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UNIVERSITY OF KENTUCKY
College of Agriculture, Food and Environment

OFF THE HOOF

Kentucky Beef Newsletter – February 2016

Published Monthly by Dr. Les Anderson, Beef Extension Specialist, Department of Animal & Food Science, University of Kentucky

Contents

This month's newsletter includes:

Timely Tips

Dr. Roy Burris, Beef Extension Professor, University of Kentucky

Spring-calving Herd

- Overall condition of the cow herd should be evaluated. Cows losing weight now are more likely to have weak or dead calves. These cows will likely be a poor source of colostrum milk for the newborn calf. Feed cows, if necessary to keep them in good body condition.
- Replacement heifers should be gaining adequately to reach target breeding weights by May 1. Be sure that their feeding program is adequate for early breeding.
- Have calving equipment, supplies and labor ready for the spring calving season. Some supplies which may be needed are: eartags and applicator (put numbers on eartags now), tattoo pliers and ink, record book, scales for calf weights, iodine for calves' navels and colostrum supplement. Calving equipment (puller and chains, etc.) and facilities should be ready and clean.
- Heifers should begin head-start calving in early February. Move them to a clean, accessible pasture, away from cow herd and near facilities so that calving assistance can be given. Cows may start calving later this month. Signs of calving are relaxation of pelvic ligaments, enlargement and swelling of the vulva, and enlargement of the udder. Expect calving difficulty if (1) calf's head and two feet are not visible, (2) only the calf's tail is visible, and (3) the cow has been in labor for 1½ hours. Be sure calf is being presented normally before using calf puller. Recognize situations that are beyond your capability and seek professional help as early as possible. Calves that aren't breathing should receive assistance. Try sticking a straw in nostril to stimulate a reflex or try alternate pressure and release on rib cage. Commercial respirators are also available. Calves should consume colostrum within 30 minutes of birth to achieve good immunity.
- Sub-zero weather can mean death for newborn calves. During extremely cold spells, bring the cow(s) into a sheltered area as calving approaches to protect the calf. Be prepared to warm-up and feed newborn, chilled calves. Calving in mud can also cause problems.

- Record birthdate, cow I.D., and birthweight immediately (use your Beef IRM calendar). Identify calf with eartag and/or tattoo. Registered calves should be weighed in the first 24 hours. Male calves in commercial herds should be castrated and implanted as soon as possible.
- Separate cows that calve away from dry cows and increase their feed. Increase feed after calving to 25-27 pounds of high quality hay. Concentrate (3-4 lb. for mature cows and about 8 lb. for first-calf heifers) may be needed if you are feeding lower quality hay. Supplementation may have a beneficial effect on date and rate of conception. The most important time to feed a beef cow is after calving. Thin cows don't come into heat very soon after calving. We must have cows in good condition, if we plan to breed them early in the season for best pregnancy rates, especially on high-endophyte fescue pastures.
- Watch for scours in newborn calves. Consult your veterinarian for diagnosis, cause, and treatment. Avoid muddy feeding areas so that cows' udders won't become contaminated and spread scours. Don't confine cows to muddy lots.

Fall-calving Herd

- Breeding season should end this month. Remove bulls and confine them so that they regain condition.
- Consider creep feed or creep grazing (wheat, etc.) to supply extra nutrition to fall-born calves which may have to depend solely on their dam=s milk supply for growth. They are not getting much except their dam=s milk now (i.e. there is nothing to graze). February/March is the worst time of the year for fall-born calves.
- Provide windbreaks or clean shelter for calves.

General

- You should be feeding a mineral supplement with adequate magnesium to prevent grass tetany (~ 15% Mg) now. The Hi-mag UK Beef IRM mineral can be used now.
- Increase feed as temperature drops. When temperature falls below 15 degrees, cattle need access to windbreaks. For each 10 degree drop below 15 degrees, add three pounds of hay, two pounds of corn, or six pounds of silage to their rations.
- Provide water at all times. Watch for frozen pond hazards. If cattle are watering in a pond, be sure to keep ice “chopped” to keep cattle from walking on the ice and, possibly, breaking through.
- Start looking for herd sire replacements, if needed.
- Control lice. Watch for signs such as rubbing.
- Begin pasture renovation. You can overseed clover on frozen or snow-covered pastures.

