K-State Kansas State University Research and Extension

Beef Tips

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

Upcoming Events

K-State Cattle Feeders College
May 12, 2010
Cimarron, KS
620-855-3821
May 13, 2010
Scott City, KS
620-275-9164
www.KSUBeef.com

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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Salt-limited supplements for pasture cattle require frequent adjustment

Dale Blasi, Extension Beef Specialist

Aside from ingredient costs, effective summer supplementation programs that meet desired expectations require a significant investment in labor and equipment, especially if hand-feeding on a daily basis. In contrast, a well-managed free-choice supplementation program that limits supplement intake to a desired level of consumption can be an effective labor-minimizing management tool for improving performance, familiarizing cattle with bunk feeding and, if necessary, a vehicle for dispensing antibiotics.

For years, producers have used salt to regulate consumption of highly palatable feeds such as grain and high-protein oilseed meals. The fact that there are practical limits to the amount of salt that cattle can consume coupled with its low cost and availability has resulted in widespread use of salt as a supplement intake regulator. Research studies over the past 40 years have demonstrated the efficacy of using salt to control intake and support performance that is equal to hand-feeding.

Use of a self-feeding supplementation program does not mean put it out and forget it; effort is needed to ensure its success. For example, one can expect to modify the salt content in a self-feeding supplement an average of five times over the course of a grazing season to make sure supplement consumption is consistent with intended intake levels. While salt is often used to regulate intake, there are several proprietary limiters used in quality self-feeding commercial supplements.

When using salt to regulate intake for cattle, there are several important considerations to keep in mind. First, the proportion of salt in the self-fed mixture may vary anywhere from 5 to 45 percent. To determine the amount of salt needed in a supplement, you need to know the desired level of supplement intake and weight of cattle being supplemented.

If increased performance or pink eye or foot rot control is desired for 5 to 6 cwt calves during the early portion of the grazing season when grass quality is still high, three to four pounds daily consumption of a supplement containing 15 to 20 percent crude protein may be warranted. Conversely, when grass quality begins to decline, two pounds per head per day intake of a supplement containing 30 to 35 percent crude protein would be a logical intake level to target. The amount of salt to include in the mixture depends upon the intake of the supplement desired. Salt used in self-feeding supplements should be plain white salt.

To increase supplement intake, decrease salt content; to decrease intake, increase the salt. Table 1 (page 4) estimates the range in salt intake for calves of various weights after a 2-3 week adjustment phase when cattle are adapting to the salt and nutrient content of forage. For example, assume it is desired to self-feed a protein supplement (soybean meal, cottonseed meal, etc.) with a desired daily intake level of 2 lbs/head/day to a group of 500-pound steers. Table 1 indicates that the daily salt consumption of 500-pound cattle averages 0.6 pounds when salt is used

*continued...see **Salt-limited** on page 4*

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

Tally Time – Below target body condition at calving

Sandy Johnson, livestock specialist

The body condition of cows after calving can sometimes be surprising. The 150 pounds or so of calf and fluids are gone and it becomes much easier to see the amount of condition, or lack there of, along the back of the cow and over the hooks. Long winter hair coats can also compound the problem of accurate body condition evaluation. What are the options when body condition at calving is below target?

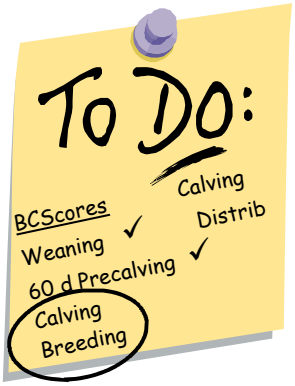
If these cows go to grass and there is a sufficient quantity of forage available, they may gain over a pound a day depending on milk production potential. Under conditions of slow forage growth and/or high forage moisture content, energy intake will be much lower. Using the BRANDS ration formulation program with cool season pasture as the forage, cow weight gain approaches zero when forage intake is 80 percent of predicted. So very early in the season cows may be just maintaining weight rather than gaining. Continuing to provide hay early in the grazing season can help, although palatability differences between the hay and new grass often makes the effort seem wasted.

