



Beef Tips

March 2014

Department of Animal Sciences & Industry

www.asi.ksu.edu/beeftips

Upcoming Events

Cattlemen's Day

March 7, 2014
Manhattan, KS
www.KSUbeef.org

Beef Improvement Federation Convention

June 18-21, 2014
Lincoln, NE
www.beefimprovement.org

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Tools for your drought management plan

Sandy Johnson, livestock specialist

The Feb. 20th drought outlook map for western Kansas calls for drought conditions to persist or intensify in the southwest and remain but improve for northwest. This represents a reduction in the area where conditions were projected to persist in Kansas from the previous month's projection. Planning and preparing for the coming growing season will be challenging given the length of the drought in some areas. Compared to historic droughts of the 1930's or 1950's we have significantly more tools to help us make informed plans and decisions. The focus of this article will be to highlight some of those resources.

K-State climatologist Mary Knapp's weekly update on weather and drought conditions:

<http://www.ksre.ksu.edu/wdl/DroughtData.htm> .

United States Drought Monitor (updated on Thursdays):<http://droughtmonitor.unl.edu/Home.aspx> . Other materials at this site:

- Forecasts - <http://droughtmonitor.unl.edu/SupplementalInfo/Forecasts.aspx> - Contains monthly and seasonal US drought outlook, streamflow forecast, soil moisture forecasts, current 3 to 7 day outlooks, national fire weather outlook and western water supply outlook.
- Current Conditions - <http://droughtmonitor.unl.edu/SupplementalInfo/CurrentConditions.aspx> - Contains the vegetation drought response index (VegDRI), the national weather service precipitation analysis, weekly weather and crop bulletin, Palmer drought severity index, crop moisture index, standardized precipitation index, percent of normal rainfall, and soil moisture. The Vegetation

Drought Response Index (VegDRI) maps are produced every two weeks throughout the year and give an indication of vegetation conditions across the continental United States.

- Historical data – <http://droughtmonitor.unl.edu/SupplementalInfo/HistoricalWeatherData.aspx>- Links to a variety of free online sources of historical weather data.

Community Collaborative Rain, Hail & Snow Network (CoCoRaHS) - <http://www.cocorahs.org/state.aspx?state=ks> - CoCoRaHS is a unique, non-profit, community-based network of volunteers working together to measure and map precipitation (rain, hail and snow). Use this site to check up on latest precipitation totals or become a volunteer observer.

National Drought Mitigation Center - <http://drought.unl.edu/> - This site contains many of the same maps as the US drought monitor site. In addition see:

- A variety of webinar recordings and materials related to planning for and managing drought risk at the ranch level. <http://drought.unl.edu/ranchplan/Overview.aspx>
- Writing a drought plan - <http://drought.unl.edu/ranchplan/WriteaPlan.aspx> - Outlines steps in writing your own drought plan and provides copies of actual producer plans. With the plans are some useful comments from the producers. See May 2013 Beef Tips and May 2011 Beef Tips for other information to help make a drought management plan for your own operation.

“You can’t manage what you don’t measure.”

Tally Time – Retain a short breeding and calving season

Sandy Johnson, livestock specialist

The past year or more many Kansas cow herds have been culled due to drought. Producers have commented that some of this culling has been good and often needed. If the culling reduced the length of the calving season, this may represent a tremendous opportunity, particularly if the calving season had been getting long.

We know that calves born the first 21 days of the calving season are heavier than those born later and that advantage continues to harvest weight. Less variation in calf age results in more uniform calves at weaning. Timing of vaccinations and diet changes based on stage of production are optimal for more cows when the calving season is short.

How do we keep a short calving season? The length of bull exposure is the obvious first point of discussion. Well managed herds achieve pregnancy rates of 90% or greater with 60 day breeding seasons. If bulls are left with cows longer, timely pregnancy diagnosis can be used to identify late bred cows. It will take discipline to follow through and market these cows if this approach is used. In the absence of culling, a gradual approach to reducing breeding season length should be taken.

If culling created a shorter calving season, the last cow that calves now has more time to resume normal estrous cycles before the breeding season starts. If she is cycling before the start of the breeding season she has a better chance of conceiving early.

To fully understand this relationship consider the following. Given 283 days for gestation and 365 days in a year, a cow must conceive within 82 days of calving to calve at the same point again next year. Literature estimates of the average interval between calving and the first estrous cycle after calving are 50 days for mature cows and 70 days for first calf heifers with adequate nutrition. Cows that are thin or have experienced calving difficulty will take longer, so postpartum intervals of 80 to 120 days are not uncommon in two-year olds. Thus the common recommendation is to calve heifers 2-3 weeks ahead of the mature cow herd and at a body condition score of 6.

