Dept. of Animal and Dairy Science | January 2015 | Vol. 02, Issue 01

Livestock News

Jacob R. Segers, Ph.D. – Editor

New Beginnings!

Spring is all about new beginnings. This year is no different; although, some of you who have been waiting for winter grazing may feel that those new beginnings may have taken a little longer to develop than in years past. In South Georgia, the buds have popped, the air is full of pollen, and pastures are green. We are optimistic that 2015 will be another great year for animal agriculture in Georgia. Cattle prices are healthy and feed prices have moderated. The reports from production sales and the livestock markets all seem positive, so barring unforeseen events, producers are hopefully poised for another profitable year. I owe most of you an apology for the delay in bringing this newsletter to you. The Tifton Bull Evaluation Program held its 56th Annual Bull Sale on March 4th. All of the consignors deserve congratulations on an outstanding offering. The sale averaged $4,290 on 105 lots, and the quality of these bulls was fantastic. As a result, I have fallen behind in getting our first newsletter out. Our first issue of 2015 includes a focus on fly control, as well as, advice from experts on grass tetany, mastitis, water quality and bull selection. I appreciate your patience, and will attempt to be timelier in the future. I hope your spring is a happy one, and look forward to working with you in the coming months.

As always, I am thankful to work with Georgia's agricultural industry, and wish you every success in all that you do. Warmest regards.

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Grass Tetany in Georgia Cattle

Submitted By Ray Hicks, Screven County CEC

Grass tetany, sometimes called grass staggers or hypomagnesaemia, can be a serious problem in Georgia with cattle grazing small grain or ryegrass pastures. The problem is usually confined to lactating cows. It is always associated with an imbalance in the mineral components of blood serum, especially reduced magnesium levels. In Georgia, grass tetany is more severe when cattle are grazing young forage, particularly the first flush of growth during December and January but can happen throughout the spring. Once the forage becomes more mature, the likelihood of problems is reduced. Grass tetany is apt to appear under conditions of nutritional stress. Placing cattle on winter pasture directly after being on frosted or other low quality pasture may cause such a nutritional stress.

The symptoms of hypomagnesaemia closely resemble those of milk fever or ketosis. These include nervousness, lack of coordination, muscular spasms, staggering and death. When the disease is suspected, a veterinarian should be called immediately to diagnose and to initiate treatment. However, in beef herds, the herdsman does not always have the opportunity to observe the signs of the disease and affected cattle may be found dead in the pasture.

Factors which have been associated with this disease include low levels of magnesium (Mg) and high protein and potassium levels in the forage. Use dolomitic limestone, which contains magnesium, to increase forage magnesium levels if the level of soil magnesium is low and a soil pH increase is needed. If no lime is needed on soils with a high pH level, magnesium oxide (MgO) can be included with fertilizer materials. Excess nitrogen in conjunction with high levels of potassium fertilization tends to reduce the magnesium level in most forage plants. Consequently, these fertilizer elements should not be applied in excess on temporary winter pastures. Follow recommendations based on soil test results.

Some preventative measures are as follows:

1. Feed mineral supplements that contain magnesium. Commercial mineral mixtures containing 10-15% magnesium are available for feeding during periods of increased grass tetany probability. Cattle need to consume 6-12 oz./head/day of this mineral.
2. In herds that have had previous grass tetany problems, increase the supplementation to ½ to 1 oz. of MgO per cow per day from 2 weeks before grazing winter pasture or the start of calving until winter pastures are more mature and the grass tetany risk is reduced. The MgO may be included in grain mixtures or magnesium fed in the mineral.
3. In herds where there are clinical cases of grass tetany, increase the Mg intake to 1-2 oz. per head daily and continue this

amount until the high risk pasture grazing period is past.

4. Feed high magnesium minerals in mineral feeders placed at convenient locations around the pasture. Move mineral feeders closer to watering and resting areas if mineral consumption is low.
5. Check the calcium (C) to phosphorus (P) ratio (2:1 is optimum), and energy intake (maintenance or above is desired) of the animal. Grass tetany may be less likely to occur when these factors are near optimum.
6. Remove animals from pasture or limit grazing during periods of rapid growth. Allow access to hay or dry pasture. Also, producers may want to limit grazing of the temporary winter pastures when moving cattle directly from poor quality frosted grass pastures. A rapid change in feed can cause digestive upsets and nutritional stress.
7. Fertilization suggestions: On soils that need liming, use dolomitic limestone. If lime is not needed, magnesium can be included in mixed fertilizers. Do not exceed the recommended level of applications for nitrogen and potassium on winter pastures for grazing.

