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Center for Grassland Studies

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University of Nebraska Lincoln

Estimating Livestock Forage Demand: Defining the Animal Unit (AU)

By T.L. Meyer, Don Adams, Terry Klopfenstein, Jerry Volesky, L. Aaron Stalker, Rick Funston, UNL

Introduction

Grazing is a vital component of beef cattle production. The term, animal unit (AU), or more commonly, animal unit month (AUM), is utilized widely in grazing management strategies. Various definitions for the terms AU, animal unit day (AUD), AUM, and animal unit year (AUY) exist, but they all have one common theme – define forage intake on the basis of a standard animal. Across a variety of publications, general consensus is the standard animal consumes about 2.6% of its body weight (BW). Defining the standard animal used in the animal unit measurement is where variation occurs. The factor accounted for in many of the animal unit definitions is body size, with physiological status being the most variable factor in defining an animal unit. Therefore, the objective of this experiment was to evaluate the effect of a beef animal's physiological state on forage intake.

Research Project

This project was replicated over two years, at the Gudmundsen Sandhills Laboratory (GSL) near Whitman, NE and at the West Central Research and Extension Center, North Platte, NE. There were three treatments each year: cow-calf pair; (BW = 1,307 lb), dry cow (BW = 1,119 lb), and yearling steer (BW = 602 lb). The cow and calf were treated as one unit, with calves averaging 42 d and 161 lb. Cattle were offered hay harvested from sub-irrigated meadows at GSL. The hay was about 10% protein and 53% TDN. At the beginning, middle and end of each trial, all animals were weighed for three consecutive days and their weights averaged.

Differences occurred among treatments for the variables analyzed as shown in Table 1. Actual daily dry matter intake (DMI) was over 40% higher for cow-calf pairs when compared to dry cows, and almost 60% higher when compared to steers. However, the cow-calf pairs weighed 30% more than dry cows and 109% more than steers. When DMI is compared as a percentage of BW, cow-calf pairs still had an 8% greater intake than dry cows and 16% greater intake than steers. Maintenance requirements of lactating cows are approximately 20% higher than those of nonlactating cows (*Nutrient Requirements of Beef Cattle, 2000 update.)*.

Voluntary intake in beef cows is similar to growing cattle when adjusted for the effect of milk production (*Predicting Feed Intake of Food-Producing Animals*, NRC, 1987). However, in this experiment, dry cows consumed 2.3% and yearling steers consumed 2.1% of their BW, compared to cow-calf pairs consuming 2.5% of their BW.

Researchers at GSL measured intake of grazing, nursing calves about the same age as the present study, and found they consumed from 1.1 to 1.5 % of their BW. Lactating cows in the same study consumed 2.0 to 2.6% of their BW on an OM basis. In the present experiment, the cow and calf were treated as one unit, with the intakes for the lactating cows in the previous study being similar to the cow-calf pair (2.3% BW, OM basis).

Conclusion

Many estimates of livestock forage demand and AU definitions factor in the animal's weight. When determining pasture

(continued on page 5)

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 50-member Citizens Advisory Council. This newsletter is published quarterly.

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
Pam Murray.....CGS Coordinator
Jan Shamburg..... CGS Secretary
Anne Moore ..... Newsletter Layout

From the Director

I had the good fortune to attend the conference, *Farming with Grass*, held in October, 2008 in Oklahoma City and hosted by the Soil and Water Conservation Society. Timing of this conference was highly appropriate, as the cost and availability of grain and distillers by-products were of great concern to the livestock and food industries.

Considerable discussion occurred at the conference relative to the use of natural resources and energy in agriculture and agricultural sustainability. We are now in the post-industrial economy; certain natural resources that have been freely available in the past are not likely to be so in the future, and if they are available, they probably will be more expensive. Agricultural systems that are sustainable require a broad range of disciplines cooperating and working together in a more holistic manner to meet societal needs. Based on many factors and inputs, we may see more changes in agriculture overall during the next few years than we have in the past half century.