First calf heifers with adequate nutrition, that calve before and up to two weeks into the cow season have a good chance of cycling by the time the breeding season begins. In Table 1 you can see that if calving occurs on the 21st day there are 60 days until the start of the breeding season. If the average 2-year old takes 70 days to return to estrus (assume half take longer) calving at this point or later results

in only 2 chances to conceive in a 60 day breeding period. One study found 26% of cows failed to calve the next year when calving between day 81 and 100 of the calving season. This increased to 30% if calving between day 101 to 120 and 37% if calving between day 121 to 140.

Table 1. Effect of calving time on opportunities to conceive in a 60 day breeding season.

Day of calving season	Days postpartum at start of breeding	Opportunities to conceive in 60 day season		
		Cows	Heifers	Thin Heifers
-21	102		3	2-3
-14	95		3	2-3
-7	88		3	2
1	81	3	3	2
21	60	3	2	1
42	39	2	1	rare
63	18	1	1	rarer

A short and early breeding season for yearling heifers may be one of the best ways to maintain a short calving season in the main herd. This ensures 2-year olds will have had a correspondingly longer period between calving and the start of the breeding season increasing their opportunity to conceive early in their second breeding season. This also provides some cushion in case postpartum anestrus is extended due to calving difficulty or suboptimal nutrition.

If the match between cow biological type and nutrient availability is such that young cows rebreed early in the season, mature cows should have no problem. Thus a short early breeding season for heifers is a key first step to a short calving season. If culling helped you shorten a long calving season, take steps to keep it that way through breeding management of replacement heifers and length of bull exposure.

2014 Cattlemen's Day Research Summaries

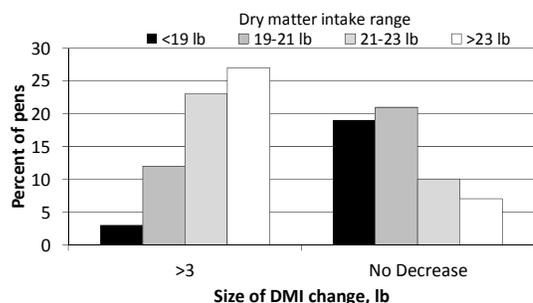
The following represents a sampling of the summaries from the 2014 Cattlemen's Day Report. The entire report is online at: <http://www.asi.ksu.edu/cattlemensday>.

Dry Matter Intake Decreases When Feeding Zilmax During the Summer

C.D. Reinhardt, C.I. Vahl, and B.E. Depenbusch

Objective: Evaluate relationships between feed dry matter intake before and after initiation of Zilmax (Merck Animal Health; Summit, NJ) feeding in three commercial feedyards and determine how this relationship is affected by season, gender, and pre-Zilmax feed intake.

Study Description: 1,515 pens of steers and heifers fed at three commercial feedlots in Kansas were used to investigate the prevalence and extent of changes in dry matter intake (DMI) after initiation of Zilmax feeding. Feed intake after introduction of Zilmax decreased in 75% of pens and increased in 25% of pens. Feed intake declined within one day after initiation of Zilmax feeding; however, this effect was greater in the summer and winter than during the spring or fall. As pre-Zilmax feed intake increased, percentage of pens with a decrease in feed intake after introduction of Zilmax also increased.



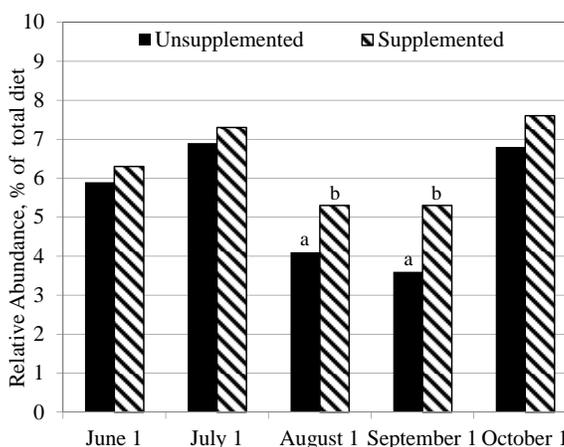
The Bottom Line: Because dry matter intake of cattle fed Zilmax declines during the summer months and for cattle consuming greater amounts of dry matter prior to feeding Zilmax, performance and quality grade projections should be adjusted accordingly.

Botanical Composition of Beef Cow Diets Shifts When Native Range Infested with Sericea Lespedeza (*Lespedeza Cuneata*) is Supplemented with Corn Steep Liquor

G.W. Preedy, K.C. Olson, L.W. Murray, and W.H. Fick

Objective: Evaluate the effects of supplemental corn steep liquor on botanical composition of the diets of beef cows grazing native tallgrass rangeland infested with sericea lespedeza in the Kansas Flint Hills.

