

THE CATTLEMAN'S ROUND TABLE

A UGA EXTENSION NEWSLETTER FOR NORTHEAST GEORGIA BEEF PRODUCERS

A close-up photograph of a black cow's head, looking slightly to the left. The cow has a yellow ear tag with the number 33 on its right ear. The background is blurred, showing other cows in a field.

IN THIS ISSUE

Seeding Rates for Winter Annuals
Geonomics in Commercial Heifer Selection
Tips for Cleaning Water Troughs
Pre-breeding Heifer Evaluations

PREPARING FOR A SUCCESSFUL CALVING SEASON

By Carole Knight
Madison County Extension

Proper planning prior to calving season can mean more live calves. Excessive losses can mean the difference between a year's profit or loss for a beef producer. Before the calving season, it is a good time to put together the supplies and equipment that will be needed to assist heifers

and cows that need help at calving time. Before the season starts, do a "walk-through" of pens, chutes, and calving stalls. Make sure that all are clean, dry, strong, safe, and functioning correctly. This is a lot easier to do on a sunny afternoon than a cold dark night when you need them.

It is also essential to develop a plan of what to do, when to do it, who to call for help (along with phone numbers), and how to know when you need help. Make sure all family members or helpers are familiar with the plan. It may help to write it out and post copies in convenient places. Talk to your local veterinarian about your protocol and incorporate his/her suggestions.

A "calving kit" can be assembled to



"DON'T FORGET THE SIMPLE THINGS"

(Continued from page 1)

have on hand in case of emergencies. Some useful things to have on hand include disposable obstetrical sleeves, non-irritant antiseptic, obstetrical chains (60 inch and/or two 30 inch chains), two obstetrical handles, mechanical calf pullers, injectable antibiotics, and lubricant. Many lubricants have been used and one of the best lubricants is probably the simplest: non detergent soap and warm water. Don't forget the simple things like a good flashlight and extra batteries and some old towels or a roll of paper towels. It may be helpful for you to have all these things and other items you may want to include packed into a 5 gallon bucket so you can grab everything at once.

There are other sound management practices that are important when preparing for a successful calving season. Some specific things a producer can do to limit calf loss include:

Separate first-calf heifers from mature cows.

Calving difficulty can run as high as 30 to 40 percent for 2-year-old heifers compared to just 3 percent for mature cows. Place them in a small, accessible pasture near a corral where assistance can be given if needed.

Provide a clean area for calving.

The calving area should be a well-

sodded pasture or clean, dry maternity pen, not a wet, muddy lot.

Be familiar with the signs of calving.

Within a few hours of calving, cows generally become nervous and uneasy. As contractions increase, a cow will likely wander away from the rest of the herd.

Check cows frequently.

Observing cows and providing assistance when necessary results in more live calves. However, cows should

be disturbed as little as possible during labor.

Know when cow needs assistance.

Intervention is justified when two or three hours have passed without progress or if delivery has not occurred within 90 minutes after the water sac appears. In a normal delivery, the calf's front legs and head will appear first.

Proper planning before hand can make calving season go a lot smoother and can mean more live calves and therefore more profit potential.

Tis the Season... For Planting Winter Annuals

As you develop a winter grazing plan, use this chart to quickly identify recommended seeding rates*

Species	Grown Alone	Grown in a mix
Ryegrass	20-30	15-25
Rye/Wheat/Oats/Triticale	90-120	60-90
Crimson Clover	12-15	10-12
Arrowleaf Clover	6-8	5-6

*Pounds per acre

More information on winter annual establishment can be obtained from your local County Extension Agent or at georgiaforages.com

FROM THE FARM TO THE LAB: GENOMICS IN COMMERCIAL HEIFER SELECTION

By Jason Duggin
UGA Beef Extension Specialist

From calving ease to carcass traits, the industry and individual producers alike have benefited from EPDs. These genetic indicators we call EPDs were reluctantly accepted during previous decades but are now accepted as having revolutionized and strengthened the beef industry. Yes, there are still challenges and issues that need to be corrected that have emerged due to single trait selection. Still, with the use of genomic testing to further enhance the accuracy of EPDs on young breeding animals, producers have even more information on hand to make critical selection decisions when purchasing seedstock. With that thought in mind, let's evaluate applying similar tools to heifer selection in commercial cow-calf operations. It is common knowledge that it takes 4 to 5 years to break even on a replacement factoring in carrying cost each year. This means that one of the biggest decisions a producer makes is heifer selection. Breeding and maintaining heifers that do not meet a producer's genetic and management goals is a huge cost. However, if we can see genetic potential prior to introducing heifers into a herd, there is huge economic potential.