Cows must be in a positive energy balance or gaining some weight before they will begin cycling again after calving. If winter feed quality has not produced the desired body condition in cows then an additional week to ten days on grass before bulls are turned out may provide a big benefit to cow reproduction. More cows will begin cycling in that time period and stand a better chance of conceiving the first 21 days of the breeding season. While calving will start a few days later the following year, normal variation in actual gestation length will lessen the effect. In addition, if bulls have been selected for low birth weight, gestation length tends to be shorter as well.

Many systems for synchronization of estrus incorporate some type of progesterone (CIDR, MGA) exposure to induce females that are not yet cycling to cycle. While this type of treatment will not work on cows that are still too deep in anestrous, i.e. too thin or too close to calving, it will induce those that are close to resumption of normal cycles. Bull exposure and 48 hour calf removal are other management options that will induce non-cycling cows to cycle. Natural service sires at normal cow to bull ratios should have no trouble covering cows with these types of induction treatments alone.

Don't forget the importance of having bulls in good body condition before the start of the breeding season as well. They will expend a lot of energy as soon as the breeding season starts and need the condition to do so. Good risk management for bulls includes a breeding soundness exam before turnout.

When over half of the herd has a body condition score less than 5, delaying the start of the next breeding season has the potential to keep the herd calving in a tighter group. Leaving bulls out longer may result in the same number becoming pregnant but calving will last much longer. Have you ever heard anyone say the calving season was over too soon?



Effect of low body condition at AI on pregnancy rate to AI in KSU herds.

Three university herds were used in a synchronization trial in 2002 and the herds varied in body condition at the start of the synchronization protocol. The table below shows the CCU herd with an average body condition score of 4.8 at breeding and only 45 percent were considered to be cycling at the start of treatments. The other two herds had body condition scores just over 5 and close to 80 percent cycling. The AI pregnancy rates directly reflected the cow body condition score and was lowest for the CCU herd.

Herd	Body Condition Score at AI	Cycling, %	AI preg. rate
ARCH	5.2	84	56
CCU	4.8	45	33
PBU	5.2	79	52

Clean winter feeding sites by end of May for most impact

Joel DeRouchey, environmental management specialist

Many cow-calf producers use temporary feeding sites over the winter and early spring months to provide supplemental forage and protection from cold weather. While these sites are commonly used by producers effectively, an increased amount of manure accumulates in these sites that should be removed once cattle are taken to summer pasture. There are several reasons for cleaning including improved feeding site conditions for next yearôs use, reduced impact of nutrient and fecal bacteria runoff to surface water, and reduction of stable fly production. However, to have the largest impact on all of these, these sites need to be scraped and manure applied to fields by the end of May.

Producers need to recognize that in areas of winter feeding substantial levels of fecal bacteria and nutrients have accumulated. In fact, there are approximately 4.5 million fecal coliform bacteria per pound of material at a typical winter feeding site. If we assume 50 square feet for a single hay feeder and a total of 10 tons of wasted hay and manure mixture from this site, this equals approximately 90 billion fecal bacteria. Fecal bacteria present on these sites can survive in the manure and wasted feed material, especially surrounding round bale feeders, for numerous months. Thus, if these sites are not cleaned, cattle placed in these sites later in the year will be exposed to bacteria which have the potential to cause disease or health challenges.

From an environmental standpoint, research clearly shows increased fecal bacteria levels in surface water in Kansas during the spring and early summer months. One contributing factor to this is the runoff of fecal bacteria from the multitude of winter feeding sites, which are generally located in lower, sheltered areas that also have drainage to a small creek nearby. Since intense rainfalls begin to occur in April, runoff from these sites will occur if the manure is not properly cleaned and removed from the site.