The main thing is to look at your cattle. Just like your row crops daily observation is best. Check those mineral feeders, check consumption, check body condition of cattle, and evaluate your feeding program. Hopefully grass tetany will not be a problem but if it does happen you will be better prepared.

This article was first written by Y.C. Newman, assistant professor, Forage Extension Specialist, Agronomy Department; M.J. Hersom, assistant professor, Department of Animal Sciences, and W. E. Kunkle (deceased), professor, Animal Sciences Department, UF/IFAS Extension Gainesville, FL 32611. I have adapted it for Georgia.

Spring Fly Control

By: William Lovett, Bacon County ANR Agent

Even though it's only March it is not too early to plan our fly control strategy for the spring and summer. The first step in developing an integrated program to control flies is to understand which flies are pest of our animals. There are four major fly species that attack southeastern livestock. These can be divided into two groups based on where they tend to live and reproduce. They are the "Pasture" flies which include Face Flies and Horn Flies and the "Premise" Flies such as Stable Flies and House Flies.

The Premise Fly group is also known as the "filth fly." As this name suggests stable and house fly's both reproduce in decomposing organic matter, this includes; grass clippings, wet hay, spilled feed and manure. Even though they can be a major source of irritation to animals and humans, these insects tend to spend more time resting on building wall and ceilings. Sanitation plays a major role in premise fly control strategies. Insecticidal premise sprays can be applied to flat surfaces to supplement facility cleaning for premise fly control. Feed through insecticides do help control larval development in manure, but do not address other sources of organic matter, such as spilled feed and damp hay.

Face flies and horn flies each require a different strategy for effective control. They lay eggs in freshly deposited manure. Even though both species of flies have this point in common, there are significant differences between the two flies that need to be accounted for when developing a control program.

Face flies as their name suggests tend to congregate around the eyes, nose and mouth. The protein found in eye secretions and mucus is important to the female face fly for egg production. This feeding habit aids in the transmission of pink eye among animals. They have been implicated in the spread of infectious bovine rhinotracheitis (IBR). Face flies can also cause a loss in milk production and weight gain. Face Flies are active in Georgia from March until November. The treatment threshold is only four to five flies per animal.

Control of face flies can be difficult due to the amount of time that the pests spend off of the animals. Pyrethroid insecticides applied as ear tags, back rubbers and dust bags are the most effective options for control. The active ingredients in these products include Permethrin, Cyfluthrin, and z-Cypermethrin. Feed through fly larvicides can be an effective tool for managing face flies.

Horn flies are the most serious insect pest of pasture cattle. If left unmanaged these flies can cause a twenty percent reduction in milk production in lactating cattle and reduce weaning weights by eighteen pounds or more. Horn flies look similar to house and stable flies, but are much smaller. These flies tend to rest on

the back, shoulders, sides and belly of the animals. Adult horn flies spend most of their life on the animals. Females only leave their host long enough to lay eggs in freshly deposited manure. Horn flies need to be controlled when they reach 100 flies per side or a total of 200 for an adult animal. Insecticidal ear tags, pour-on, sprays, dusts and feed additives all can be used for effective control. Many of the macrocyclic lactone dewormers are labeled to provide several weeks of horn fly control. Feed through insect growth regulators such as, Altosid® and Clarifly® can be an effective means of control as well.

Due to their reproductive cycle of only 10 to 20 days and our long fly season in Georgia. March through October insecticide resistance can be an issue.
Listed below are several strategies to minimize resistance:

Be sure to rotate product class not just brand names or type of product to minimize the resistance issues.

Typically organophosphate products would be used for two years and pyrethroids for one year. Common active ingredient of labeled organophosphate insecticides include; coumaphos, diazinon, pirimiphos-methyl and tetrachlorvinphos.
Do not insert ear tags until horn fly populations reach 200 flies per animal.

Many of the macrocyclic lactone dewormers are labeled to provide several weeks of horn fly control as well.