Selenium in Beef Cattle Nutrition

Dr. Roy Burris, Beef Extension Professor, University of Kentucky

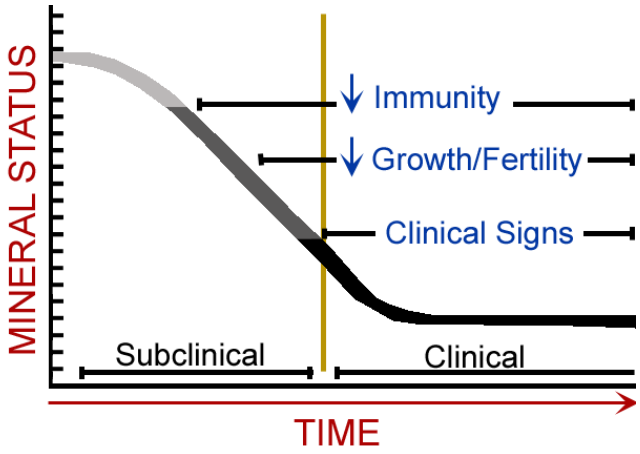
Selenium (Se) was discovered in 1818 but its role in animal nutrition wasn’t understood until the 1950’s when Se was identified as an essential nutrient. Selenium is thought of as a trace or micro mineral in beef cattle diets. Beef cattle only require 0.10 parts per million (ppm) of Se in the total diet (not the mineral supplement). Although plants in some parts of the country can contain toxic levels of Se, forages grown in many parts of the country do not contain adequate levels of Se for optimum animal performance.

What is Selenium?

Selenium is a trace element (mineral) which is incorporated into proteins to make selenoproteins, which are important antioxidant enzymes. One of the most important of these is an enzyme known as glutathione peroxidase. The antioxidant properties of Se-inclusive enzyme systems help prevent cellular damage from free radicals. Free radicals are natural by-products of oxygen metabolism and a functional immune system that may contribute to the development of health problems.

What are the deficiency symptoms?

The classic clinical deficiency of Se and Vitamin E is white muscle disease which is myodegeneration of the heart muscle. However, as all good managers know, there are a lot of "unseen" problems in a nutritional deficiency before cattle exhibit clinical signs – such as decreased immunity, growth and fertility.



As indicated in the chart, immunity, growth and reproduction can be impaired before clinical symptoms appear. For example, cattle that have a compromised immune system may not mount an immune response despite being vaccinated for various diseases. Do not wait until clinical signs appear to supply trace minerals to cattle diets.

Dietary sources of selenium

Plants (forage and grain crops) are the major dietary source of Se. The Se content of plants is influenced by the concentration and availability of Se in the soil. Feedstuffs grown in Se-deficient areas are poor sources of Se. Areas in the U.S. like the Northwest, Great Lakes Region, West Coast, Eastern Seaboard and the Southeast may have low Se soils where deficiencies can be a problem.

Beef cattle require 0.1 ppm (mg/kg) of Se in the diet to meet their daily requirements. Much of the forages and grain grown in certain areas of the U.S. are at levels which allow those areas to be classified as low (where 80% of all forage and grain contains less than 0.05 ppm of Se). The Southeast (like Kentucky) is classified as low to variable. However, beef cattle operations in this region seem to have a high percentage of Se-deficient (less than 0.08 ppm Se in whole blood) animals.

An important factor affecting Se content of forages is soil pH. In general, plants grown in acid soil will absorb less Se than plants grown in alkaline soils. Another factor is the concentration of sulfur (S) in the soil. Se and S are chemically similar and compete for absorption by the plant. Thus, high levels of S in the soil may lower the Se content of the forage. Sulfate fertilizers can decrease the Se content of plants, which may not hurt the plants but can have a detrimental effect on cattle that graze them.

How do we overcome low dietary levels of Se?

Cattle require 0.1 ppm Se in their diet to meet their daily requirement, so supplemental Se is needed for diets grown on low-Se soils. Supplemental Se is generally supplied to cattle in a free-choice salt/mineral supplement. The FDA allows for up to 120 ppm Se, regardless of source, to be added to the mineral supplement for free-choice feeding to provide a maximum of 3 mg per head daily. Feedtags on mineral supplements will generally indicate the expected level of consumption and Se is added to provide 3 mg at that level of intake. For example, at an indicated level of intake of 3 oz per head per day, the mineral supplement may contain 35 ppm Se. At 4 oz intake the Se level would be reduced to 26 ppm to stay for the 3 mg per head daily level.