Beyond the general sanitation and environmental impact from uncleaned feeding sites, is the abundant production of stable flies that occurs at these locations. These sites serve as an ideal breeding ground for stable flies due to the combination of food and moisture provided by the manure and wasted forage covering the soil. Entomologists at Kansas State University that have trapped flies emerging from winter feeding sites estimate more than 1 million stable flies can emerge from a single hay ring feeding site. That is right, 1 million flies per ring feeder when the wasted forage and manure is left in place and not cleaned and removed. The economic threshold for a reduction in weight gain for cattle is five stable flies per leg. Obviously, if winter feedings sites are not properly managed and cleaned in the spring, flies may be a nuisance for the summer grazing period resulting in reduced profitability.

Management recommendations:

1) Prevent large accumulations of forage residue, manure and moisture at the feeding site by one or more of the following:

- Periodic movement of feeder location.
- Roll hay out in different locations throughout the pasture.
- Avoid rolling out poor quality or rotted hay that will not be eaten.
- Grind hay to help prevent sorting by the animal, which decreases waste.
- Avoid overfeeding, regardless of feeding method, to prevent trampling of hay which becomes stable fly habitat once mixed with manure.
- Select feeding locations with adequate drainage to prevent moisture accumulation surrounding the feeder. However, runoff from these sites should not enter open surface water.
- Place temporary feeding sites at least 100 ft away from surface water. In most situations, this allows a vegetative buffer to be maintained between the feeding location and the water source. Vegetative buffers are extremely effective in reducing the nutrient and bacteria levels in runoff before entering surface water.
- Evaluate traditional feeding site location and determine how to reduce negative environmental impacts.

2) Clean and dispose of feeding site waste by the end of May or sooner.

continued...see ***Feeding Sites*** *on page 5*

“more than 1 million stable flies can emerge from a single hay ring feeding site”

“The economic threshold for a reduction in weight gain for cattle is five stable flies per leg.”

Salt-limited *…. continued from page 1*

to limit supplement intake. In the left hand column of Table 2 (page 5), locate 0.6 pounds daily salt intake and look across the row labeled "Non-salt Feed" for a value nearest 2 pounds. In this example, a self-feeding supplement composed of 25 percent salt/75 percent protein supplement would, on the average, regulate total intake to 1.8 pounds protein supplement and 0.6 pounds salt (2.4 pounds total supplement intake).

Table 1. Estimated Range of Salt Intake of Cattle Fed Salt-Limited Supplements

Body Weight, lbs.	Salt Consumption, lbs/day		
	Low	Avg.	High
300	0.3	0.5	0.6
500	0.5	0.6	0.7
700	0.6	0.7	0.9
900	0.7	0.9	1.1
1100	0.8	1.1	1.3
1300	0.9	1.3	1.5
1500	1.0	1.5	1.6

"one can expect to modify the salt content in a self-feeding supplement an average of five times over the course of a grazing season ….."

Factors other than desired intake and cattle weight can also affect the concentration of salt required. Age can affect salt intake because older animals require more salt to obtain the same level of restriction compared with equal weight younger animals. As quality and quantity of the standing grass declines, more salt will be required. As animals become accustomed to the supplement, it may be necessary to increase the proportion of salt. Level of forage intake, palatability of supplement ingredients and salt content of the water would be additional factors that may require adjustments in salt levels.

When cattle are accustomed to eating supplements but are not familiar with self-fed supplements, overeating can be prevented by starting with a higher salt level than intended for a period of 7 to 10 days. For younger cattle not acquainted with concentrates, it is particularly important to ensure that over-eating does not occur. For this reason it is advised to initially hand-feed the supplement with no salt for a couple of days to confirm that all calves are familiar with the supplement. The next step would be hand-feeding the supplement with salt included for a couple of days before a total transition to full feeding. Never introduce self-feeding supplements in situations where animals are hungry.

