Beef Tips

March 2010 Department of Animal Sciences & Industry www.asi.ksu.edu/beeftips

Upcoming Events

KSU Cattlemen's Day
March 5, 2010
Manhattan, KS
www.KSUBeef.com

Roundup
April 15, 2010
Hays, KS
www.wkarc.org

BIF Annual Meeting
June 28 - July 1, 2010
Columbia, MO
www.beefimprovement.org

K-State Beef Conference
Aug. 12, 2010
Manhattan, KS
www.KSUBeef.com

Beef Stocker Conference
Sept. 30, 2010
Manhattan, KS
www.beefstockerusa.org

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Education and common sense improve ATV safety

Chris Reinhardt, Feedlot Specialist

Everybody likes ATVs--except perhaps OSHA. Let's face it, these things are both useful and fun. But the very traits which make them fun also make them potentially dangerous. The good news is that there are some very specific, common-sense ways to minimize (although not totally eliminate) the hazards.

OSHA data (www.osha.gov/dts/shib/shib080306.html) indicate that of the 113 and 1,625 workplace ATV fatalities and injuries between 1992 and 2001, all could be attributed to one or more of the following causes:

1. Unbalanced or excessive loads
2. Excessive speed for given terrain
3. Operating on paved roads
4. Lack of protective helmet
5. Lack of proper training
6. Carrying a passenger

As we look through this list, and consider the ATV as a workplace tool, and consider our conscious efforts to develop a "Culture of Safety" in our workplace, we should see great potential to manage risk. Which item on the list cannot be controlled by the operator? Which cannot be trained and encouraged, if not controlled, by management?

1. They make vehicles designed to carry heavy/awkward loads; they're called pickups. But if the ATV is required to carry loads much of the time, consider replacing the ATV with a longer, wider, more stable replacement side-by-side type vehicle with a cargo bed.

2. Slow down: the job will be there when you get there. These vehicles are not designed for high speed; the high center of gravity makes them very easy to roll over. They are designed for low-speed maneuverability on rough terrain where traction is minimal. What works well for one purpose (by design) is very unsuitable for the other purpose (by design).

3. Stay off paved roads. Why? The smooth surface encourages excessive speed (see #2); the paved surface provides excellent traction beyond that of dirt, grass, or gravel, so in the event of a quick direction change, rollover is likely; other larger, faster, 4-wheeled vehicles occupy paved surfaces and may not see or yield for the ATV---a deadly scenario.

4. Wear a helmet. This one should be so obvious as to not need explanation, but it isn't. If you roll an ATV, your head will give, the ground won't---every time. Physics is not in your favor on this one.

5. Train ALL personnel (extensively, repeatedly, ongoing) on ATV use. Note: Accidents don't occur because someone doesn't know how to make the ATV go; the accidents happen if we don't know how to stop.

6. Don't carry passengers. Again, there are vehicles designed for this purpose: called pickups. Or the aforementioned cargo-oriented ATVs with a bench seat.

ATVs have become a mainstay in production agriculture; common sense, safe use, and training will ensure that they are a tool in our toolbox for a long time to come.

"You can't manage what you don't measure."

Tally Time – When the calving season lasts too long

Sandy Johnson, livestock specialist

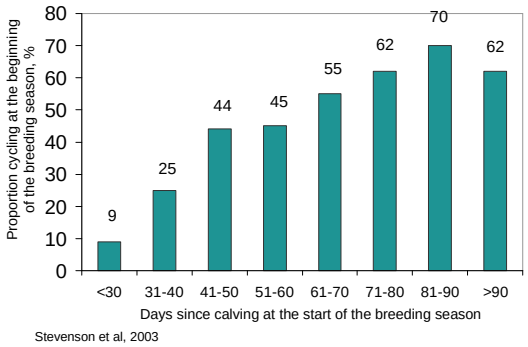
Even with the best of intentions situations exist where the calving season gets to be longer than ever intended. Conditions that result in poorer body condition at calving and breeding can lead to delayed return to estrus and a long calving season the following year. The calving seasons could get long rather abruptly due to disease outbreak or bull infertility or gradually get longer and longer over several years. Sometimes heifer development or young cow nutrition shortfalls create the problem.