The most effective horn fly control strategy involves combining a several different control methods throughout the season.

For more specific fly control questions please refer to the 2015 Georgia Pest Control Handbook or contact your local UGA Extension office.

Insecticide Ear Tags: This Season's Fix to Your Cattle Fly Problems

By: Annie Rich, Department of Entymology, University of Georgia, Athens

Spring is just around the corner! For those with livestock, we know that means the arrival of something else: fly season, and a renewed need for ways to get rid of them. As cattle are forced to kick and switch their tails in attempts to avoid the flies, they eat less, cutting down on weight gain and reducing milk production in lactating females. This also means lighter weaning weights in the season's calves. It goes without saying – irritation and stress are not in the recipe for healthy, growing cattle and the best possible profit this season.

One of the most efficient ways to treat your cattle against biting and irritating flies in beef and dairy cattle are ear tags. Ear tags usually last up to five months, and all are targeted to kill the number one cattle pest, the horn fly. Ear tags may also protect against other flies and even ticks, as listed on the box labels, and can be purchased based on the pest control most needed for a given herd. Ear tags and/or other control methods may be necessary if a herd begins to have loads of two hundred or more flies per cow, at which point the cattle will have a greater likelihood of reduced weight gain.

Most ear tags contain chemicals from only two classes – pyrethroids and organophosphates, which interfere with nerve function in the targeted insects in two different ways. In order to limit resistance and the loss of effectiveness in ear tags and other pesticide application methods, it is important to switch use of pyrethroid and organophosphate tags from year to year, as using the same one repeatedly allows the flies to build up resistance. Recommendation is to use organophosphates for 3 to 4 years and then switch to pyrethroids for 2 to 3 years. The XP 820 tag has a different mode of action, so can be used as another alternative in the tag rotation plan. Other ways to cut down on resistance are to use the recommended two tags per head, not to apply the tags too early in the spring, and to remove tags at the end of the season. This allows the most use out of the lethal doses of the tags to keep flies that have been exposed from surviving and passing resistance to offspring.

Insecticidal ear tags have toxicant impregnated in plastic so small amounts are gradually released

Fly Control Ear Tag Options for 2015

Name	Active Ingredient	Length of Use (Months)	Used For	Price ($ low, $$$ high)
Organophosphates				
Dominator	Pirimiphos-methyl	5	Beef	$
OPtimizer	Diazinon	5	Beef	$
Patriot	Diazinon	5	Beef	$$
Warrior	Diazinon + Chlorpyrifos	3-5	Beef	$$
Corathon	Diazinon + Coumaphos	5	Beef	$$$
Pyrethroids				
CyLence Ultra	Beta-cyfluthrin	5	Beef + Dairy	$$$
GardStar Plus	Permethrin	5	Beef + Dairy	$
PYthon	Zeta-cypermethrin	5	Beef + Dairy	$$
Saber Extra	Lambdacyhalothrin	5	Beef	$$$
PYthon Magnum	Zeta-cypermethrin	3-5	Beef + Dairy	$$
Organophosphate + Pyrethroid				
Double Barrel VP	Lambdacyhalothrin	5	Beef	$$$
Avermectin				
XP 820	Abamectin	3-5	Beef	$$$

Can Mastitis in Beef Dams Influence Calf Sale Value?

By: Stephen C. Nickerson, Professor of Lactation Physiology, Department of Animal and Dairy Science, University of Georgia, Athens

Introduction

Milk production in beef cows is the most important factor affecting calf pre-weaning growth and subsequent body weight at weaning. In fact, each additional lb of milk produced per day may increase calf pre-weaning weight 15 to 30 lb. Thus, factors that limit milk production in the dam will detrimentally affect weaning weight of the calf. Bovine mastitis, a disease of the mammary gland that significantly reduces milk production in dairy, also occurs in beef cows. The prevalence of mastitis in beef dams ranges between 7 and 54%, and is associated with costly reductions in calf weaning weight. Most studies investigating mastitis prevalence in beef animals have concentrated on older, mature cows. The purpose of the study reported here was to determine the prevalence of mastitis in first-calf beef heifers and evaluate the influence of mastitis in dams on weaning weights of their calves.