What about the form of Se?

Se is usually added to the feed in inorganic forms as sodium selenite or selenate. Se is usually found in plants combined with amino acids – selenomethionine and selenocysteine so it is logical to wonder if these "organic" forms of Se might not be more available to the animal than the "inorganic" (like sodium selenite) form. Recently, Se enriched yeast, in which selenomethionine is the predominant form of Se, has become available and has been approved for use by the FDA. Sodium selenite is used primarily because it is less expensive. Organic forms of Se need to be more available and/or effective in order to be an economic alternative to sodium selenite.

Are there any advantages for Organic Se?

Researchers at the Kentucky station conducted a trial with individually-fed beef heifers which received no Se, inorganic Se (sodium selenite) or organic Se (Sel-Plex®) at the 3 mg/hd/day rate. More Se was found in jugular whole blood, red blood cells and biopsied liver tissue of the heifers receiving either form of Se than in the unsupplemented heifers. However, organic Se animals had more Se in these tissues than calves which were receiving sodium selenite. Analyses of liver tissue gene expression revealed that the content of at least 80 mRNA was affected by the form of Se. Three Se supplement-dependent gene groups were identified: ISe-dependent, OSe-dependent and Se form-independent. Since the form of Se affects genetic expression differently, it made sense to look at a mixture of the two forms – with 50% of the 3 mg per day coming from each source. Also, all forms of Se were associated with unique liver gene expression profiles.

A long-term trial (224 days) was conducted with growing beef heifers to see what effect an equal blend of ISe:OSe would have on Se tissue concentrations. Calves received no Se, Inorganic Se, Organic Se or 1:1 Mixture of OSe and ISe. More Se was found in whole blood and liver of the calves receiving the mix or the organic Se than those receiving the inorganic Se – and all were greater than the controls.

Additional trials have been conducted including a three year study with cows on pasture with free individual access to one of the following treatments containing 35 ppm of Se – inorganic (sodium Selenite), organic (Sel-Plex®) or a 1:1 mixture of the two. Cow Se treatment differentially affected both

cow and suckling calf Se blood concentrations resulting in adequate concentrations for all cows but inadequate concentrations for the calves of cows which received the inorganic Se (sodium selenite).

So what is your recommendation to low Se levels?

First – keep a good mineral mix available to all cattle – at all times. In Se-deficient areas, I recommend that we feed Se at the 3 mg level (max. allowed by FDA). Based on our research, I would prefer that Se be 50 percent sodium selenite and 50 percent organically-derived (e.g., Sel-Plex®). So – if your cows consume 3 to 4 ounces of a good mineral supplement daily – it should contain 26 to 35 ppm Se with half from organic and half from inorganic forms of Se since both forms elicit different responses in growth and immunity. The UK Beef IRM mineral is formulated to contain this amount and this ratio of the two forms. This will be a little higher priced but based on the latest research, should be more effective.

Intensive research has been conducted at the University of Kentucky both in confinement and on pasture to study selenium supplementation to beef cattle diets.

Grass Tetany Questions Answered

What is "Grass Tetany" and when are cattle most likely to have it?

Michelle Arnold, DVM (UK Ruminant Veterinarian)

Grass tetany, also known as spring tetany, grass staggers, wheat pasture poisoning, winter tetany or lactation tetany, is due to a low level of magnesium (Mg) in the blood. The amount of magnesium in the blood is completely dependent on the amount obtained from the daily diet. Deficiencies occur most often in beef cows when they are nursing a calf and grazing young, green grass in early spring. Fast-growing spring pastures are high in potassium (K^+) and nitrogen (N^+) and low in magnesium (Mg^{++}) and sodium (Na^+). Affected cattle often have low blood calcium concurrently. Fall calving cows may also experience grass tetany during the winter months.

Will Feeding Plain White Salt to Cows Prevent Grass Tetany?

