



Center for Grassland Studies

Grazing Livestock Systems | PGA Golf Management | Beef Systems Initiative

Photo by N. Finkner

Impacts of Cattle Grazing Corn Residue by Dr. Mary Drewnoski, Assistant Professor, Department of Animal Science, University of Nebraska-Lincoln

Studies conducted by the University of Nebraska at seven locations found grazing in late fall or winter does not result in biologically significant compaction on cropland or negative impacts on subsequent crop yields. In fact, grazing of corn residue may even be beneficial to crop production.

The best evidence is provided by a sixteen-year study of corn residue grazing in eastern Nebraska. In this study grazing did not result in detrimental effects on soil properties (including bulk density and penetration resistance) or crop yields. These fields were silt-clay-loam soil and were managed under no-till in corn-soybean rotation. Grazing of corn residue improved soybean yields by 3.4 bu/ac with fall (November to February) grazing. An increase in the soil microbial community was observed (when compared to areas that were not grazed). The effects on the soil microbial community may explain the improvement in soybean yields because an increase in soil microbes (actinomycete bacteria and saprophytic fungi) may increase the rate of nutrient cycling. Another concern is that grazing may reduce soil OM (due to residue removal) or result in the export of nutrients such as N, P and K. After sixteen years of grazing, no differences in soil organic matter, N, P or K were measured. It is important to remember that most of the nutrients (such as N, P, K, Ca, etc.) consumed by cattle are excreted back on to the land.



Cattle grazing corn residue.



Difference in recommended grazing rates—
grazed (right) and non-grazed (left).

Similar results have been observed in shorter term studies. In a western Nebraska field managed in continuous corn, grazing of corn residue for a five-year period did not affect corn yields (148 vs 154 bu/ac, for not grazed and grazed, respectively). A three-year study with five locations in eastern Nebraska also showed that grazing had no impact on subsequent crop yields. Three locations were managed under continuous corn with corn yields of 239 bu/ac for grazed and 223 bu/ac for ungrazed (which did not statistically differ). Two locations were in a corn-soybean rotation with soybean yields not differing between grazed (59 bu/ac) and ungrazed (62 bu/ac). During the last two years, soil penetration resistance was measured in the spring and was found to be slightly increased at two locations. However, the increase in penetration resistance would not have impeded root growth (below threshold level) and did not carry over into the next year.

Thus, grazing corn residues can benefit both cattle and crop producers. Grazing of corn residue can be a low-cost source of winter feed for cattle and a source of income for farmers (without detrimental effects on the land).

For a more in-depth look at the results of these studies see the 2017 Nebraska Beef Report at <https://beef.unl.edu/2017-nebraska-beef-cattle-report>.

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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



This fall has been a very productive and exciting time for the Center. The new Grazing Livestock Systems student organization received final approval and hosted its first producer seminar series. The PGA Golf Management program continues to excel among its peer institutions and will graduate 13 students this month. The Beef Systems Initiative leveraged a significant grant funded by the Foundation for Food and Agriculture Research (FFAR) and now has started field work.

We were very fortunate to have **Dr. David Briske** from Texas A&M University on campus as our Leu Distinguished Lecturer, our first repeat lecturer. This honor was in recognition of his continued leadership in range science and his ability to be a thought leader in the ever changing discipline of grassland ecology and management. His credentials and reputation served to accentuate the importance of his message: our state and the University have a very special place in the history of grassland science.

We have benefitted from exceptional faculty and the students that they attracted. As examples Frederic Clements, Charles Bessey, Arthur Sampson, John Weaver, E. J. Dyksterhuis and countless others that followed define the genealogy of grassland science and management that is firmly centered in Lincoln, NE. Our Nebraska legacy is our grasslands and our commitment to our shared future is the research-based stewardship that Nebraska producers provide.

WE can all be proud of our grassland heritage.

GLS Alum Named Outstanding Young Range Professional by Chad Horman, Range Program Manager, Dixie National Forest

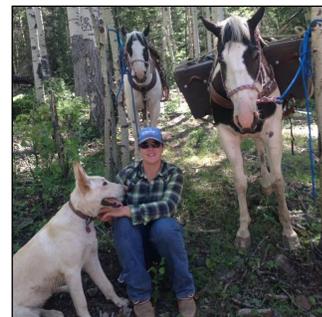
Jessica Warner was awarded the Outstanding Young Range Professional by the Utah Section of the Society for Range Management on November 2. This annual award recognizes recipient's for their accomplishments and demonstration of extraordinary potential and promise as a future leader in the range profession.

As a Rangeland Management Specialist for the Escalante Ranger District of the Dixie National Forest, Jessie has spent many hours in the field, joining ranchers on the grazing allotment in the saddle. She works closely with them discussing range management needs and solutions to issues that have existed for a long time. This includes reconstruction of seven miles of fence and eighteen miles of pipeline on four different grazing allotments through partnership grant funding. Jessie's success is based on her no-nonsense personality; she tells things as she sees them.

Jessie moved to Escalante, Utah from Halsey, Nebraska in May 2015, where she was a Range Technician on the Bessey Ranger District of the Nebraska National Forest. Her life has always revolved around agriculture having grown up on a dairy, cow/calf, and row crop farm near Allen, Nebraska.

Jessie received her bachelor of science degree from the University of Nebraska-Lincoln in Grazing Livestock Systems and Animal Science with minors in Agriculture Leadership and Communications and Agriculture Economics. She's been active in the Society for Range Management since 2003, and has been a member or leader in numerous organizations.