Materials and Methods

This study evaluated 30 crossbred beef heifers of ¼ to ½ Brahman inheritance for presence of mastitis. At the initial sampling taken in mid-gestation, quarter milk samples were obtained from each udder and processed for microbiological examination to determine presence or absence of mastitis and the types of bacteria causing the disease. Subsequent samplings for mastitis and SCC were conducted prepartum, early lactation, mid-lactation, weaning, and mid-gestation with their second calves.

Results and Discussion

Bacteriological examination of quarter milk samples demonstrated that the most commonly isolated mastitis-causing organisms were the coagulase-negative staphylococci also known as CNS (10.9%) followed by *Staph. aureus* (6.6%), which are normal inhabitants of teat skin and shown to be transmitted by flies; very few environmental streptococci (1%) or coliforms (0.1%) were found. Culturing of swabs collected from scabs found on teat surfaces revealed *Staph. aureus.* Biting flies contribute to the formation and infection of such scabs, and serve as vectors for the transmission of mastitis-causing bacteria, such as *Staph. aureus*, among cows.

Over the 6 sampling periods, SCC averaged 436,000/ml from uninfected quarters, whereas SCC from infected quarters averaged 3,539, 000/ml. The highest SCC (6,000,000/ml) were found in quarters infected with *Staph. aureus,* which indicate chronic inflammation and damage to the developing udder tissues of beef heifers.