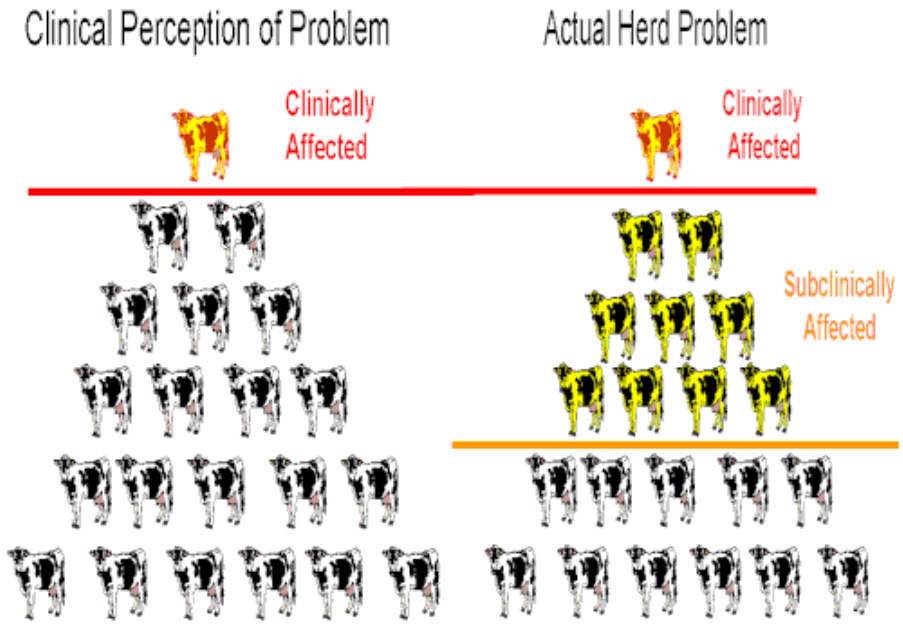
This claim is shared every spring and, indeed, there are producers who do not have grass tetany that only feed salt. How can that be? Simply put, for those few lucky producers, the minerals available in their soils and forages are enough to meet the needs of their cows. A number of complex factors contribute to the ability of magnesium to be absorbed through the rumen (stomach) wall. Primarily there is a "pump" mechanism that actively transports the dissolved form of Mg across the rumen wall to the bloodstream. This pump doesn't work when potassium in the rumen is high and sodium is low because this changes the

electrical potential necessary to drive it. Adding salt to the ration will improve Mg transport only when sodium is low in the overall diet. Too much salt will increase urination and cause magnesium to be lost in urine. Salt, as with any substance, can be dangerous and even fatal at high levels.

Research has shown that the negative effects of high potassium in early spring grass cannot be overcome by the addition of large quantities of salt. However, high magnesium mineral mixes prevent grass tetany by allowing magnesium to passively flow into the bloodstream of the cow without the need for the active transport pump.

Has Limited Amounts of Salt in Mineral Mixes led to an Overconsumption of Minerals?
Regional soil types, soil fertility and different forage species result in different mineral intakes for grazing livestock on every farm. A blanket statement disregarding these factors is oversimplifying a very complex situation. Trace minerals such as copper, selenium, and zinc are all essential nutrients vital for proper growth, production, and immune system function. Trace mineral deficiencies are extremely common in Kentucky and can predispose animals to serious and sometimes fatal disease conditions. Interactions occur between all of the various metals, minerals, and other elements in the diet, and optimal amounts of all elements are essential for proper nutrition. Trace mineral mixes are formulated to meet the needs of cattle, including the need for salt. The keys to using a free-choice product are to ensure cattle have access to mineral 100% of the time, use a palatable product and make sure they are consuming it at the expected level. Remember a 50 pound bag of hi-mag mineral to be fed at 3 ounces per head per day will only last 5 days in a 50 cow herd. If the cows have calves that eat mineral too, a bag may only last 3 days.

Does Grass Tetany Only Occur in the Spring?
"Winter tetany" in beef cattle is caused by a diet low in energy and an insufficient intake of magnesium. It may also be observed when feeding wheat or rye silage during the winter since these are often high in potassium and nitrogen but low in magnesium. Affected cattle are borderline low in blood magnesium concentration then clinical signs of grass tetany are triggered by a stressor such as a severe cold snap.



Hypomagnesemia is often referred to as an "iceberg" disease because only a few clinical cases occur but there are many unobserved or subclinical cases that may become problems after a stressful event such as a weather change.