Study Description: Our study was conducted from May 1 through October 1, 2011 in Chautauqua County, KS, on nine native tallgrass pastures located approximately 10 miles southeast of Sedan. Crossbred beef cows and calves (145 pairs) were assigned randomly to treatments consisting of no supplementation or supplementation with corn steep liquor. Supplementation began June 1 and was delivered three times each week in portable feed bunks. Delivery of corn steep liquor was prorated for an average daily intake of 1.0 gallon per cow daily. Botanical composition of beef cow diets was estimated using fecal microhistology.



^{a,b} Means within month differ, $P < .01$

The Bottom Line: Supplemental corn steep liquor increased beef cow tolerance for and acceptance of high-condensed tannin sericea lespedeza in a commercial-scale, native-range production system. We conclude that supplemental corn steep liquor allowed for a desirable change in selection preference by beef cows that stemmed from a critical modification of the post-ingestive consequences associated with condensed tannin consumption.

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Subprimal Type and Quality Grade Affect Fatty Acid Composition and Cooked Firmness of Ground Beef Patties

C.M. Garner, J.A. Unruh, M.C. Hunt, E.A.E Boyle, T.A. Houser, and S. Stroda

Objectives: Determine the effects of two subprimal types (chuck roll and knuckle), two quality grades (Premium Choice and Select), and three vacuum-packaged storage aging times before processing (7, 21, and 42 days) on ground beef patty sensory properties.

Study Description: After aging for 7, 21, or 42 days, Premium Choice and Select knuckles and chuck rolls were ground twice before fatty acid analyses were conducted. Ground beef patties were formed, frozen, stored at -4°F until thawed, and cooked to an internal temperature of 160°F. A trained sensory panel was conducted, and instrumental properties (slice shear force, textural profile analysis, and Lee-Kramer shear) were evaluated.

Results: Patties from chuck roll subprimals had more total fatty acids (TFA), greater percentages of saturated fatty acids (SFA), and lower percentages of polyunsaturated fatty acids (PUFA) than those from knuckle subprimals. Patties from Premium Choice subprimals had more TFA, greater percentages of monounsaturated fatty acids (MUFA), and lower percentages of SFA and PUFA than those from Select subprimals. Overall, patties from fatter chuck roll and Premium Choice subprimals were softer (lower peak forces and hardness) than those from knuckle and Select subprimals. The sensory panel also observed that patties from chuck roll and Select subprimals were firmer.

The Bottom Line: Subprimal type and quality grade can affect fatty acid profiles. Ground beef patties from Premium Choice chuck rolls are softest in texture, whereas those from Select knuckle subprimals are the firmest.

Docility and Heifer Pregnancy Estimates in Angus Heifers

K.L. White, J.M. Bormann, D.W. Moser, and R.L. Weaber

Objective: Obtain heritability estimates for docility and heifer pregnancy in Angus heifers.

Study Description: Data for this study included approximately 148,139 records with 10,137 sires and 92,471 dams represented. We formed 25,736 contemporary groups from weaning, yearling, and breeding contemporary groups. Heifer pregnancy was a threshold model with animal and contemporary groups as random effects and age at first breeding as a covariate. Docility was a linear animal model, with animal and contemporary groups as random effects.

Results: The heritability of heifer pregnancy was estimated as 0.16 ± 0.02 . These findings are similar to those by other researchers who found heifer pregnancy heritabilities between 0.14 and 0.21. The heritability of docility was estimated to be 0.22 ± 0.03 , which is lower than those reported by the North American Limousin Foundation (0.40) and the American Angus Association (0.37).

The Bottom Line: Moderate heritability estimates of heifer pregnancy and docility indicate that although progress may be slow, genetic improvement through selection can be made on these traits.

Take advantage of FREE BQA training

We would like to make you aware of a **FREE** Beef Quality Assurance (BQA) certification offer made possible through a partnership with Boehringer Ingelheim Vetmedica. Having beef cattle producers become BQA certified demonstrates to consumers that we provide a quality product. Becoming BQA certified has never been easier. Just visit bqa.org/team or www.BIVI-BQA.com to register. Producers can take the free certification course until **APRIL 15th**.

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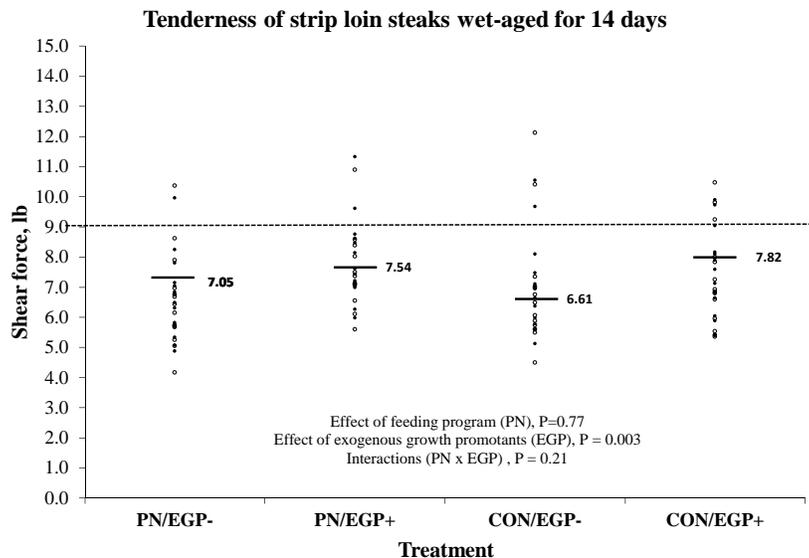
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Comparison of Conventional and Alltech Beef PN Finishing Programs: Meat Water-Holding Capacity and Tenderness