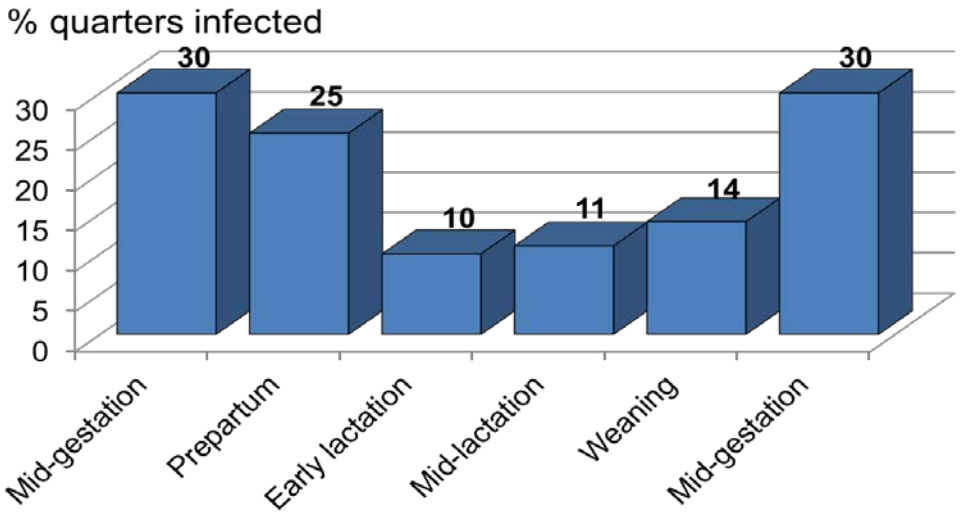


Figure 1. Prevalence of mastitis in bred beef heifers over 6 sampling periods

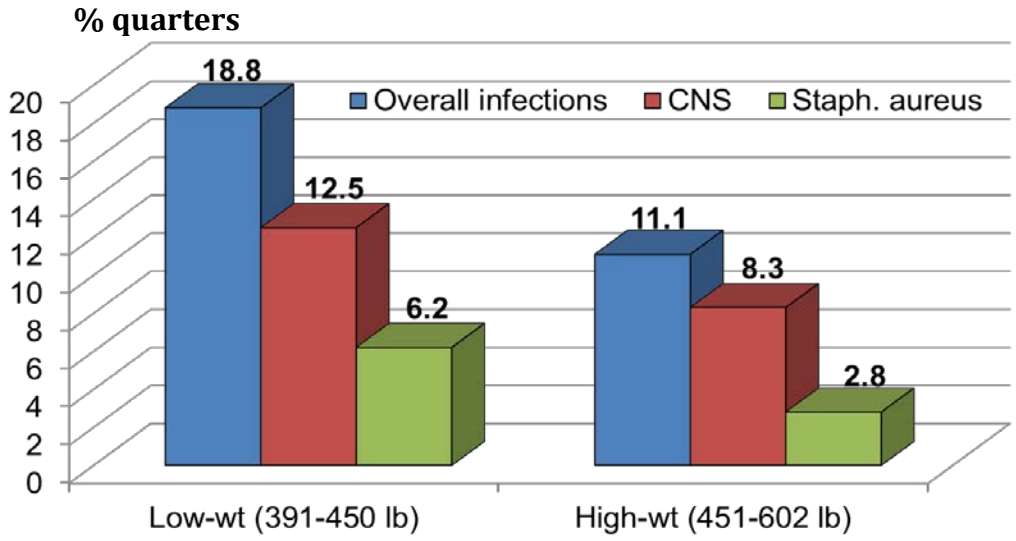


Figure 2. Frequencies of overall infections, CNS, and *Staph. aureus* at weaning based on weaning a low- or high-weight 205-d calf.

Most infections were found in the front quarters: 25 and 27% of the right front and left front quarters were infected, whereas only 8% of left rear and 15% of right rear quarters were infected. High prevalence in front quarters might be a function of location with respect to the tail. This speculation is supported by the observation that the front quarters are less accessible than rear quarters to the tail switch, which helps to repel biting flies, which are instrumental in the initiation of mastitis. In addition, the front quarters are more accessible to the calf for nursing, and because they are suckled more frequently, the transmission of mastitis-causing bacteria from the calf's mouth to front teats may occur at a greater frequency than rear teats.

Frequency of mastitis over the 6 sampling periods from mid-gestation of the first pregnancy through mid-gestation of the second pregnancy is shown in Figure 1. The percentage of quarters infected decreased slightly from a high of 30% during mid-gestation of the first pregnancy to 25% during the prepartum period, and then to a low of 10% in early lactation. Prevalence of infection gradually increased through mid-lactation and weaning, and returned to 30% during mid-gestation of the second pregnancy.

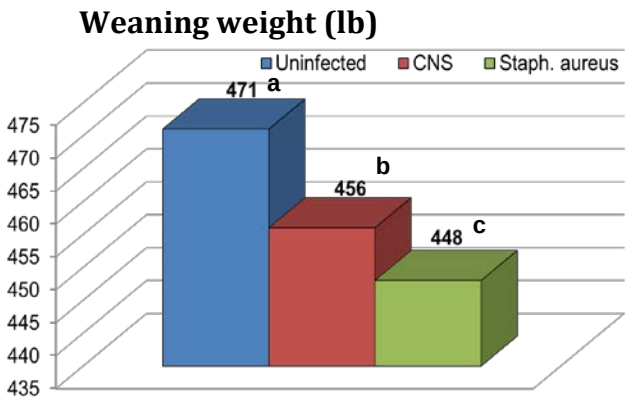


Figure 3. Mean 205-d calf weaning weight by dam infection status: Uninfected, CNS, and *Staph. aureus*. (^{a,b,c} Differ $P < 0.05$)

At the time of weaning, the adjusted 205-day (d) calf weight ranged from 391 to 602 lb. Dams across breed type were grouped according to having weaned low (391 to 450 lb) or high (451 to 602 lb) 205-d weight calves. Overall prevalence of mastitis among cows weaning low-weight calves was almost 19% of quarters, while that among cows weaning high-weight calves was only 11.1%. Likewise, prevalences of CNS and *Staph. aureus* infections were higher among heifers of low-weight calves (Figure 2). Angus- and Brangus-sired heifers exhibited a higher level of infection (35 and 38%, respectively) than Gelbvieh- (8%) and Gelbray-sired (5%) heifers.

Overall, the mean 205-d weaning weight of calves from dams having at least one mastitic quarter (453 lb) was 18 lb less than that of calves weaned from dams having no history of mastitis (471 lb). *Staph. aureus* is a more pathogenic microorganism than CNS, eliciting very high SCC in milk and is detrimental to milk-producing tissues of the udder, and as a result, the mean weaning weight of calves from dams with *Staph. aureus* mastitis (448 lb) was significantly lower (23 lb less) than that of calves from uninfected dams (471 lb) (Figure 3); the weaning weight of calves from dams infected with CNS (456 lb) was also significantly lower (-15 lb).