Free-choice supplements containing salt are most effective when presented to cattle in a meal package. To prevent separation from occurring, the particle sizes of the basal supplement and salt should be similar. Coarsely ground salt is more effective than finely ground salt. If grain is included, it should be cracked or coarsely ground as well. While pelleting helps minimize separation, it is not recommended because of added cost. Minerals typically provided for calves on grass can be included in the total supplement as well.

For daily supplement intake of 1 pound or more, ionophores such as Rumensin or Bovatec can be included at approved levels for increased rate of weight gain. Producers can expect a 25 to 40 percent decline in the level of salt needed to limit intake when Rumensin is included. Furthermore, addition of Rumensin to self-feeding supplements will also reduce the number of adjustments in salt concentration required to maintain the desired intake.

To prevent potential toxicities resulting from excessive salt intake, a clean, plentiful **and dependable** water supply is a necessity. Water requirements can easily increase 50 to 100 percent when using this system. Producers using a salt-limited supplement are encouraged to submit a representative water sample to a commercial laboratory to determine the total dissolved solids (TDS) content. Caution is necessary in using salt-limited supplements when water contains above 5,000 ppm TDS.

Self-feeders should be portable and able to protect the mixture from wind and rain. As a rule of thumb, approximately 20 percent of the animals in a pasture should be able to eat from a feeder at any one time. Strategic placement of the portable self feeders will facilitate and direct grazing distribution towards areas of the pasture that have had low grazing pressure. Avoid placement of the feeders adjacent to water sources as grazing distribution will be limited.

*continued...see **Salt-limited** on page 5*

*Salt -limited*é . *continued from page 4*

In order to properly monitor supplement consumption, it is important to know the initial volume and weight of the salt mixture placed in the feeder. By knowing this information beforehand, and marking the level of feed in the feeder every few days, one can approximate the amount being consumed per head per day.

With careful monitoring, salt can be effectively used to limit intake on self-fed pasture supplements.

Table 2. Estimated Salt Level to Include in Mixture for Desired Intake of Non-Salt Feed

Salt Intake, lb/day		Percent Salt in Supplement												
		6	8	10	12	14	16	18	20	25	30	35	40	50
0.3	Total Feed	5.0	3.7	3.0	2.5	2.1	1.9	1.7	1.5	1.2	1.0	0.9	0.7	0.6
	Non-salt Feed	4.7	3.4	2.7	2.2	1.8	1.6	1.4	1.2	0.9	0.7	0.6	0.4	0.3
0.4	Total Feed	6.7	5.0	4.0	3.3	2.9	2.5	2.2	2.0	1.6	1.3	1.1	1.0	0.8
	Non-salt Feed	6.3	4.6	3.6	2.9	2.5	2.1	1.8	1.6	1.2	0.9	0.7	0.6	0.4
0.5	Total Feed	8.3	6.2	5.0	4.2	3.6	3.1	2.8	2.5	2.0	1.7	1.4	1.2	1.0
	Non-salt Feed	7.8	5.7	4.5	3.7	3.1	2.6	2.3	2.0	1.5	1.2	0.9	0.7	0.5
0.6	Total Feed	10.0	7.5	6.0	5.0	4.3	3.8	3.3	3.0	**2.4**	2.0	1.7	1.5	1.2
	Non-salt Feed	9.4	6.9	5.4	4.4	3.7	3.2	2.7	2.4	**1.8**	1.4	1.1	0.9	0.6
0.7	Total Feed	11.7	8.7	7.0	5.8	5.0	4.4	3.9	3.5	2.8	2.3	2.0	1.7	1.4
	Non-salt Feed	11.0	8.0	6.3	5.1	4.3	3.7	3.2	2.8	2.1	1.6	1.3	1.1	0.7
0.8	Total Feed	13.3	10.0	8.0	6.7	5.7	5.0	4.4	4.0	3.2	2.7	2.3	2.0	1.6
	Non-salt Feed	12.5	9.2	7.2	5.9	4.9	4.2	3.6	3.2	2.4	1.9	1.5	1.2	0.8
0.9	Total Feed	15.0	11.2	9.0	7.5	6.4	5.6	5.0	4.5	3.6	3.0	2.6	2.2	1.8
	Non-salt Feed	14.1	10.3	8.1	6.6	5.5	4.7	4.1	3.6	2.7	2.1	1.7	1.3	0.9