The Center for Grassland Studies congratulates Jessie on her recent achievement.



Jessica Warner, Rangeland Management Specialist, Dixie National Forest, Escalante Range District

Full Schedule for Briske, 2017 Leu Distinguished Lecturer



Dr. David Briske, Professor, Texas A&M University, Department of Ecosystem Science & Management



Dr. Briske fields questions from graduate students during lunch.

The Center for Grassland Studies hosted **Dr. David Briske** as the 2017 Leu Distinguished Lecturer on November 6 as part of its Fall Seminar Series. Dr. Briske's presentation, "A Rangeland Odyssey: From Equilibrium to Non-equilibrium and Beyond," was well-received and generated many questions from a large audience of students, guests, and the public.

In addition to his Leu Lecture, Dr. Briske met with 70 undergraduate students in the Agronomy/Range 240 (Forage Crop and Pasture Management) class. Students researched grazing systems in the Nebraska Sandhills and developed questions for Dr. Briske. **Dr. John Guretzky**, class professor, indicated, "Students benefited by engaging with Dr. Briske to learn about his upbringing on a farm in North Dakota, his experiences in rangelands throughout the Great Plains, and perspectives on the role of social-ecological systems in governing resilience of rangelands and sustainability of grazing livestock systems."

A unique part of Dr. Briske's visit included a trip to a cemetery. **Dr. David Wedin**, Director of Nine-Mile Prairie and Professor in the School of Natural Resources, escorted Dr. Briske to Wyuka Cemetery to visit the grave of a Lincoln hometown boy, **Frederic Clements**. Clements, who studied with **Charles Bessey**, is known worldwide by ecologists and range scientists for dominating North American ecology for the first half of the 20th century. For a range ecologist like Briske, it was moving to pay honor to a scientist who made such an impact on his discipline and career.

Didn't get to attend the Leu Lecture or other Fall Seminar Series presentations? Not a problem. You will find videos of all on the Center for Grassland Studies' website, <https://grassland.unl.edu/past-seminars>.

Internship Presentations Provide Insight

An audience of University of Nebraska-Lincoln faculty and students, as well as guests, heard first-hand accounts of recent student internship experiences during the 2017 Grazing Livestock Systems (GLS) Internship Symposium. The annual symposium was held on November 3 at the Massengale Residential Center.

The ability to apply classroom knowledge to a career is an essential part of student education. Students pursuing a degree in the GLS program are required to complete an approved 13-week internship to complement their academic course work by tailoring the internship to experiential learning needs. Previous internships have included positions such as ranch hand, field research assistant, lab technologist, assistant extension educator, and NRCS field intern.

Dr. Walt Schacht, GLS Internship Co-coordinator, stated, "Students commonly report that the internship is an outstanding learning experience for them and is critical in guiding them as they make post-graduation decisions about jobs and careers." Schacht's comments were echoed by student presenter, **Austin Holliday**, who said, "My internship experience provided me with insight on what I want to do for a career. Plus, it helped me gain skills in farming and ranching. I think the internship program is a great way for inexperienced people like myself to obtain the knowledge and experience needed to become successful in their desired field of work."

The 2017 student presenters and internship providers included:

- **Austin Holliday** (Fairbury, NE) at Bar Arrow Cattle Company, Phillipsburg, KS;
- **Matthew Grimes** (Minden, NE) at Maddux Cattle Company, Imperial, NE;
- **Whitley McBride** (Ainsworth, NE) at Richardson Backgrounding, Ainsworth, NE;
- **Justin Miller** (Hubbard, NE) with the Nebraska Ranch Practicum, North Platte, NE;
- **Nicole Finkner** (Waverly, NE) at Rush Creek Land and Livestock Company, Lisco, NE; and
- **Chelsea Nollette** (Whitman, NE) at Anderson Ranch, Whitman, NE.

The 2017 Internship Symposium presentations were videotaped and may be viewed by going to <https://grassland.unl.edu/gls-internship>.



Attendees of the 2017 GLS Internship Symposium

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Grassland Management Graduate Certificate Program

The Grasslands Management Graduate Certificate program, through the University of Nebraska-Lincoln (UNL), prepares students to manage our world's changing landscapes through grassland assessment, restoration, grazing management, prescribed burning, and creating plant and animal habitat. In collaboration with Ag*IDEA, an affiliate of the Great Plains IDEA, a national consortium of universities offers online programs and courses in agriculture disciplines from top faculty. The purpose of the 12-credit hour program is to provide current and future grassland professionals (i.e., managers, advisers, and conservationists) and others with distance education opportunities that lead to a graduate certificate in grasslands management.

Michael Murphey, a graduate of the program, says, "Visiting the Nebraska Sandhills for decades in pursuit of waterfowl and upland game, I became close to many of the locals, yet, I could neither relate to nor speak their language. I always wanted to learn more about the land and their way of life, so when I came across the graduate certificate in Grassland Management offered by UNL, I knew that was what I wanted to pursue. Upon completion of this program, I've gained a far greater appreciation and understanding for this area, and my life and friendships are richer for it." **Laura Rubeck**, another program graduate, indicated, "The flexibility within the program allowed me to take courses at my own pace, while working full-time. I have already utilized class content in my job aiding in management decisions and creating educational materials. I would highly recommend the Grassland Management Certificate to working professional looking to advance their knowledge and career."

For more information, go to <https://agrohortononline.unl.edu/grasslands-management-graduate-certificate>