Conclusions

As observed in multiparous beef cows, mastitis is quite prevalent in first calf beef heifers and can lead to a reduction in weaning weight of up to 23 lb. At a current market price of $2.50 per lb for 400- to 500-lb beef calves, producers may be losing $50-$60 per head or approximately 5% of calf sale value due to the presence of mastitis in their dams, which reduces milk production and milk quality. A mastitis management program developed for dairy heifers has shown that administration of nonlactating cow antibiotic infusion products, vaccination, and fly control reduced the level of mastitis when heifers freshen, and resulted in increased milk yield during the first lactation. Similar programs for bred beef heifers could be instrumental in reducing the level of udder infection in beef heifers and cows, thereby increasing milk yield and maximizing subsequent calf weaning weight.

Protecting Water Quality on Your Farm

By: Gary L. Hawkins, Ph.D., Water Resource Management and Policy Specialist, Department of Crop and Soil Sciences, University of Georgia, Athens

Water quality is a concern for everyone that uses a waterbody. These waterbodies can be a small stream, a creek, a river or a water storage facility such as a pond or reservoir. No matter what type of waterbody you have on your property or downslope of your property protecting water quality should be on your mind. I am not an animal health person, but good quality water can help your livestock increase weight, require less medication and overall be healthier. So what can be done to protect water quality for your animals as well as those downstream or downslope of your property?

First, let's look at the water supply you are using. Does your water supply consist of the stream or creek that runs through your property? And further, do you allow your animals to get into the stream wherever they can? Animals can contribute to the degradation of water quality on your farm by forming lanes where erosion can increase sediment concentrations. This sediment can cause many problems downstream such as increasing turbidity of the water which can directly affect the fish population if a large enough stream. The sediment can also contribute to clogging of culverts and hence lead to flooding on or off of your property. Besides sediment caused by erosion, if you notice the animals linger in the water (like a swimming pool) especially on those hot summer days, they can be degrading the water quality by defecating or urinating in the water. The introduction of waste materials will degrade the water quality for those animals drinking immediately downstream or on other parts of farm or off-farm. So, to protect water quality while still providing your animals with water from the stream or creek, I would suggest fencing the animals out of the stream and installing a Stream Crossing in a sunny area. Fencing keeps the animals away from the water and stream crossings are ways to provide a protected area for animals to access the stream or creek to get water, while also reducing the potential of degrading the water quality. As a guide and potential cost-share from USDA-NRCS, Stream Crossings are described in the NRCS standards as practice number 578. If you work with NRCS, there may be funding available to assist you in installing both fencing and a stream crossing to protect water quality. If you do not work with NRCS, the standards for both fencing and stream crossing will provide a guide to design and install the practice for protecting water quality on your farm. I mentioned placing the crossing in a sunny area. The purpose of placing the crossing in a sunny area is to allow the animals time to get water but reduce the time they are in the sun and hence reduce the potential of degrading the water quality.

Secondly let's look at nutrient management. If you collect and/or spread animal waste as a source of nutrients be aware of where you are and when you are spreading the waste. When spreading the waste material keep a safe distance away from waterbodies to prevent direct application of waste into the waterbody. Also, leaving a buffer between the area of waste application and the waterbody allows the plant material in the buffer area to use the nutrients that runoff the application area prior to entering the waterbody. Also applying the waste material at a time when the soils are best suited to accept the waste is critical. This would mean not applying waste materials when the soil is frozen or waterlogged. In either case, the waste material cannot be assimilated by the soil and therefore has the increased potential of running off into the local waterbody. When applying waste materials also be aware of the concentrations and only apply an amount of waste material to meet the nutritional needs of the plant on the land where the waste is being applied. This matching the plant needs to the nutrient concentration of the waste will reduce the potential of degrade water quality downstream of the field or pasture. As above, a guide to applying nutrients can be found in the NRCS Standard for Nutrient Management (Practice 590). You can also work with a Certified Nutrient Manager to assist you in developing a Nutrient Management Plan to protect water quality. Like animal waste, the application of synthetic fertilizers can also contribute to degraded water quality if not applied in a proper fashion to provide buffer areas or applying without considering plant requirements.

Overall, water quality can be a direct link between how you manage your animals from the water source they use to how manure or fertilizer is applied. So, as you manage your animals or waste, think of how their management will affect water quality of the waterbody on your farm. This can be the same waterbody that is used for watering animals, fishing for an evening meal, swimming on a hot summer day or just a peaceful place to sit in the shade of a tree and think. If you have questions about the ways to protect water quality on your farm please see your local County Extension Agent. They can be reached by calling 1-800-ASK-UGA1.