Grasslands and grasses cover and use a sizeable portion of our natural resources of soil, water and air, and these need to be sustainable. Grass-based livestock production is sustainable. Grasses and grasslands will not solve all of the problems, but they will be an important part of it. Agriculture of the future, whatever form it takes, will need to be more energy efficient, use less water and have high-intensity management. I believe such a system will be more grass oriented.

Grass-based farming is economical, ecologically sound and sustainable, but it requires a high level of management for greatest productivity. On the other hand, grass-based farming has unlimited possibilities. Grazing animals have the ability to convert complex carbohydrates and proteins into nutrients that humans can use. Grazing also provides an opportunity for productive use of land that is marginal and not suitable for crop production or that could not be profitably used for other purposes. Grasslands have significant value, not only for livestock grazing, but for soil and water conservation, wildlife habitat and additional recreational activities. They also help to improve water quality, beauty of the landscape, and biological diversity that is required to maintain a vigorous and healthy ecosystem.

Graziers who are interested in sustainability should consider greater use of legumes in forage mixtures, especially with the high cost of nitrogen fertilizers, which is based in part on the cost of oil and gas. Legumes in the mixture have additional values such as increased quality of forage, extension of the grazing season and the fixation of nitrogen. Grazing lands are a complex, ever-changing ecosystem. With the interrelationships of plants, soil, water, temperature, light, soil micro-organisms, grazing animals, etc., it is easy to see why the system is complex, requires intensive management, and needs to be considered from a more holistic point of view.

M. A. Massengale

Landscape Groundcovers

By Roch Gaussoin and Kim Todd, Department of Agronomy and Horticulture, UNL

This article describes how to plant and manage groundcovers, other than turfgrasses, to take advantage of their adaptability to diverse conditions and low-input requirements.

Groundcovers are low-growing plants, usually less than 24 inches tall, that spread to form a contiguous cover, which helps protect against erosion and weed infestations. Groundcovers also provide a cooling effect to the soil and the surrounding environment. Groundcovers are also an aesthetic addition to the landscape. The choices include plants that provide simple green texture to dramatic, variegated and showy flowering types. Groundcovers can be chosen for a wide range of site conditions, from full sun to dark shade, heavy clay to light sandy soils with good drainage or boggy characteristics, and relatively high to minimal management requirements.

Turfgrass is the most common groundcover in the landscape. Sites that are less suitable for turfgrass, due to mowing capability (slopes, steep banks, small and/or inaccessible slivers of land), or excessive shade, can often grow other, more appropriate groundcovers. The use of adapted and different groundcovers, including turfgrasses lends diversity and aesthetic appeal to the landscape.

Well-established, properly chosen and managed groundcovers generally require less long-term labor input than the typical turfgrass site. Mowing is reduced or eliminated and other practices such as fertilization, irrigation and pest management may also be reduced. Groundcovers, however, are not maintenance-free, nor are they always a better choice than traditionally managed turfgrass. Groundcovers can provide a smooth transition from shrubs to turfgrass, soften edges of paths and visually tie buildings to the landscape. This article will focus on selection, establishment and management of groundcovers other than turfgrass.

Selecting a Groundcover

Groundcover selection should be carefully researched prior to planting. Would the planting site be best suited to a groundcover less than 4 inches in mature height or better suited to a plant of greater stature? Is the site heavily shaded? Does it receive morning or afternoon sun and for how long? What degree of slope is present and what is the predominant exposure? Is the location well-drained or wet? Does the client desire showy, continuous flowering, winter color, wildlife habitat, low management requirements or other specifications? Is a deciduous or evergreen groundcover more suitable? Would a herbaceous groundcover or a woody groundcover be a better choice? A careful evaluation of the site, while time-consuming, is essential to the success of a groundcover planting. By combining a thorough site evaluation with information from appropriate references for your region, it is highly likely that a groundcover ideal for your conditions can be selected. Examples of web-based resources include:

A steep slope is colonized by moss phlox, snow-in-summer, sedums and cranesbills.

