Alternatives, 2) Monitoring Methods for Range and Pasture, 3) What Grass(es) or Legume(s) Should I Plant?, 4) Grazing Record Keeping and Computer Aids, and 5) Adding and Using Legumes in Pastures.

## Online Residue Grazing Exchange Tool Now Available

by Jay Parsons, Department of Agricultural Economics, Mary Drewnoski, Department of Animal Science, and Daren Redfearn, Department of Agronomy and Horticulture, University of Nebraska-Lincoln

A new online tool from Nebraska Extension aims to connect farmers and cattle producers to encourage mutually beneficial agreements to use crop residue for grazing. The Crop Residue Exchange tool provides a searchable database of cropland available for grazing.

After creating an account, farmers can list available cropland by drawing their plot on an interactive map and entering information on the type of residue, fencing, water availability, and dates available. Livestock producers looking for grazing can search the database for cropland available for grazing within a radius of a given location of interest. Producers also provide their preferred contact information.

"While the primary objective of this exchange is to assist in the development of farmer-cattlemen relationships, we plan to add educational materials and tools that support these relationships in the near future," said Jay Parsons, associate professor of agricultural economics at the University of Nebraska-Lincoln.

Items in development include a lease agreement template; links to tools and guidelines to help farmers and cattle owners correctly stock crop-residue fields; and information on crop-residue grazing rates.

The Crop Residue Exchange is available at <http://croppresidueexchange.unl.edu>. IANR Media helped developed the tool with funding from a Nebraska Extension innovation grant. The tool was designed collaboratively by faculty members on the Nebraska Beef Systems Initiative team.



## CGS Alumni Updates

- **Corby Chytka** (Ericson, NE). Working on a ranch in Ainsworth, NE.
- **Meredith (Jordan) Eaton**. A part-time bookkeeper/office manager at a jersey dairy. She and her husband own and operate a cow/calf operation near Elida, NM, and pecan orchards in Portales and Fort Sumner, NM. They work hand-in-hand with the NRCS in conservation efforts on their ranch land. “My education through the GLS major has provided me with so much help in this area and opened many doors.”
- **Tom Erxleben** (Ashby, NE). Manager of JHL Ranch.
- **Ben Hansen** (Ashland, NE). A University of Nebraska-Lincoln graduate research assistant in ruminant nutrition.
- **Kort Kemp** (Wallace, NE). A Board of Educational Lands and Funds Field Representative.

## Estimating Forage Intake of Grazing Cattle by Aaron Shropshire, Graduate Research Assistant, Department of Agronomy and Horticulture, Walt Schacht, Professor, Department of Agronomy and Horticulture, and Jerry Volesky, Professor, West Central Research and Extension Center, University of Nebraska-Lincoln

A principal objective of research to be conducted as part of IANR’s Beef Systems Initiative is to optimize grazing efficiency of cattle on perennial grasslands, such as the Nebraska Sandhills. The research itself and the application of results rely on accurate estimation of forage intake of grazing cattle during the growing season. Daily forage intake of beef cattle on grazing lands can be variable depending on management, animal, and ecological factors and is difficult to estimate.

The animal unit (AU) concept is based on forage intake and is used to balance forage supply and demand on grazing lands. Forage demand is commonly reported as stocking rate (AU days of forage per acre; AUD/acre) and is calculated based on a ruminant consuming daily a certain percentage of its liveweight. There is disagreement among advisors and practitioners alike on the daily intake (AUD) of a grazing ruminant. The standard intake amount used by Nebraska Extension and federal agencies, such as the Natural Resources Conservation Service, ranges from 2.3% to 2.7% (23 to 27 lbs. dry matter for a 1,000 lb animal). A stocking rate based on the 2.7% intake is lower than that of a 2.3% intake and likely results in reduced harvest efficiency and beef production; therefore, identifying and using accurate estimates of intake are critical.

Research was conducted from 2013 through 2016 on a subirrigated meadow at the University of Nebraska-Lincoln Barta Brothers Ranch in the eastern Sandhills. Steers were rotated through pastures of two different grazing systems during the growing season (Figure 1). Immediately before and after the steers were moved to a new pasture, sample locations within the pastures were clipped at ground level, the clipped vegetation dried and weighed, and disappearance (intake) calculated (Figure 2). The difference in standing live vegetation biomass between the before and after clipping was considered intake.