Getting a Return on Your Investment: Bull Power

By: Jason Duggin, M.S., Extension Animal Scientist, Department of Animal and Dairy Science, University of Georgia, Calhoun

Health and nutrition obviously make a large impact on the success of a cow-calf operation. What if an owner focuses only on health and nutrition without improving genetics for profitable traits? The picture that comes to mind in this scenario is a pen of well-cared-for calves that do not meet market expectations. This could mean that the hard work of delivering proper care is negated because the calf crop is too short, too narrow, too high-headed or too tight-hided and slow growing. In other words, the next guy in the beef chain sees less profit potential because of the "look" or phenotype of the calves due to genetics. The same could be said for a pen of heifers that won't stay in the herd past a couple of seasons, even though they have had a great forage supply and strict vaccination program. This begs the question: "How do we make a positive genetic impact on our operations?" Answer: The bull.

A bull is defined in Webster's Dictionary as "an adult uncastrated male domestic bovine." However, our herd sire investments must have greater detail than this feeble definition. Successful cow-calf programs focus on all three of the components mentioned above: *providing correct nutrition*, *following prescribed health protocols*, *and implementing genetic improvements*. Anyone who purchases cattle is buying a genetic package. It is either a positive, negative or neutral addition to your program. Let us consider the following equation.

Phenotype is simply the outcome of a particular trait that can be seen or measured. Growth performance has long been assessed as an easy means to increase profitability on calves sold at weaning. If you add a bull with good genetics for weaning weight into the above equation you should improve the phenotype for weaning weight in the calves that he sires compared to a bull with poor weaning weight genetics.

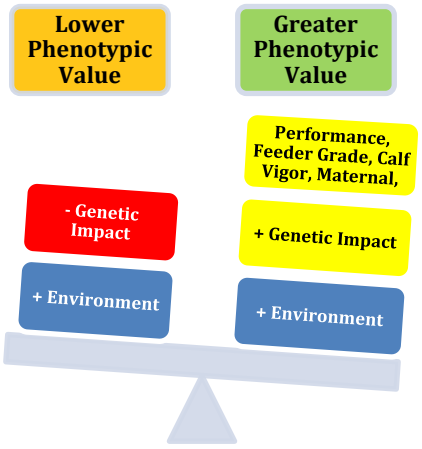
Positive genetic influence is created and further developed in customer-focused purebred herds and offered for sale to commercial cow-calf operations in the form of yearling bulls and frozen semen. This is one of the easiest and most long-lasting ways to make beneficial change to that next crop of calves and the future of our herds. The easiest way to demonstrate the impact of bull genetics is to simply compare growth between two bulls. Let's look at good ole

bull A and bull B once again. As previously stated, we know that there is a lot more to a good bull than just a weaning weight EPD, but it is a good way to show potential value for example purposes. This can be extrapolated to other traits of interest.