- Groundcovers for Rough Sites - University of Minnesota Cooperative Extension *http://www.extension.umn.edu/distribution/horticulture/DG1114.html*
- Selecting Landscape Plants: Groundcovers-Virginia Cooperative Extension *http://www.ext.vt.edu/pubs/envirohort/426-609/426-609.html*

Preparing the Soil

The structure, pH, and fertility of the soil are critical to the success of establishing groundcovers. Many groundcovers develop crown rot in compacted soils, or heavy clay soils that don't drain properly. Adding coarse organic matter, such as finished compost or aged manure, can improve the drainage of heavy clay soils and increase the water-holding capacity of sandy soils. Cultivate the existing soil to an 8-inch depth and thoroughly incorporate the organic matter. Have the organic matter source analyzed to ensure that pH and salt content will not adversely affect establishment of the groundcover.

A soil test will indicate the site's fertility and pH. Most groundcovers prefer a slightly acid to neutral soil (pH between 6.0 and 7.0). If the soil is low in nitrogen, incorporate enough 1-2-0 or 1-2-1 fertilizer to apply 1.5 to 2 pounds of actual nitrogen per 1,000 square feet, or about 30 to 40 pounds of 5-10-5 per 1,000 square feet.

Soil preparation can cause serious erosion on steep slopes. Working the soil across the slopes in 12- to 24-inch wide bands alternated with undisturbed soil will help reduce erosion. Mulching the slope with a fiber or other type of erosion mat will further reduce potential soil loss while conserving moisture and reducing weed competition.

Planting

Most groundcovers should be planted in the spring or fall to allow good root development before summer's heat or early frost. Containerized stock can be planted anytime during the growing season if proper planting and management procedures are followed.

The number of plants needed depends on the spreading capability of the individual plants, the growth rate, and how quickly the space must be covered. You may want to densely plant a small, highly visible area for rapid fill, but a large area may require sparser planting, with several years being allowed for covering the site.

To estimate the number of plants needed, first determine the size of the site in square feet. Considering the average width of the species and the spacing of individual plants, use *Table 1* to calculate the approximate number of plants you will need.

(continued on page 4)

Table 1. Planting space required per number of plants.

Space between plants (inches)	*64 plants will cover* (sq. ft.)	*100 plants will cover* (sq. ft.)
4	7	11
6	16	25
8	28	44
10	45	70
12	64	100
15	100	156
18	144	225
24	256	400

Groundcovers can be purchased as rooted cuttings or in containers of various sizes. Woody shrubs used as groundcovers can also be purchased as balled and burlapped. The form of the plants will influence plant spacing and planting season. For example, rooted cuttings are usually planted closer than containerized plants, and are typically installed only in the spring.

Groundcover plants should not be allowed to dry out prior to installation. Prepare the soil and dig the holes before removing the plants from their packaging or container. Plant them at the proper depth for the soil type and the growth habit of the groundcover. This may require setting the plants at a slightly higher level than the soil line in the container, or burying stem sections. Firm the soil around the roots to ensure good soil-root contact. Watering small sections as you plant will prevent the roots from drying out.

Groundcovers can be planted in either straight or staggered rows. Staggered rows help reduce erosion on slopes by retarding run-off.

Vinca is a classic evergreen groundcover for shady sites.

Watering

Water new plantings thoroughly and frequently until the roots become established. Once established, water as needed for the groundcover you've selected; each type has different requirements, but apply at least 1 inch of water at each watering to moisten the entire root zone. Applying less water results in a shallow root system, which makes the planting more susceptible to drought injury and other plant stresses.

Controlling Weeds

Control weeds to enable the newly planted groundcover to form a dense mat. When properly established, groundcovers can successfully compete with weeds. Hand weeding is effective, but can be time consuming. Mulching is a practical way to reduce weeds.

Non-aggressive annual flowers can also be used to fill in spaces in a new planting; they help shade out weeds, but do not inhibit the spreading growth of the groundcover. Provide enough moisture for both plant types so competition is not a problem.

Preemergence herbicides can be used to control weeds in large plantings. If perennial weeds, such as bindweed or other difficult-to-control weeds are a problem, consider fumigating the site with Basamid or use the non-chemical solarization process prior to planting.