Feeding Sites….. *continued from page 3*

Feeding site material disposal:

- **Spread**. By cleaning and spreading the material over a larger land area, the material will dry and be exposed to sunlight, thus killing the fecal bacteria This is the ideal method of disposal if a manure spreader is available.

- **Pile and compost**. Since ideal composting involves the combination of nitrogen (manure) and carbon (wasted hay) sources, feeding site waste provides an ideal material to compost if scraped and piled together. Composting generates heat and kills fecal bacteria and prevents their use as a larvae food source. This may be a practical alternative to complete removal of material. The pile must be turned after a couple weeks of initial composting to incorporate the outside material.

- **Burn**. If the majority of the residue is from wasted hay, producers may be able to dispose of the material by burning. However, moisture content of the residue may limit the effectiveness of this option in certain years.

"Top Hand" Cattle Feeding Industry Employee Awards

Help us tell the story of the individuals who make Kansas the best place to feed cattle in the nation.

Do you have members of your organization in the cattle, milling, or maintenance department that are ñTop Handsò and symbolize the values of hard work, honesty, reliability, integrity, and animal stewardship that the Kansas Cattle Feeding Industry was built on? If so, tell us what makes these individuals stand out from the herd in 100 words or less.

Top Hands will be recognized in both the cattle and milling/maintenance divisions. A representative of the nominating feed yard and the award recipient must be present to accept awards.

Nominations are due May 7th, 2010. Submit nominations via email to: jwaggon@ksu.edu or by mail to: Dr. Justin Waggoner, K-State Research and Extension Beef Systems Specialist
4500 E Mary St., Garden City, KS 67846.

Award Nominations and Meeting RSVPs are requested by May 7th.

K-State Cattle Feeders College

May 12th, Cimarron, Gray County Fair Grounds
May 13th, Scott City, Scott County Fair Grounds

Schedule for Both Locations

5:00 P.M.	Registration
5:30	Dinner
6:00	Dr. Bill Meis, Professor Emeritus Texas A & M University will present a brief historical perspective followed by his thoughts on where the cattle feeding industry will be in 2020
7:00	Presentation of ñTop Handò Awards (Feedyard representative and award recipient must be present)
7:15-9:00	Break-Out Sessions (as follows)

Managers and Human Resources Session

- Marketing strategies to discover new customers in a tough environment-*Dr. David Lehman, M.B.A., K-State College of Business Administration*
- Recruitment and retention of employees-*Dr. Chris Reinhardt, K-State Extension Feedlot Specialist*

Cattle Crew Session (will be translated into Spanish)

- Pen riding and handling high risk calvesï *Dr. Dan Thomson, K-State College of Veterinary Medicine*
- Becoming a better horseman (Live Demo)-*Mr. Scott Daily, Daily Horse Training, Ark City, KS*

Mill and Maintenance Crew Session (will be translated into Spanish)

- Mill maintenance and efficiency-*Dr. Leland McKinney, K-State Grain Science Milling Department*
- Practical welding tips and safety-*Mr. Thomas Brungardt, Garden City Community College Welding Instructor*

To register please contact one of the following by May 7th. No cost to attend, but registration is required.

May 12	May 13
Gray County Fair Grounds	Scott County Fair Grounds
17002 West Highway 50	600 E Fairgrounds Road
Cimarron Kansas	Scott City Kansas
Kurt Werth	John Beckman
620-855-3821	620-872-2930
kwerth@ksu.edu	jbeckman@ksu.edu