For example, an operation that keeps 25 head of heifers each year as

replacements is investing \$42,500 (25 head x \$1,700 estimated value) in future genetics. Producers that can improve the likelihood of each replacement succeeding past the five-year mark is in a much better financial position, obviously. A producer that can improve female retention over successive years, can save significantly on heifer development cost and lost feeder calf value. It almost goes without saying, but we also shouldn't forget the headaches and frustrations with replacements that don't make it past the first couple of years in the herd with poor mothering ability and poor fertility.

Neogene and Zoetis are two of the primary resources for genomic evaluation of commercial cattle as well as for the seedstock industry. Neogene has the Igenity® Beef test and Zoetis has GeneMax® Advantage as their primary commercial options. The results supplied by these tests can be thought of as EPDs for the commercial female. In the seedstock industry, it is well documented that EPDs can be used to make significant and meaningful change, and now the question on the table is whether these same tools can be as impactful in the commercial segment of the beef industry.

Both Igenity® Beef and GeneMax® Advantage measure genomic markers for similar traits such as the core maternal traits, performance traits and carcass merit traits. There are some differences in the two test including subtle differences in the traits reported and how the results are presented. First, the GeneMax® Advantage test is geared toward replacement heifers that are 75% Angus or higher. This test was developed in coordination with the American Angus Association, Certified

Angus Beef and Zoetis. Test results include scores for Calving Ease Maternal (CEM), weaning weight (WW), heifer pregnancy (HP), milk, and mature weight (MW) for the maternal traits which are called Cow Advantage traits in GeneMax. The feedlot and carcass traits include gain, carcass weight, marbling, ribeye area (REA), and fat thickness (FT). The results are reported on a 1-100 scale with the higher number being more advantageous. Some of the features that come with this test include a smart outlier report that identifies heifers that are genetically predisposed to high feed inputs due to either mature size and/or excessive milk production, poor temperament, and poor tenderness. Users also have the flexibility to set their preferred thresholds for identifying outliers specific to the operation's goals. One interesting feature of note for GeneMax advantage is a Sire Match feature that matches tested females with Angus sires that have been tested with the HD50KTM genomic panel. This helps reduce inbreeding in the HERD.

Zoetis has another testing option for crossbred cattle besides those with a high percentage Angus called Inherit™ Select. This test not only gives you scores based on a variety of traits from birth weight to marbling, but it also can give you an approximation of the breed make up. Information such as this can be helpful to producers as they evaluate the potential for hybrid vigor in their herds and potential mating decisions.

Igenity® Beef from Neogene is a genomic test for crossbred or straight bred cattle that provides producers with rankings on maternal traits such as BW, CED, CEM, Stayability, HP, Docility

and milk. Performance traits include residual feed intake (RFI), average daily gain (ADG), WW and YW. Carcass traits include tenderness, marbling, REA, FT, and HCW. The results are reported on a 1-10 scale. In this scoring system, the higher number is not always better. Instead, it mimics more closely with EPDs in the seedstock industry where lower birth weight scores are associated with lighter birth weight calves. Also, RFI is reported as the lower number is considered more efficient and a moderate number such as 5 may be considered ideal in some operations. Igenity® Beef provides three indexes that combine many of the traits previously mentioned. The Igenity Production, Maternal and Terminal indices can be used as quick reference tools depending on operational goals. You can further customize an index to best suite your selection criteria in the customizable dashboard. Neogene also has a test called Envigor to determine breed makeup for those wanting to maximize hybrid vigor in their herd. This can be added to any Igenity test that are submitted. Test such as these are potentially beneficial as crossbreeding hybrid vigor is identified with improved fertility, longevity, and decreased disease vulnerability.

Another advantage of these test is the opportunity to evaluate terminal traits in the herd. The scores from replacement heifers in each calf crop can be used to help market steer calves and terminal heifers. In one study evaluating the usefulness of Igenity Beef, 4,199 crossbred beef cattle averaging 758.8 lbs. were genomically tested and carried through the feedlot phase in yards located in Washington, Nebraska, and Kansas. The cattle were on feed an average of 178 days and

harvested at a consistent backfat thickness. When comparing the top 25% of cattle, based on the Igenity Terminal Index, to the bottom 25%, there were significant differences in performance for many economically relevant traits including hot carcass weight, marbling, and rib eye area (Table). Overall, the top and bottom 25% of cattle differed by almost two Igenity Terminal Index scores, which resulted in an estimated revenue difference per animal of \$81.91. That would equate to over \$83,630 for all 1,021 animals in the top 25%.

This brief article is only intended to increase awareness of these tools for commercial cattleman. Over time these tools will become more commonplace in the industry and should be very helpful

when used jointly with other selection criteria. EPDs and genomic testing should always be used in conjunction with sound developmental and breeding management as well as a thorough evaluation of feet, structural correctness, and udder quality among other necessary traits.