Pruning

Pruning will stimulate new growth on most groundcovers by causing buds to break from the base or along the plants' stems. At planting time, prune back the growth by one-half (more on trailing plants such as ivy or periwinkle) to promote branching.

Annual pruning will help control aggressive groundcovers such as wintercreeper, keep them attractive, and encourage a more dense habit. Generally, the best time to prune is just after new growth has begun in the spring. A mower set very high, nylon cord trimmer, or hand clippers can be used. Cutting back after flowering can induce repeat flowering in many annual groundcovers such as sun rose, alyssum and cottage pinks. Pruning can also help control diseases by removing infected foliage.

Pussytoes and sedum form very low groundcovers between stepping stones or on dry slopes.

Mulching

Mulching serves many purposes in a groundcover planting. Using 2 inches of mulch around annuals and perennials, and up to 4 inches of mulch around woody groundcovers helps control weeds, maintains a more constant soil temperature, conserves soil moisture and reduces erosion on slopes. Compost, leaf mold, well-rotted manure, bark or wood chips, peat moss, and sawdust are good organic mulches. However, mulches that have not completely decomposed, such as fresh sawdust, will temporarily draw nitrogen from the soil. An application of additional nitrogen (1.5 to 2 pounds of ammonium sulfate per 1,000 square feet) will replace the nitrogen. Gravel chips or pea gravel are useful mulches for drought tolerant groundcovers that need extremely good drainage

Mulching helps protect plants from winter injury resulting from uneven soil temperatures and soil heaving. Most evergreen groundcovers need protection from winter desiccation (drying). Apply mulch loosely after the ground has frozen and remove it in the spring before growth begins. Weed-free straw, peat moss and pine tree boughs can be used for winter mulch.

Insects and Diseases

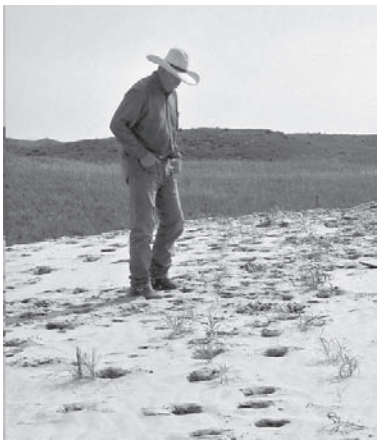
Groundcovers can be susceptible to damage by insects and diseases that attack other landscape plants. Proper diagnosis of the problem will point to the most appropriate management, mechanical, or chemical control. Read and follow the label directions carefully when choosing a chemical control.

Sandhills Ecotourism Project

By Wyatt Fraas, Center for Rural Affairs

More and more Nebraska landowners supplement their agricultural income by providing hospitality services and nature interpretation for wildlife watching and hunting, horseback riding and other nature-based activities.

An example is the Switzer family of Burwell. Long a traditional cattle ranch, they launched Calamus Outfitters several years ago to take advantage of canoeing opportunities on the Calamus River and requests for hunting guides. The business has grown to include lodging, catering, trail rides, and now prairie chicken viewing each spring. It turns out that tourists who come to Nebraska to view the spring Sandhill crane migration are also interested in watching the courtship dances of greater prairie chickens.



Bruce Switzer inspects seedlings of blowout penstemon, an endangered plant that requires active sand dunes to grow. Switzer is cooperating with UNL in transplanting the plant to his ranch.

"Both our children wanted to come back to live and work on the ranch," said Bruce Switzer, "but we knew our cattle operation wasn't profitable enough to support two more families. We started all these other activities to increase the ranch income enough for all of us."

"We think that people are interested in the natural conditions of the Sandhills and want to come experience them," he added. "This project is helping us determine how we can improve our land so we can improve the nature tourism opportunities."

To support this trend in private land use, the Center for Rural Affairs, based in Lyons, NE, with the support of the World Wildlife Fund and the Grassland Foundation, has launched an outreach and technical assistance project to help landowners in Garden and Loup Counties build or strengthen existing nature-based businesses on their private lands while improving the management of prairie grasslands for both livestock and wildlife.