For the two grazing systems and four years of the study, estimates of forage intake were better predicted by the 2.3% of liveweight factor than the 2.7% of liveweight factor. Other research conducted by the University of Nebraska-Lincoln found that dry matter intake of cows and heifers was 2.23% of liveweight when the cattle were fed subirrigated meadow hay in confinement and at free choice. These results confirm that the AUD equivalent of 23 lbs DM/AUD used by Nebraska Extension is reasonably accurate.



Figure 1. Steers grazing pastures on the subirrigated meadow at the Barta Brothers Ranch.



Figure 2. Clipping standing plant biomass immediately after grazing.

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## Supplementing Rumen Undegradable Protein to Grazing Cattle by Braden Troyer, Graduate Research Assistant, Department of Animal Science, Andrea Watson, Research Assistant Professor, Department of Animal Science, and Terry Klopfenstein, Professor Emeritus, Department of Animal Science, University of Nebraska-Lincoln

Forages are widely used to background cattle before entering the feedlot. The energy content of the grass determines the potential cattle gains but protein content of the grass may also limit performance. Although grass can be relatively high in protein, the protein is almost all rumen degradable protein (RDP) which means that it provides very little rumen undegradable protein (RUP). The low level of RUP supplied from grass leads to less metabolizable protein (MP) for the animal to use and MP requirements are high for growing cattle.

There is a cost to supplementation of RUP and understanding how to maximize gains with minimal RUP supplementation on different types of forage is important. There can be confusion on how much supplement is needed across the growing season because CP content of the forage changes as the forage matures and cattle are selective grazers which can influence the amount of CP consumed.

Data were collected from 10 previous studies that were published in the Nebraska Beef Cattle Reports ranging from 1987-1991. These 10 studies included 458 steers and 210 heifers grazing a variety of grasses. Crude protein of the forages varied from 10.4-21.7% and was measured in diet samples collected over the grazing period from cannulated steers. Five studies evaluated cattle grazing brome grass, three studies evaluated cattle grazing warm-season grass, and two studies evaluated cattle grazing summer annuals.

Yearlings grazing warm-season grasses showed an increase of 0.43 lb in ADG for each 1 lb increase in RUP supplementation. Cattle grazing brome grass had a 0.63 lb ADG increase with each additional lb of RUP. Summer annuals did not show a response to the RUP supplement. The differences observed due to type of forage may be due to CP content.

The average CP for brome grass was 16.0%, the average CP for warm-season grass was 10.4%, and the average CP for summer annuals was 18.2%. Based on CP content the advantage of RUP supplementation has a break point in forages that contain between 16.0% and 18.2% CP.

Responses shown here could be due to high intakes and rapid passage of forage through the rumen. This allows undegraded RDP to pass from the rumen in the liquid contents. The undegraded RDP is utilized in the small intestine as RUP and increases the total MP available for the animal. This extra “RUP” may be why the supplemental RUP did not improve ADG in steers grazing summer annuals that had greater than 17% CP. A study in 2011 with steers grazing smooth brome grass pastures demonstrated a greater response to supplementation later in the grazing season. Supplementing distillers grains (DG) resulted in 0.33 lb/d increase in ADG early in the grazing season (first 60 days) and jumped to 0.75 lb increase in ADG for the remaining 96 days of the study. The lower response early in the study may be due to greater RUP content of the early growth of smooth brome grass.

The RUP sources in these trials cost approximately \$0.70 per lb of RUP. This means that the extra gain cost \$1.32/lb. Determining if supplemental RUP is economical depends on the RUP sources available to producers. Distillers grains (DG) are a good source of RUP and are readily available in Nebraska. Assuming DG are 30-32% CP and 63% RUP, if purchased for \$150/ton the DG would price into an operation between \$0.35 to \$0.40 per lb of RUP. This calculates to paying between \$0.66 to \$0.75 per lb of additional gain. The delivered price of DG is quite variable and is dependent on distance from ethanol plants and the ability to store and feed DG. The DG would also supply extra energy to the cattle that the RUP sources in these studies did not provide. This energy could boost ADG even more. A 10-year summary of calves grazing smooth brome grass and supplemented with DG had an ADG response of 0.67 lb per lb of RUP from DG. It is important to take into consideration the cost of the RUP supplement and the type of forage being grazed to determine if RUP supplementation is profitable.