How Can Grass Tetany Be Prevented?
Prevention is based on providing soluble magnesium in the rumen during times when conditions are right for grass tetany. As long as the active transport pump for magnesium is working well and driving magnesium across the rumen wall, problems should not develop. However, when factors prevent this pump from working (such as high potassium level in lush spring grass), the second or "backup" pathway is to increase the amount of magnesium in the diet with a high magnesium mineral mix. A high rumen magnesium level will allow magnesium to passively flow into the bloodstream of the cow without the need for the active transport pump. **Supplementation with high magnesium mineral should begin at least 30 days prior to calving.** Cows require 20 grams of magnesium daily or 4 ounces per day of a 15% magnesium mineral mix during the late winter and early spring. Mineral feeders should not be allowed to be empty because consistent intake is important for clinical disease prevention. UK Beef IRM mineral recommendations for free choice supplements for grazing beef cattle include 15% salt and 14% magnesium in the complete mineral mix and all magnesium from magnesium oxide (no dolomitic limestone or magnesium mica). These complete mineral mixtures supply the necessary sodium in the form of salt to aid in combatting high potassium intakes. Consumption should be monitored because they seldom eat enough trace mineral if using poor quality products. Feeding ionophores (monensin, lasalocid) has been shown to improve magnesium absorption efficiency. High magnesium mineral may be discontinued in late spring once the grass is more mature, the water content of the forage is decreased, and daily temperatures reach at or above 60°F.

In addition to supplying supplemental magnesium, several management factors should decrease the risk of grass tetany. These include: 1) Soil test and apply fertilizer based on soil test results and use no more potassium than recommended since grasses are luxury consumers of potassium; 2) Legumes are high in magnesium and will help offset the problem although their growth is often limited in late winter; 3) Feed small amounts of hay and/or grain to cattle on lush pasture during susceptible periods or limit grazing to 2-3 hours per day; 4) Graze the less susceptible or non-lactating animals (heifers, dry cows, stocker cattle) on the higher risk pastures.

In summary, increasing magnesium intake by supplementing with magnesium oxide, offering adequate salt to prevent sodium deficiency, and increasing total energy intake with good quality forage or supplemental feed are all effective tools in preventing grass tetany. These are exceptionally important when moving from winter rations to young spring grass pasture, especially in heavily milking cows. Grass tetany is considered a true veterinary emergency requiring prompt treatment with magnesium to prevent death.

Start Planning Now for A Successful Breeding Season

Dr. Les Anderson, Extension Professor, University of Kentucky

A successful breeding season actually begins with management decisions made at calving. Cattlemen can impact rebreeding efficiency by focusing on body condition score (BCS), early assistance during calving difficulty, scheduling a breeding soundness exam for the herd sires, planning their herd reproductive health program, and developing a plan to regulate estrus in their first-calf heifers and late-calving cows.

Reproductive management begins with evaluation and management of BCS. Body condition score is a numerical estimation of the amount of fat on the cow's body. Body condition score ranges from 1-9; 1 is emaciated while 9 is extremely obese. A change in a single BCS (i.e. 4-5) is usually associated with about

a 75 pound change in body weight. Evaluation of BCS prior to calving and from calving to breeding is important to ensure reproductive success.

Rebreeding performance of cows is greatly influenced by BCS at calving. Cows that are thin (BCS < 5) at calving take longer to resume estrous cycles and therefore are delayed in their ability to rebreed. Research has clearly demonstrated that as precalving BCS decreases, the number of days from one calving to the next (calving interval) increases in beef cows. Females with a precalving BCS of less than 5 tend to have production cycles greater than 1 year. For example, cows with a precalving BCS of 3 would be expected to have a calving interval of approximately 400 days, while a cow with a precalving BCS of 6 would have a calving interval of approximately 360 days. South Dakota research illustrates the influence of precalving BCS on the percentage of cows that initiated estrous cycles after calving. This experiment demonstrated that the percentage of thin cows that were cycling in the first month of the breeding season (June) was considerably lower than for cows that were in more moderate body condition. During the second month of the breeding season, 55% of the cows with a BCS of 4 had still not initiated estrous cycles, while more than 90% of the cows in more moderate condition had begun to cycle. Thin cows need a longer breeding season, which results in more open cows in the fall. They may also result in lighter calves to sell the next year because the calves from these thin cows will be born later in the calving season.