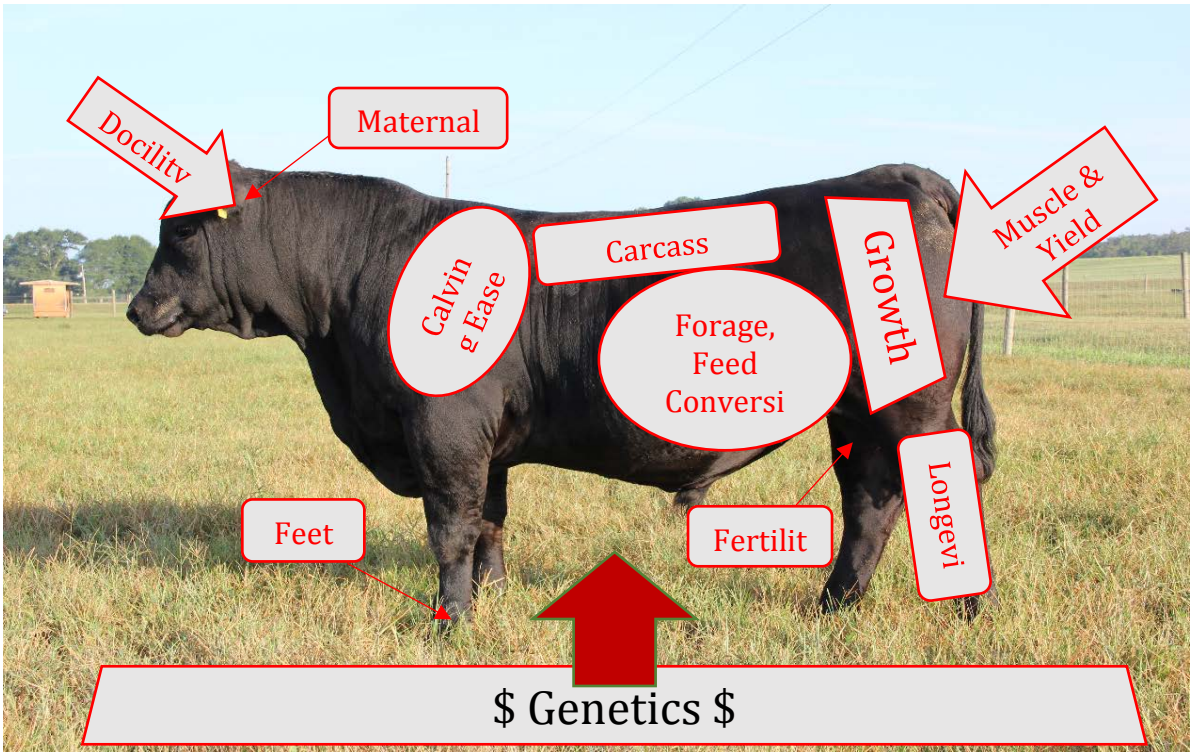
Trait	Bull A	Bull B
Birth Weight EPD	2.0	2.0
Weaning Weight EPD	40	55
Bull Price at Auction	$4,000	$5,500
Genetic Return due to Pre-weaning Growth	Base line	$3,375

On average, Bull A and Bull B should sire calves with the same average birth weight. The difference maker is the 15-pound advantage that Bull B has over Bull A. If these bulls sired 30 weaned calves a year for three years, Bull B should sire an additional 1,350 lbs. of calf weaned. In today's prices of $2.50/lb., Bull B has brought an additional $3,375 in revenue.

Now let's consider the much larger impact that can be made investing in a herd sire that will deliver a positive genetic change. Consider the tipping of the scales that continues to occur when you purchase the right bull as a full genetic package. *Genetics + Environment = Phenotype*



If heifers are maintained, the value is more difficult to quantify. If Bull B in the earlier example is also capable of passing along added fertility and fleshing ease, his daughters will not only contribute additional growth to the herd, but also long-term value as breeding pieces. If daughters are kept from a herd sire at the rate of 20 percent for seven years, that sire will contribute 50 percent of the genetics of that herd. The right herd sire can make this a very beneficial change in a herd's genetic potential.



Still, these examples really don't explain the whole picture of the enormous impact bull genetics can bring to your herd's success. Your bull(s) will stamp the calves they sire. Genetics impact every aspect of your operation where cattle are directly involved. Consider genetics as the foundation that feeds the outcome of all the traits that help us make a profit.

When thinking about making positive genetic change, it is important to realize that some traits will be affected more quickly than others. Traits considered to be highly heritable have a heritability estimate of 40 percent or higher as a general rule of thumb. Likewise, heritability estimates of 20-39 percent are moderately heritable, and below 20 percent is considered lowly heritable. In other words, it will take a couple of generations of selection on lowly heritable traits such as calving interval, percent calf crop, and longevity. Improving these traits is slow, but potentially profitable long term. Other traits such as weaning weight and post weaning gain tend to have heritability estimates ranging from 30 to 45 percent with noticeable selection impact in one generation.

Beef Cattle Trait	***%Heritability***
Percent Calf Crop	10
Longevity	20
Weaning Weight	30
Age at Puberty	40
Yearling Weight	40
Carcass Quality Grade	40
Tenderness of Meat	50
*adapted from Field and Taylor 10th edition	

In conclusion, when a herd sire or semen is purchased, we are purchasing genetics. How will it impact the genetic portion of your program's equation? We have more control over genetics than almost any other aspect of our production systems. Happy Easter and best wishes to all of you this spring.