Whatever the cause, long calving seasons reduce weaning weights and increase variation in those weights. To determine the best route back to a tighter calving season, it helps to review the influence of days postpartum and body condition on when cows might be expected to begin cycling again after calving.

In a 60-day breeding season, a cow that was bred on the last day of this year's breeding season will only be 22 days postpartum at the start of the next year's breeding season. In contrast, a cow bred on the first day of this year's breeding season will be 82 days postpartum at the start of next year's breeding season.

Data from over 3000 Kansas cows (Figure 1), predicts that approximately 70% of cows that are 81 to 90 days postpartum would be cycling at the beginning of the breeding season and less than 10% would be cycling when less than 30 days postpartum. If a

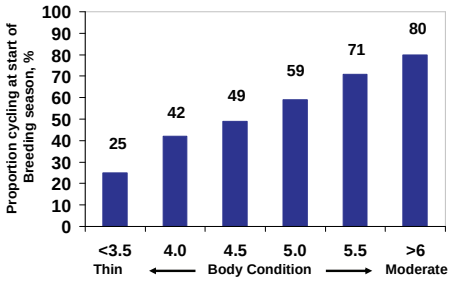
Figure 1. Proportion of cows cycling by the beginning of the breeding season based on interval since calving



Stevenson et al, 2003

90-day breeding season is allowed, then the last cow to be bred is just one week from calving at the start of next year's breeding season. If she is in good condition this cow may have one and possibly two opportunities to conceive before the end of a 90- day breeding season.

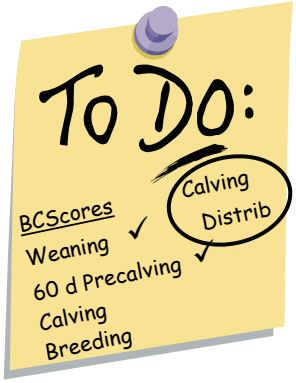
Figure 2. Proportion of cows cycling at the beginning of the breeding season based on body condition score at breeding. Stevenson et al., 2003



Body condition also impacts the proportion of cows cycling at the beginning of the breeding season (Figure 2). In this summary, the proportion of cows cycling increased 18% for each unit increase in body condition score.

Given information on calving distribution and body condition score, it is possible to project the next year's calving distribution. When you are interested in shortening a calving season this can be useful to see how many cows might be impacted by removing bulls at various times.

Two key concerns associated with late calving are how many days cows are eating an expensive lactation diet before actually lactating and how much lighter calves are at weaning as a result of age. Table 1 (page 6) illustrates those differences for a range of calving season lengths. Producers must ask themselves if the dollars spent on feed for late calving cows wouldn't be better spent on cows that would produce heavier calves at weaning.



continued...see Tally Time on page 6

2010 Cattlemen's Day Research Summaries

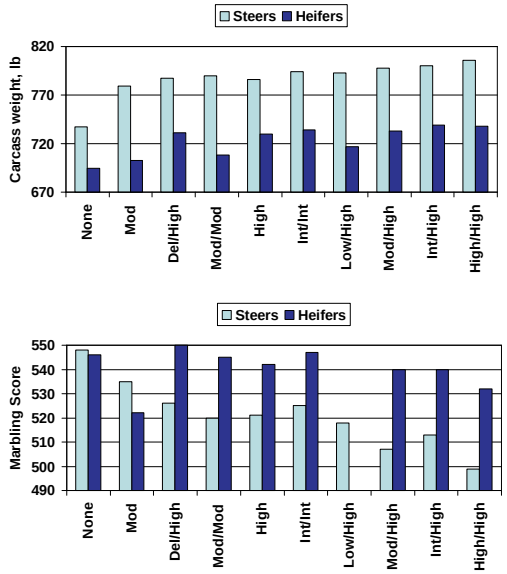
The following represents a sampling of the summaries from the 2010 Cattlemen's Day Report. The entire report is online at: http://www.asi.ksu.edu/DesktopDefault.aspx?tabid=1013

Implant Programs Affect Performance and Quality Grade

C.D. Reinhardt

Objective: Summarize the effects of different implant programs on performance and carcass quality on the basis of a cross section of available published research.