"These counties are aging and sparsely populated with high poverty rates," said Kathy Starkweather, project leader with the Center for Rural Affairs. "These factors suggest a strong need and opportunity for nature-based tourism as an economic driver that will create small business ventures and jobs for a new generation of Sandhills residents."

"Nature recreation is a multi-billion dollar industry in the United States," she added, "that can create real economic opportunities for rural communities. We hope to assist private landowners in the Sandhills move toward successful nature-based tourism businesses while still honoring the tradition of Sandhills ranching with its strong stewardship ethic that has maintained habitat and wildlife populations over the last century."

The project, which began in June 2008, seeks to focus on entrepreneurship and private markets to achieve its goals. The Center for Rural Affairs will work directly with cattle ranchers and other landowners to assess their needs for project services, and link those individuals with range management, business development and marketing-related expertise to improve both business and conservation outcomes. The Switzers, for example, have reintroduced rare plants with the help of UNL scientists, which could be included in ranch tours. They are also consulting with Center for Rural Affairs small business specialists on their business plan and marketing options, which include seeking designation as a private nature area, tentatively called the Switzer Ranch and Nature Reserve.

The project will also call on the wildlife and conservation economics expertise of the Northern Great Plains program of the World Wildlife Fund in Bozeman, MT and the Nebraska-based Grassland Foundation.

The project will encourage neighboring ranchers to work together to create larger management areas for wildlife and for nature-based activities and services. The Switzer Ranch is taking this approach with its neighbors in cooperating in an upcoming UNL prairie chicken habitat study.

In Garden County, several landowners have expressed interest in exploring ecotourism, either as their own business or as an activity allowed on their land. A rural development committee has also identified nature tourism as a priority area to receive its attention for supporting new businesses and attracting visitors to the county.

Contact Kathie Starkweather at 402 617-7946 or Wyatt Fraas at 402 254-6893 for more details.

Estimating Livestock Forage Demand: Defining the Animal Unit (continued from page 1)

stocking rates, for example, average mature cow weight can vary substantially from herd to herd, and it is important to use the appropriate weight value. Our results indicate intake differences among cattle of different physiological state or class should be considered when calculating forage demand. This would further increase accuracy of forage demand estimates for stocking rate or feeding purposes.

Table 1. Dry matter intake (DMI) of cow-calf pairs, dry cows and steers.

	Cow-calf pair	*Dry cow*	*Steer*	*SE*	*P value*
BW[1], lbs	1431.4	1118.5	683.6	43.11	< 0.0001
DMI, lbs	36.2	25.8	14.5	0.84	< 0.0001
DMI, % of BW	2.5	2.3	2.1	0.0006	< 0.0001

[1]Average BW over the 102 days of the experiments.

Editor's Note: Meyer, Adams, Volesky, Stalker and Funston are at the North Central Research and Extension Center, and Klopfenstein is in Lincoln. The above is a condensed version of the complete article that can be found at http://beef.unl.edu/beefreports/200904.shtml.

Program for 2009 Nebraska Grazing Conference

The ninth annual Nebraska Grazing Conference will be held at the Kearney Holiday Inn on Tuesday and Wednesday, August 11 and 12.

The first featured speaker will be **Allan Nation** from Mississippi. He became the agricultural reporter for his local newspaper at age 16, and has been editor of *The Stockman Grass Farmer* since 1977. To date he has authored eight books including *Knowledge Rich Ranching, Quality Pasture* and *Grassfed to Finish*. In two separate talks Nation will address Nebraska's competitive advantage in the grazing industry, and grass-finished production and marketing.

Rick Danvir, wildlife manager for Deseret Land and Livestock headquartered in Utah, will discuss why Great Plains/Nebraska ranchers should manage for wildlife on their ranches – from a private rancher/wildlife manager's perspective.

Also addressing wildlife issues in connection with grazing operations will be **Bob Budd** with the Wyoming Wildlife and Natural Resource Trust. Budd will talk about impacts of grazing conservation practices and fence/water development on livestock and wildlife.