Pasture-grazed yearlings are gathered to receive individual supplements.



## Pursuing Opportunity in a Down Economy: Finding the Right Place to Grow

**Your Future** by Kort Kemp, Land Manager/Field Representative, Nebraska Board of Educational Lands and Funds

The old adage, “what goes up must come down,” has certainly been true for the agriculture economy in 2017. Markets have been up, down, and everywhere in-between with a breakeven year being the goal for most agriculture producers and others hoping to lose as little money as possible. The good times generated from high market prices over the last few years may be over, but that doesn’t mean that a future in production agriculture no longer exists.

Many operators are in their late 50’s and 60’s, some even in their 70’s and 80’s. These folks are left wondering what they will do with their farming or ranching operation. Most own small- and medium-sized operations with no children or grandchildren interested in taking over the operation. The disinterest can be attributed to fallout from the 1980’s and 1990’s agriculture recession, which had many parents suggesting their children seek a better life for themselves off the farm. The future of these operations seems to go in one of two directions—they get sold on the open real estate market or they are rented to a larger neighboring operation until a time when the heirs decide to finally sell. You may be wondering what this has to do with finding the right place to grow your future.

The answer is to build relationships with those in the business who may be getting out of the business in several years. It’s that simple. These contacts may also know of others who may be thinking of transitioning out of their ranching operation. I am speaking mainly to those students who are

currently pursuing a degree in production agriculture, in particular students in Grazing Livestock Systems, as well as those in related fields of study. If the future is now, then start seeking relationship building opportunities early on in your education to ensure that when your path crosses with a future opportunity you will have the chance to capitalize on it. For those who may be recent graduates or even those who have been in the workforce for years but have not been able to find an avenue into production agriculture directly, keep seeking because this is the time when opportunities present themselves and most farm and ranch owners are looking for reliable dependable people and are willing to assist a young person with getting started as long as they can trust them and trust is always built through relationships developed over time. I challenge you to seek out an established older agriculture operator in your community and begin to build a relationship with them and don’t be afraid to ask them if they might know where a young person could get started and just see what advice they offer. The upside to the downside of an ag economy is that there is going to be another upside and the goal is get yourself in position and be ready when the upside arrives. Don’t be afraid to invest in relationships and cultivate them because the right place to grow your future is the place where you have spent the most time investing.

**Kort Kemp** is a 2004 Grazing Livestock Systems graduate who resides just outside of Wallace, NE.



## New Grazing Livestock Systems Club Hosts Producer Seminars

by Katie Cumming, Grazing Livestock Systems Graduate Research Assistant, University of Nebraska-Lincoln.

The newly formed Grazing Livestock Systems (GLS) Club’s inaugural events include two producer seminars featuring **Jim Jenkins** (Oct. 12) and **John Maddux** (Oct. 23). Jenkins will address the economics of grazing strategies, and Maddux will discuss annual forages versus row crops under irrigation. Students are invited to a special session with the speakers at 5:00 PM both days, and the general public is invited to attend the formal presentations beginning at 6:30 PM. Both presentations will take place at the Massengale Residential Center on the East Campus of the University of Nebraska-Lincoln.

The GLS club provides students with opportunities to interact with ranchers, producers, and GLS alumni to learn about grazing industry careers. In addition, social events, ranch tours, speakers, and professional development events will enhance student knowledge and experience. Combined, these opportunities add to resume development and internship planning for the students.

Interested in joining the GLS Club? Contact **Katie Cumming** at [kcumming@huskers.unl.edu](mailto:kcumming@huskers.unl.edu) or call (402) 472-4101.