Variable	Top 25% ¹ (n=1021)	Bottom 25% ² (n= 1078)
Average Terminal Index	6.42 ^a	4.43 ^b
Enrollment Weight, lb	765.30 ^a	750.02 ^b
Days on Feed, d	181.20 ^a	177.44 ^b
Average Daily Gain, lb/d	4.13 ^a	3.84 ^b
Rib-eye Area, in ²	15.77 ^a	15.37 ^b
Marbling Score	516.20 ^a	491.41 ^b
12 th rib fat thickness, in	0.64	0.64
Hot carcass weight, lb	935.82 ^a	887.01 ^b
USDA Quality Grade ³	2.94 ^a	2.85 ^b
USDA Yield Grade ⁴	2.73	2.69
Revenue, \$ ⁵	1763.27 ^a	1681.36 ^b
Difference Per Animal	\$81.91	

^{a,b} Numbers in rows with differing superscripts differ ($P < 0.05$)

^{1,2} Top/bottom 25% based on Igenity Terminal Index Score

³ Quality Grades: 1 = USDA Standard or lower; 2 = USDA Select, 3 = USDA Choice; 4 = USDA Prime

⁴ Carcasses that graded USDA Standard or lower did not receive a USDA Yield Grade

⁵ Revenue calculated using the grid provided in Table 1.

Tips For Cleaning A Water Trough

By Shanna Reynolds, Oglethorpe County Extension

If you wouldn't drink it, why should they? I won't attempt to count the times I have heard my dad or some other livestock mentor in my life say the above about animal tanks. It's worth repeating, because it's so easy to overlook. We automate everything we can in this great United States of America, including the most basic necessities of life. Our cattle watering systems have floats to keep them full, insulation to keep them cool, and occasionally heaters to prevent freezing. With all the technology out there, few tanks adorn any mechanism to keep them clean. That work still requires old fashioned back bending and elbow grease.

To thoroughly clean a tank, empty it completely and scrub out debris. Rinse

twice with a household bleach solution of 1 part bleach in 9 parts water or let a solution of 1 part bleach to 32 parts water stand in the tank/trough for 15 minutes and then drain. Refill with clean water. A bleach solution of 8 ounces per 1,000 gallons of water can be left in the tank as an acceptable drinking rate for cattle and will help control bacteria. Regular, unscented bleach (no pastes or gels) should be used for these ratios.

Test your well for contaminants and/or monitor your pond for dangerous problems such as toxic algae. Wells with confirmed coliform bacteria present can be shocked with household bleach. Work with your Extension agent on methods for cleaning up pond or well water sources when needed.

STRATEGICALLY UTILIZING PRE-BREEDING REPLACEMENT HEIFER EVALUATIONS

By Pedro Fontes
UGA Beef Extension Specialist

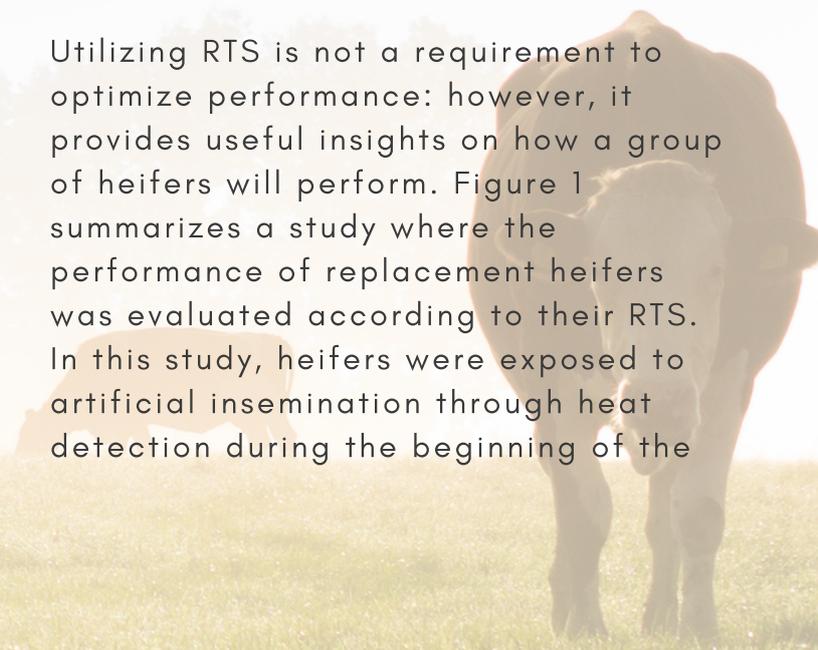
Replacement heifers are the future of a beef cattle operation and producers should focus on heifer development strategies that maximize their productive potential and keep them performing in the herd for years to come. To maximize lifetime productivity, heifers need to be managed to have their first calf at approximately 24 months of age. When a lifetime productivity comparison between heifers calving at 2 vs. 3 years old was performed, heifers that calved as 2-year-olds weaned more lbs of calves during their productive life and had greater economic efficiency. In addition, heifers that calve early in the calving season not only have a greater probability of becoming pregnant as first-calf heifers, but also have increased longevity in the herd and produce more pounds of weaned calves during their overall productive life. Therefore, the timing of conception within the first breeding season is key

for long-term productivity of beef heifers. To become pregnant early in the breeding season, it is paramount that heifers attain puberty prior to the initiation of the breeding season. This article goes over the use of pre-breeding evaluations to estimate puberty achievement and minimize the risk of dystocia in replacement heifers.