Study Description: A total of 83 studies (61 steer studies and 22 heifer studies) were included in a meta-analysis of the effects of implant program on feedlot performance (daily gain, dry matter intake, and feed conversion) and carcass traits (hot carcass weight, yield grade, and marbling score). Individual implant programs were consolidated into groups of similar dose programs. Combinations of implant programs were coded according to dosage (e.g., none, delayed, low, moderate, intermediate, and high). In instances when multiple implants were used, the initial implant dose appears first, followed by the terminal implant dose (e.g., Synovex-S followed by Synovex-Plus = Mod/High).



The Bottom Line: Increasing dose and duration of implant increases performance in both steers and heifers, but because of physiological differences between heifers and steers, implants have a more pronounced effect on marbling score in steers than in heifers.

Round Bale Alfalfa Processing Method Affects Heifer Growth but Does Not Influence Wastage or Eating Preference

S.Q Jones, J.M. DeRouchey, J.W. Waggoner, T.T Marston, R.M. Breiner, and T.J. Kraus

Objective: Determine whether precutting alfalfa during round baling affects heifer performance, forage wastage, or eating preference.

Study Description: In the conventional baling method, alfalfa was fed through the header of a round baler and carried by packer fingers into a baling chamber. In the precut method, alfalfa was fed through the header of a round baler equipped with serrated knives that cut the alfalfa stems into 3- to 8-in. sections. In experiment 1, heifers were fed either precut or conventional alfalfa hay free choice to determine performance in a 27-d study. In experiment 2, wastage was measured from precut and conventional alfalfa fed in ring feeders. In experiment 3, heifers were given a choice of eating precut or conventional alfalfa bales to determine preference.

Results: In experiment 1, average daily gain was greater for heifers consuming precut alfalfa, but calculated dry matter intake was not different between precut and conventional treatments. In experiment 2, there was no difference in hay wastage between precut and conventional alfalfa fed in ring feeders. In experiment 3, there was no difference in dry matter intake between precut and conventional round alfalfa bales.

The Bottom Line: Feeding precut alfalfa bales increased heifer gains but did not affect forage wastage in ring feeders or eating preference compared with conventional alfalfa bales. This new baling technology has the potential to positively affect producers who use round bale feeding methods.

continued...see Research Summaries on page 4

Research Summaries …. *continued from page 3*

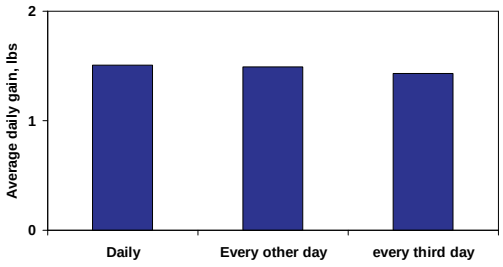
Dried Distillers Grains Supplemented at Different Frequencies to Stocker Heifers Grazing Late-Season Flint Hills Native Pastures

M.P. Epp, D.A. Blasi, W.L. Metzen, and B.E. Oleen

Objective: Determine the response to frequency of dried distillers grains supplementation of stocker calves grazing late-season native grass pastures in the Flint Hills of Kansas.

Study Description: Stocker calves (n = 51, initial body weight = 619 lb) grazed late-season native grass pasture for 72 days (September 1 through November 11, 2009). Treatments were three frequencies of dried distillers grains supplementation: daily, every other day, or every third day. Dried distillers grains were fed at rates equivalent to 0.33% of body weight daily (dry basis), so similar amounts of dried distillers grains were fed to each group over the 72-day grazing season.

Results: Average daily gains were similar across treatments.



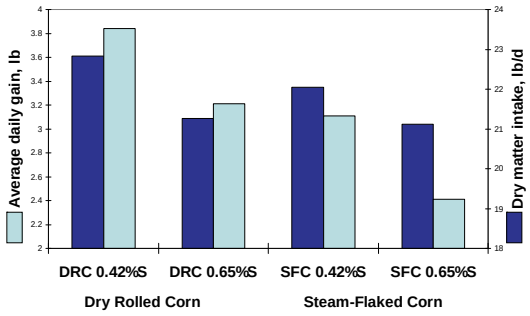
The Bottom Line: With adequate grass resources, producers can reduce labor costs by supplementing dried distillers grains to cattle every second or third day without decreasing cattle performance.