Management of BCS after calving also impacts rebreeding efficiency. Maintenance requirements for energy and protein increase 25-30% for most beef cows after calving. Ranchers need to plan their supplementation to match or exceed this increased nutrient requirement. Rebreeding efficiency is enhanced in cows that calved thin if their energy intake is increased. Although the best management plan is to calve cows in a BCS of 5+, increasing the energy to cows that are thin at calving can boost reproductive performance.

Dystocia (calving problems) can severely delay the onset of estrus after calving. Research shows that for every hour a female is in stage 2 active labor there is a 4 day delay in the resumption of estrous cycles after calving. Early intervention helps; 16% more cows conceived when cows were assisted within 90 minutes of the start of calving. The best method is to reduce the incidence of dystocia via selection but early calving assistance will increase the opportunity of cows to rebreed.

One often overlooked management tool that can improve reproductive performance is breeding soundness exams in bulls. Ranchers need to think of breeding soundness exams as breeding season insurance. These exams are a low-cost method of insuring that your bull is not infertile. Bulls should be examined for breeding soundness about 30 days before they are turned out.

I have worked in reproductive management for nearly 20 years and it amazes me how many cattlemen still do not vaccinate their cow herd against reproductive diseases. Several diseases are associated with reproductive loss (lepto, BVD, vibrio, trich, etc). The main problem is that most reproductive loss due to disease is subtle and ranchers don't notice the loss unless they have a massive failure. Most cattlemen are not aware of their losses due to abortion. Ranchers need to work with their local veterinarian to develop an annual vaccination plan to enhance reproductive success.

Lastly, ranchers need to develop a plan to enhance the rebreeding potential of their first-calf heifers and late-calving cows. Young cows and late-calving cows have one characteristic in common that will greatly impact their reproductive success; anestrus. After each calving, cows undergo a period of time when they do not come into estrus. This anestrus period can be as short as 17 days but can also last as long as 150

days depending upon a number of factors. Typically, mature cows in good BCS will be anestrus for 45-90 days (avg about 60 days) while first-calf heifers will be in anestrus for 75-120 days. Research has shown that only 64% of mature cows have initiated estrous cycles about 70 day after calving while on 50% of first calf heifers have initiated estrous cycles at nearly 90 day after calving. Let's consider the impact of anestrus and calving date for a herd that calves from March 1 until May 10. Bull turnout is May 20 and the length of anestrus for mature cows is 60 days and for young cows is 90 days. A mature cow that calves on March 1 will begin to cycle on May 1 and is highly likely to conceive early. However, the mature cow that calves on April 20 won't cycle until June 20 and her opportunity to conceive early is very limited. A first-calf heifer that calves on April 20 won't begin to cycle until July 20 and will have limited opportunities to conceive. Cattlemen can reduce the anestrous period by fenceline exposure to a mature bull (Zalesky et al., 1984) or by treating the cows with progesterone for 7 days prior to bull exposure (Lucy et al., 2001). Sources of progesterone include the feed additive melengestrol acetate (MGA) or an EAZI-Breed CIDR® insert (Zoetis Animal Health). Both sources have been shown to induce estrus in anestrous cows and exposure of anestrous cows to progesterone for 7 days before bull exposure will not reduce fertility. Pregnancy rates will actually be increased in these females because inducing estrus will increase the number of opportunities these cows have to conceive in the breeding season.

Managing for reproductive success actually begins at calving. Cows need to calve with a minimum BCS of 5 and with little assistance. Effective planning for reproductive health and management plan for limiting the impact of anestrus will ensure that cattlemen are satisfied at the end of the breeding season.

Advanced Kentucky Grazing School to be held in April

Austin Sexten, Master Grazing Coordinator, University of Kentucky

The Master Grazer program will be hosting the Advanced Kentucky Grazing School at the UK C. Oran Little Research Unit in Versailles, KY on April 12, 2016. The program will be held in the pastures of the Beef Research Unit.

The advanced grazing school is designed to provide participants in-field learning opportunities and see forage management and grazing systems first hand. Topics that will be covered include: establishing new alfalfa stands, using alfalfa in a grazing system, and spring grazing of winter annuals.