## GLS Internship (Continued from Page 2)

...they were right in the middle of the breeding season. I was most excited about getting experience in artificial insemination (AI) and their embryo transfer process. After we completed AI, we turned out the clean-up bulls, finished up some fencing, and finished spring planting of milo, sorghum/sudan grass, and soybeans. Of course, as with most ranches/farms, invasive plant species were a problem and we spent a few weeks spraying musk thistle.

Another highlight of the summer was being involved with wheat harvest. I enjoyed this because it was something I had never done before and I had fun interacting with all their family members who would come out to the field for supper every night. Once wheat harvest was over, the summer started to slow down a bit. For the rest of July and into August, my time was filled with doing repairs around the farm, checking cows, and pulling bulls from breeding pastures on horseback.

I was the only employee at the farm for the summer. I spent most of my time with my boss, Stuart Jarvis, and his two kids, Cody and Kayla. At least once a week we would work with Stuart's dad and brother, Wendal and Shane. They focused mainly on the commercial cattle, while Stuart's main focus was the registered herd. When I first started working for the Bar Arrow Cattle Company, I was inexperienced with managing grazing cattle and working around a farm. The two internships with Bar Arrow have built my applied knowledge and confidence in managing ranches/farms and helped prepare me for a career in agriculture.



Bar Arrow cattle grazing in pasture.



## Nebraska Student Chosen to Work PGA Championship by University of Nebraska-Lincoln, Institute of Agriculture and Natural Resources News



Vincent Bachteler, a PGA Golf Management student, shadowed a rules official at the PGA

**Vincent Bachteler**, a PGA Golf Management student at the University of Nebraska–Lincoln, shadowed a rules official at the PGA Championship at Quail Hollow in North Carolina on August 7 - 13. This unique opportunity was provided through a PGA of America contest. After completing a test, Bachteler was one of two students selected out of several hundred.

The test consisted of 40 multiple-choice questions presenting various rules of golf situations. Bachteler missed only one question and received the highest score in the nation. The national average for the test was roughly 40 percent.

Bachteler put in several hours of studying for the test to ensure he would be well versed in the rules of golf. He attended his first PGA Rules of Golf Workshop in 2016. It consisted of three days of classroom instruction followed by a 3.5 hour, 100-question test.

"I studied probably close to 50 hours before the workshop and the test was still the hardest test I have ever taken in my academic career," says Bachteler. He received an 84 on the test, which he was proud of. He then attended a second workshop in March that required another 50 hours of studying. After that, he was certified in the rules of golf through the USGA with a 95 out of 100 on the test.

"Ever since I found out I was selected to attend the PGA championship, my excitement level only increased," says Bachteler. "I think this was one of the best experiences to help me grow as a future PGA professional. I have had so many wonderful experiences through the PGM Program because of the amazing staff and resources available to me, and I am excited to share my experiences with current and future PGM students."

The PGA Golf Management program is for those who wish to be educated in all aspects of the golf industry and become PGA members. For additional information on the program, visit <http://pgm.unl.edu/>.



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## Grazing Livestock Systems Internship Symposium Scheduled

November 3 is the date for the Grazing Livestock Systems (GLS) Internship Symposium, which will take place in the Massengale Residential Center on East Campus between 12:30—5:00 PM.

Employers value internships as a method for students to gain hands-on experience. In addition, internships provide opportunities to practice and experience principles discussed in the classroom. The GLS degree program builds upon these points by requiring all GLS students to complete an internship and present a synopsis of their learning experiences.

Prior to undertaking internships, students enroll in GRAS 490—Internship Experience in Grazing Livestock Systems, a course designed to assist them in developing their internship. Components of the class include proposal development and presentation to GLS faculty, a 13-week internship to include a special project, and an onsite visit by GLS faculty member. The culmination of this process is an oral presentation at the GLS Internship Symposium.

The symposium benefits not only the students completing internships, but those students just beginning to plan their internships. Finally, the symposium offers an opportunity for students, faculty, alumni, and industry representatives to interact both formally and informally.

Student presenters for this year's Grazing Livestock Systems Internship Symposium include: **Nicole Finkner, Matthew Grimes, Austin Holliday, Whitley McBride, Justin Miller, and Chelsea Nollette.**