Making for a lively exchange will be the presentation by **Justin Derner**, research rangeland management specialist at the USDA Agricultural Research Service's High Plains Grasslands Research Station in Cheyenne, Wyoming. Derner is co-author of a paper published in 2008 that reviewed several years of research results from studies of rotational vs continuous grazing.

Concurrent sessions on the first day will include one on invasive species and one on production issues – winter supplementation, longevity of replacement heifers, and pasture leases.

Other topics on the program include designing fence and water systems, becoming a grass farmer, mentoring, the 100 Cow Program, and passing on the legacy (in this case, father to daughter).

Those attending the banquet Tuesday evening will get a special treat as they listen to cowboy poet R. P. Smith from Broken Bow. A fourth-generation rancher, Smith also hosts "Home Grown" on the rural radio network and has been a featured entertainer at some of the largest cowboy poetry gatherings in the country.

The two-day pre-registration fee of $75 is due to the Center for Grassland Studies by August 1. The fee covers lunch both days, the evening banquet, break refreshments, and the conference proceedings. One-day registrations are also available. Registration fee will be waived for students who will still be in high school next year and who pre-register by the Aug. 1 deadline, compliments of the UNL College of Agricultural Sciences and Natural Resources. Reduced registration fees apply for other full-time students. Late fees apply to registrations postmarked after August 1 and to walk-ins. **Checks are to be made out to 2009 Nebraska Grazing Conference** (sorry, credit cards are not accepted). Note the refund policy: cancellations received by August 1, 2008, will receive a copy of the proceedings and a refund of registration fee less $10. Cancellations after August 1 will not receive a refund but will be sent a copy of the proceedings.

Participants of any of the previous Nebraska Grazing Conferences as well as all Nebraska extension educators will receive a brochure in the mail in June. Others may contact the CGS office to be placed on the mailing list. Information and the registration form are also on the CGS Web site (www.grassland.unl.edu).

The conference is a collaborative effort with many co-sponsors in the public and private sectors. The Center for Grassland Studies is one of the underwriting sponsors.

CGS Associates

At the annual ASA—CSSA—SSSA conference in October, 2008:

Dan Walters was named a Fellow by the American Society of Agronomy.

Lowell Moser (recently retired) received the Monsanto Crop Science Distinguished Career Award, which is presented to a crop scientist who has exhibited an outstanding record of service during a minimum of 25 years.

Roch Gaussoin received the Fred V. Grau Turfgrass Science Award, which is presented in recognition of significant career contributions in turfgrass science.

In January **Roch Gaussoin** also received the Nebraska Turfgrass Association Extra Mile Award at the 2009 Green Expo.

In November 2008, Gamma Sigma Delta presented awards to **Rick Rasby** (Extension), **Bryan Reiling** (Teaching), **Alan Baquet** (Award of Merit), and as noted in the previous issue of this newsletter, CGS Director **Martin Massengale** (International Distinguished Achievement in Agriculture).

In November **Rick Rasby** also received the North Central Region Extension Award from the National Association of State Universities and Land-Grant Colleges (NASULGC) at its Chicago meeting.

Martin Massengale is the recipient of the 2009 UNL College of Agricultural Sciences and Natural Resources Alumni Association Service Award for outstanding service to CASNR.

The following received a 2009 Certificate of Recognition for Contributions to Students awarded by the UNL Parents Association: **Dennis Brink, Tiffany Heng-Moss, Garald Horst, Svata Louda, Darrell Mark, Larkin Powell, Terry Riordan, and Dave Wedin**.

At the International Society for Range Management Meeting in Albuquerque, NM in February, **Mary Reece** received the Outstanding Achievement Award for her 23 years of notable work in education with the Nebraska Youth Range Camp from 1983 to 2006.

2009 Nike Golf Camp in Lincoln This July

The fifth annual five-day Nike Junior Resident Golf Camp will be held in Lincoln July 27-31, 2009. Scott Holly, a PGA professional and internship coordinator of the UNL PGA Golf Management (PGM) program, is camp director. Helping with instruction will be three PGA pros at Wilderness Ridge Golf Club, the home course of the UNL PGM program and host site for the camp.