Registration will begin at 5:00 p.m. EDT and the Grazing program will be over at 8:00 p.m. There is no registration fee for this program and dinner and refreshments will be provided. For more information please contact Master Grazer Coordinator Austin Sexten at (859) 257-7512 or austin.sexten@uky.edu.

2016 Kentucky Grazing School

Austin Sexten, Master Grazing Coordinator, University of Kentucky

This year the spring grazing school will be held on May 17-18, 2016 at Woodford County Extension office and the Oran C. Little Research Center in Versailles, KY. This two-day program will include hands-on exercises, such as building temporary paddocks and watering systems, assessing pasture production, and designing your own grazing systems. Classroom sessions include a variety of topics regarding forages, animal management, and grazing systems. Emphasis will be on spring and summer grazing management for ruminant species.

Anyone interested in this program may apply, but a limited number of applicants will be accepted, so

apply early. Past participants have included new farmers to experienced grazers and all have gained new information and practical skills to implement on their operations. All grazing school participants have indicated that attending this program motivated them to make changes to their grazing systems to improve their operations and increase production.

Pre-registration for the grazing school as enrollment is limited to the first 45 who register. The $50.00 registration fee includes all materials, grazing manuals, breaks, and lunch both days. To register, contact Austin Sexten, Master Grazer Coordinator, at (859) 257-7512 or austin.sexten@uky.edu. A program and additional information can be found at the following link:

Swift Expansion of the Beef Herd Continues

Dr. Kenny Burdine, Livestock Marketing Specialist, University of Kentucky

As always, USDA's January 1 cattle inventory estimates provided much data for discussion. Continued good weather and historically strong calf prices for much of the year led to further herd expansion. The headliner was a 3.5% increase in the number of beef cows in the US, which exceeded most expectations. Part of the reason for the increase was a downward revision to the 2015 estimate by a little more than 1%, so the total number of cows is not that different from expectations. But, it does mean that the cow herd is growing at a very rapid pace and that we are likely to see over 3% more calves moving through markets during 2016.

Anytime we are in an expansion phase, heifer retention is also of particular interest. Heifers being held for beef replacements were up a little more than 3%, which suggests expansion should continue in 2016. It is also worth noting that a slightly larger share of those heifers are expected to calve in 2016, as compared to 2015. As we have discussed previously, reduced cow slaughter was the major driver during 2014 and 2015. While cow slaughter was extremely low during the last two years, it is likely to pick up in 2016. Once this happens, heifer development will be driving future changes in beef cow numbers and the pace of expansion will slow.

Turning our attention closer to home, Kentucky beef cow numbers were up 2.4%, but this was also after a downward reduction in the 2015 estimate. This puts Kentucky beef cow numbers at an estimated 1.021 million cows, which is not that different from the original 2015 estimate. Interestingly for KY, our beef heifer retention estimate was up by 20,000 head, which is about +14%. Another way to put the 20,000 heifer increase into perspective is by considering that this would represent 2% of Kentucky's beef cow herd. The sharp drop in prices from summer to winter may have been part of the reason for this increase. While there is no way to know how much this happened, I do know there were some stocker operators who chose to breed heifers, rather than sell them as feeder this fall.

The USDA report is summarized in the table on the next page and the full report can be accessed at: http://usda.mannlib.cornell.edu/usda/current/Catt/Catt-01-29-2016.pdf

USDA January 1, 2016 Cattle Inventory Report

	2015 (1,000 hd)	2016 (1,000 hd)	2016 as % of 2015
Total Cattle and Calves	89,143.0	91,988.0	103
Cows and Heifers That Have Calved	38,609.0	39,646.2	103
Beef Cows	29,302.1	30,330.8	104
Milk Cows	9,306.9	9,315.4	100
Heifers 500 Pounds and Over	19,261.2	19,822.3	103
For Beef Cow Replacement	6,086.4	6,285.2	103
For Milk Cow Replacement	4,710.4	4,824.0	102
Other Heifers	8,464.4	8,713.1	103
Steers 500 Pounds and Over	15,629.5	16,320.4	104
Bulls 500 Pounds and Over	2,109.4	2,142.4	102
Calves Under 500 Pounds	13,533.9	14,056.7	104
Cattle on Feed	13,025.0	13,177.0	101
	2014	**2015**	**2015 as % of 2014**
Calf Crop	33,552.0	34,301.7	102

Source: NASS, USDA