K.J. Phelps, K.A. Miller, C.L. Van Bibber-Krueger, J. Jennings, B.E. Deppenbusch, J.S. Drouillard, J.M. Gonzalez

Objective: The objective of this study was to compare the fresh cooked meat quality of the Alltech PN Beef Program to a conventional feedlot diet when these diets are used alone or in a combination with exogenous growth promotants.

Study Description: Five hundred twelve crossbred steers were fed for 175 days to test two effects. Steers were assigned to either a conventional finishing diet or a diet using the Alltech PN Receiver and Finisher supplements (Alltech, Nicholasville, KY). Both diets were fed with or without the use of implants and Optaflexx (Elanco Animal Health, Greenfield, IN). Animals were harvested after 175 days, loins were collected 24 hours later, and analyses were conducted after 14 days of aging.



The Bottom Line: Alltech PN supplements favorably affected meat water holding capacity, but use of exogenous growth promotants decreased water-holding capacity and tenderness.

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BECOME FAMILIAR WITH PRESCRIBED BURNING TOOLS

Extensive prescribed burning is expected in the Flint Hills this spring following ample late summer and fall grass growth. Landowners should refresh their knowledge of the Flint Hills Smoke Management Plan after limited burning was conducted the past two years. Information and tools to help land managers make burn decisions is available at www.ksfire.org.

Interactive models on the web site predict the potential contribution to urban air quality. One model shows the direction and extent of the expected smoke plume from a single, site-specific burn. A second shows the cumulative smoke impact from each county. The two models will be active beginning March 15.

The Smoke Management Plan was created to balance the use of prescribed fire in the Flint Hills with the need for clean air in downwind communities. It takes a voluntary approach toward improving air quality during the burn season. Making the plan voluntary leaves flexibility in the hands of the land manager, but also puts the responsibility on him or her to make wise decisions. Kansas Livestock Association

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Consumption and Performance of Beef Heifers Provided Dried Distillers Grains in a Self-Fed Supplement Containing Either 10 or 16% Salt While Grazing Flint Hills Native Grass

N.T. Melton, B.E. Oleen, C.I. Vahl, S.P. Montgomery, E.R. Schlegel, and D.A. Blasi

Objectives: Evaluate performance of grazing beef heifers fed dried distillers grains (DDGS) in a self-fed fashion with either 10 (LOW) or 16% (HIGH) stock salt in comparison to that of unsupplemented heifers (CONTROL). Concern over the effects of drought in previous years focused our attention to ensuring that nutritional resources would be adequate to provide for a 78-day grazing period when grazing density was increased from 200 (CONTROL) to either 225 or 250 lb of beef per acre.

Study Description: 279 heifers were randomly assigned to one of three experimental treatments in a 78-day grazing study that was initiated in May 2013. The HIGH and LOW treatments consisted of DDGS mixed with 16 or 10% salt, respectively, to limit daily intake of DDGS to 0.60 and 1.0% of body weight, respectively. Starting on June 17, the treatments were provided to the respective pastures for the remainder of the study. Calves were weighed at the beginning and end of the study, and dry matter intake of DDGS, average daily gains, and supplement efficiencies were determined for each paddock of calves.

Performance of stocker heifers provided supplements of dried distillers grains with solubles (DDGS)

Item	CONTROL	(Percentage salt in DDGS)		SEM	P-value
		HIGH (16%)	LOW (10%)		
No. of pastures	4	4	4		
No. of cattle	85	100	94		
Initial weight, lb	582	580	579	1.08	0.17
Final weight, lb	730	768	784	6.71	0.001
Average daily gain, lb/day	1.91	2.41	2.62	0.09	0.001
Total DDGS per heifer, lb (dry basis)		162	304	22.4	0.004
DDGS/heifer, lb/day (dry basis)		(3.4)	(6.4)		
Lb DDGS/lb added gain		7.69	11.15	2.00	0.27

The Bottom Line: Providing DDGS with salt improves performance of heifers compared with those without supplemental DDGS, but no significant differences were detected in performance and efficiency between HIGH and LOW levels of DDGS supplementation.