High Sulfur Content in Distillers Grains with Solubles May Be Deleterious to Beef Steer Performance and Carcass Quality

S. Uwituze, G.L. Parsons, C.J. Schneider, K.K. Karges, M.L. Gibson, L.C. Hollis, and J.S. Drouillard

Objective: Evaluate effects of sulfur content in dried distillers grains with solubles on ruminal gas concentrations, feedlot performance, and carcass characteristics of finishing steers fed diets based on steam-flaked corn or dry-rolled corn.

Study Description: Eighty crossbred yearling steers were used in a 140-day finishing trial. Steers were fed finishing diets based on steam-flaked corn or dry-rolled corn containing 30% (dry matter basis) dried distillers grains with solubles with 0.42% or 0.65% (dry matter basis) dietary sulfur. Steers were housed in individual pens. Ruminal gas samples were aspirated from the ruminal head space and analyzed for hydrogen sulfide concentration. Animals were evaluated daily for symptoms of polioencephalomalacia.



The Bottom Line: Feeding distillers grains with a high sulfur content decreased feed intake and compromised growth performance and carcass characteristics of feedlot cattle.

continued...see Research Summaries on page 5

Supplementing Feedlot Steers and Heifers with Zilmax Increases Proportions of Strip Loin, Chuck Clod, and Top Sirloin Steaks Exceeding Warner-Bratzler Shear Force Thresholds, Whereas Aging Moderates This Effect

H.C. Claus, M.E. Dikeman, L. Murray, J.C. Brooks, J. Shook, G.G. Hilton, T.E. Lawrence, J.M. Mehaffey, B.J. Johnson, D.M. Allen, M.N. Streeter, W.T. Nichols, J.P. Hutcheson, D.A. Yates, M.F. Miller, M.C. Hunt, and J. Killefer

Objective: Determine the effects of supplementing feedlot diets of steers and heifers with Zilmax for 0, 20, 30, or 40 days before harvest and the subsequent effects of 7, 14, and 21 days of aging on tenderness of steer and heifer *Longissimus lumborum* (from strip loins) and heifer *Triceps brachii* (from chuck clods) and *Gluteus medius* (from top sirloin butts) muscles.

Study Description: The designated muscles were obtained from 117 steers and 132 heifers to evaluate the effects of Zilmax feeding duration (7.56 g/907 kg, 100% dry matter basis) and aging on tenderness. Both genders were blocked separately by initial weight into six blocks of four pens. Pens were assigned to treatments of 0 (control), 20, 30, or 40 days on Zilmax with a 3-day withdrawal. Steaks from each subprimal were vacuum aged individually for 7, 14, or 21 days; frozen; thawed, and then cooked to158°F for Warner-Bratzler shear force (**WBSF**; higher value is less tender) determinations.

Results: All muscles from steers and heifers from the 30- and 40-day Zilmax treatments had higher ($P<0.05$) WBSF than muscles from the control. The WBSF of steer *Longissimus* and heifer *Triceps brachii* from the 20-day Zilmax treatment was higher ($P<0.05$) than the control. There were no differences ($P>0.05$) in percentages of intramuscular fat for any muscle due to Zilmax treatment. Percentages of steer *Longissimus* and heifer *Triceps brachii* steaks with WBSF values below a threshold of 10.1 lb (level of unacceptable tenderness cited in some studies) from the 20-day Zilmax treatment were high, whereas the percentage of heifer *Gluteus medius* muscles below 10.1 lb was low (55.5%). Correlations among *Longissimus* WBSF values for the three aging times were positive ($P<0.01$) for steer control and 20- and 40-day Zilmax treatments, all heifer *Longissimus* treatments, and the heifer *Triceps brachii* 20-day Zilmax treatment. Feeding Zilmax for 20 days generally increased WBSF values, but mean WBSF values for steer *Longissimus* and heifer *Triceps brachii* were still acceptable.