Golf teacher extraordinaire Mike Schuchart works with a camper on proper swing technique.

Girls and boys 14 to 18 years of age with some golfing ability are qualified to participate. Cost is $845 for "resident" (campers stay in a dom on the UNL campus and are supervised by staff) and $745 for "extended day" (morning through evening).

The daily schedule consists of breakfast, instruction in the morning (putting, chipping, bunker play, full swing), lunch, course play with staff in the afternoon, dinner, and an evening fun activity.

Now what was it the instructor said about lining up a putt?

For more information and to register, go to the PGM Web site (pgm.unl.edu) and click on the Nike Junior Golf Camp link. If you have questions, contact Holly at sholly2@unl.edu, 402-472-7467.

Speaking of Holly, we're happy to report that our colleague placed second in the Nebraska PGA Professional Golf Championship held at Wilderness Ridge last year. Scott was tied for first after regulation play in the two-day tournament before succumbing to former PGA Tour pro Mike Schuchart in the play-off. Finishing third was director of golf at Wilderness Ridge, Jim White. Schuchart and White are two of the pros who provide instruction at the Nike camp. Their tournament finishes qualified Holly, Schuchart and White for the 2009 PGA Professional National Championship this June in Albuquerque. We wish them all luck!

And if that isn't enough, Holly can add three other items to the list of recent accomplishments: 1) PGA certification in General Management; 2) Education Award for superior work from the Nebraska Section of the PGA; and 3) MBA degree from UNL. (There was a milestone birthday in the mix, but we won't mention that!)

Is all this sand supposed to fly up like that?

Campers couldn't ask for a better setting in which to perfect their game than Wilderness Ridge Golf Club.

Students in the 2008 Nike Camp learn how to properly shoot their way out of a bunker.

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Resources

The annual *Nebraska Beef Reports* contain summaries of research conducted by scientists and graduate students in the UNL Animal Science Department. The target audience for these reports are livestock producers, extension educators, and people in agri-business. See the current (2009) and past issues at http://beef.unl.edu/reports.shtml.

Another good source of research reports related to grazing is the University of Wisconsin Center for Integrated Agricultural Systems, which is celebrating its 20th anniversary this year. The CIAS newsletter *Grass Clippings* features grazing research from the University of Wisconsin and beyond. The February 2009 issue has articles on fertility and pastures, beef and dairy cattle gains on different pastures, and beef cattle on pasture and supplements. Another example of online reports of potential interest to graziers is, "Does pasture-finished beef make the grade?" See http://www.cias.wisc.edu/crops-and-livestock/.

There are many excellent publications available from the Soil and Water Conservation Society. For example, a new e-book in 2009 is *Farming with Grass: Achieving Sustainable Mixed Agricultural Landscapes*. The online book documents the valuable information collected during the conference of the same name held October 2008 in Oklahoma City. Another 2009 book is *Relationship with the Land: Hugh Hammond Bennett, Aldo Leopold, and the Future of the Conservation Land Ethic*. Check out all the offerings at http://store.swcs.org/.

Info Tufts

We want to congratulate long-time CGS supporter **Sid Salzman** of Ainsworth for receiving a Special Award of Merit from the Nebraska Section of the Society for Range Management at its annual meeting in October, 2008. The list of this rancher's public service roles is a long one and includes being on the CGS Citizens Advisory Council since its formation in 1995. We're happy to report that meetings are never boring when Sid is involved! Thank you, Sid, for sharing your experience and expertise with so many organizations over the years.

For the second year in a row (2007 and 2008), **Bill Kubly**, founder of Landscapes Unlimited headquartered in Lincoln, has been named one of the "Most Powerful People in Golf" by *Golf Inc.* magazine, which stated that he "has deftly steered the company through the peaks and valleys of the golf industry over the past decade." Kubly helped with the initiation of the PGA Golf Management program at UNL and continues to serve on its advisory committee.