The Bottom Line: Supplementing feedlot diets with Zilmax for 20, 30, or 40 days will increase WBSF (less tender) of steer *Longissimus* and heifer *Triceps brachii* muscles, whereas supplementing with Zilmax for 30 or 40 days will increase WBSF of heifer *Longissimus* muscles. Percentages of steer *Longissimus* and heifer *Triceps brachii* muscles below a WBSF threshold of 10.1 lb from the 20-day Zilmax treatment will be quite high, but percentages of heifer *Gluteus medius* muscles below this threshold will be low.

Length of Weaning Period But Not Timing of Vaccination Affects Feedlot Receiving Performance and Health of Fall-Weaned, Ranch-Direct Beef Calves

M.J. Macek, J.W. Iliff, KC Olson, J.R. Jaeger, T.B. Schmidt, D.U. Thomson, and L.A. Pacheco

Objective: Compare the effects of vaccinating against bovine respiratory disease before weaning at the ranch of origin or after feedlot arrival for calves weaned 45, 15, or 0 days before feedlot arrival.

Study Description: Angus × Hereford calves (n = 437; average initial weight = 458 ± 54 lb) were assigned randomly to a preshipment weaning period (i.e., 45, 15, or 0 days before shipment). Within each weaning period, calves were assigned to one of two vaccination treatments. One group was vaccinated 14 days before maternal separation and again at weaning. The second group was vaccinated on the day of arrival at the feedlot and again 14 days later. Calves were transported and commingled at a commercial auction barn, held for 12 hours, and then transported 5 miles to a feedlot. All calves were adapted to a receiving ration, and daily dry matter intakes were recorded. Cattle also were monitored twice daily for symptoms of respiratory disease.

The Bottom Line: Weaning periods longer than 15 days at the ranch of origin do not improve health or performance of calves when they enter the feedlot. This study also raises the possibility that preshipment vaccination may not improve health or performance of ranch-direct cattle relative to vaccination that is deferred until feedlot arrival.

Tally Time …. *continued from page 2*

Table 1. Effect of calving date on nutrient requirements and calf weaning weight

Day of calving season	Calving Date	Feb. 27th		May 20[c]	Nov. 1	
		TDN[a] required, lbs	Hay[b] required, lbs	Days postpartum	Calf age	Projected weaning wt[d]
0	Feb. 27	16.5	33.3	82	247	623
21	Mar. 20	14.7	29.7	61	226	577
60	April 28	13.4	27.1	22	187	531
90	May 28	12.6	25.4	-8	157	425
120	June 27	11.9	24	-38	127	359
150	July 27	11.4	23	-36	97	293

[a] Total digestible nutrients; [b]Pounds of 55% TDN hay to meet energy requirements; [c]Start of breeding season; [d] Weaning weight = 80 + (age in days x 2.2)

If identified in a timely manner, late calving cows could be marketed in a bred cow sale. If pregnancy diagnosis is used to identify cows that would have been open in a defined breeding season, then staging pregnancies is much more precise for pregnancies less than 120 days. Another approach to reducing a long calving season is to reduce the length of bull exposure by about 1 week per year.

Several methods could be used to induce late calving cows to cycle if they are at least 30 days since calving and are on an increasing plane of nutrition. Success of any of these methods will increase with cow body condition and days since calving. Methods used to synchronize estrus that include progesterone such as the CIDR (Controlled Internal Drug Release; intravaginal insert containing progesterone) can be used on late calving cows to induce them to cycle. Insert the CIDR for 7 days, remove and place cows with bulls. Calf removal for 48 hours could be used alone or combined with the CIDR. Start calf removal at the end of CIDR treatment. Bull exposure will also shorten the postpartum interval to estrus but the response is better when cows are at least 40 days postpartum when first exposed to bulls. Generally, bull exposure has no effect on estrous cyclicity when cows have been exposed continuously to bulls since calving.

Managing cows to maintain adequate body condition is much easier when the range of nutrient requirements of the cows is narrower. A long calving season not only becomes tiresome because of the extra attention required at calving, but ends up using more feed resources (or multiple management groups) and reduces calf weaning weights. Late calving cows become like a slow leak, they don't necessarily cause you to go under but they can be a drain on profitability.

1999 ARCH Calving distribution and weaning weights

Period	% calved	Wn Wt
1st 21 days	23	584
2nd 21 d	55	541
3rd 21 days	20	516
4th 21 days	2	451
Avg		544