Using Reproductive Tract Scores to Estimate Heifer Sexual Maturity

Reproductive Tract Scores (RTS) are a useful tool that cattle producers can utilize to evaluate heifer sexual maturity. The RTS is performed by large animal veterinarians through rectal palpation of the reproductive tract. More specifically, the veterinarian evaluates the uterine horns and ovaries and assigns a RTS ranging from 1 to 5, where a greater RTS represents a more developed heifer from a sexual maturity standpoint. Reproductive tract score assessments should be performed 4-6 weeks before the initiation of the breeding season. This provides enough time to enhance the plane of nutrition if heifers are underdeveloped. At this point, it is recommended that at least 50% of the heifers have a RTS of 4 or 5.

Utilizing RTS is not a requirement to optimize performance; however, it provides useful insights on how a group of heifers will perform. Figure 1 summarizes a study where the performance of replacement heifers was evaluated according to their RTS. In this study, heifers were exposed to artificial insemination through heat detection during the beginning of the



breeding season followed by natural service breeding. Notice that the pregnancy rates to artificial insemination and final pregnancy rates gradually increased as the RTS increased. Additionally, heifers with greater RTS calved earlier, weaned heavier calves, and a greater percentage of them became pregnant to artificial insemination during their second breeding season (Holm et al., 2009). A different study performed at the University of Georgia observed similar results. Pregnancy rates from 1,895 heifers enrolled in the HERD Program were evaluated between 2006 and 2013. All heifers were exposed to estrus synchronization and fixed-time artificial insemination followed by natural service breeding. Final pregnancy rates were influenced by RTS, where heifers with greater RTS also had greater pregnancy rates (Jones et al., 2018). Estrus synchronization can serve as a valuable tool to induce cyclicity in pre-pubertal replacement heifers and facilitate the use of artificial insemination. Estrus synchronization goes beyond the scope of this article. If you have questions regarding this topic, please contact your local extension agent for more information and resources.

Managing Replacement Heifers to Decrease Dystocia During Calving

The beef industry has seen significant decreases in the incidence of dystocia over the last decades. This is largely due to the selection of animals with favorable expected progeny differences (EPD) for calving ease. When selecting sires to use in replacement beef heifers, producers should consider sires with adequate birth weight (BW) and calving ease

direct (CED) EPDs. The BW EPD is expressed on a pound basis and used to compare sires according to the expected birth weight of their progeny. Selecting sires with lower BW values will result in lighter calves at birth and consequently decreased rates of dystocia. The CED is expressed as a difference in percentage of unassisted births, with a higher value indicating greater calving ease (less assisted births) when the sire used to breed first-calf heifers. On the other hand, calving ease maternal (CEM) represents the ability of the heifer progeny to give unassisted births. This EPD is expressed as a percentage of unassisted births where a higher value indicates greater calving ease (less assisted births) in first-calf heifer progeny from that sire. Therefore, producers selecting sires to produce replacement heifers can use CEM to generate heifers that are less likely to need assistance during their first calving.

Besides selecting sires and replacement heifers with these desired EPDs, producers can also implement pre-breeding pelvic measurements to identify heifers that are more likely to have calving difficulty. Pelvic measurements can be performed by your large animal veterinarian using a pelvimeter. The veterinarian inserts the pelvimeter in the rectum and manually positions it to assess the height and width of the pelvis. The pelvic area is then calculated by multiplying the height by the width.

Producers need to be aware that the pelvic measurements will vary considerably depending on the age of the heifer. Therefore, it is recommended that producers collect pelvic measurements 4-6 weeks before

the beginning of the breeding season. This allow for the collection of RTS and pelvic measurements at the same time. At that point, pelvic area should be 140 cm² or greater. It is important to understand that pelvic measurements are not used for heifer selection. Selecting heifers with greater pelvic areas will ultimately result in selecting larger animals. Instead, pelvic measurements should be used to identify heifers with abnormally small pelvis. If these measurements are

obtained before the breeding season, producers might decide to cull these animals in order to reduce the risk of dystocia. The cost associated with collecting pelvic measurements for a group of heifers will often be less then performing a single c-section or losing a single cow or calf during parturition. For more information on replacement heifer development contact your local extension agent. Another great resource is the University of Georgia's HERD Program (ugabeef.com).

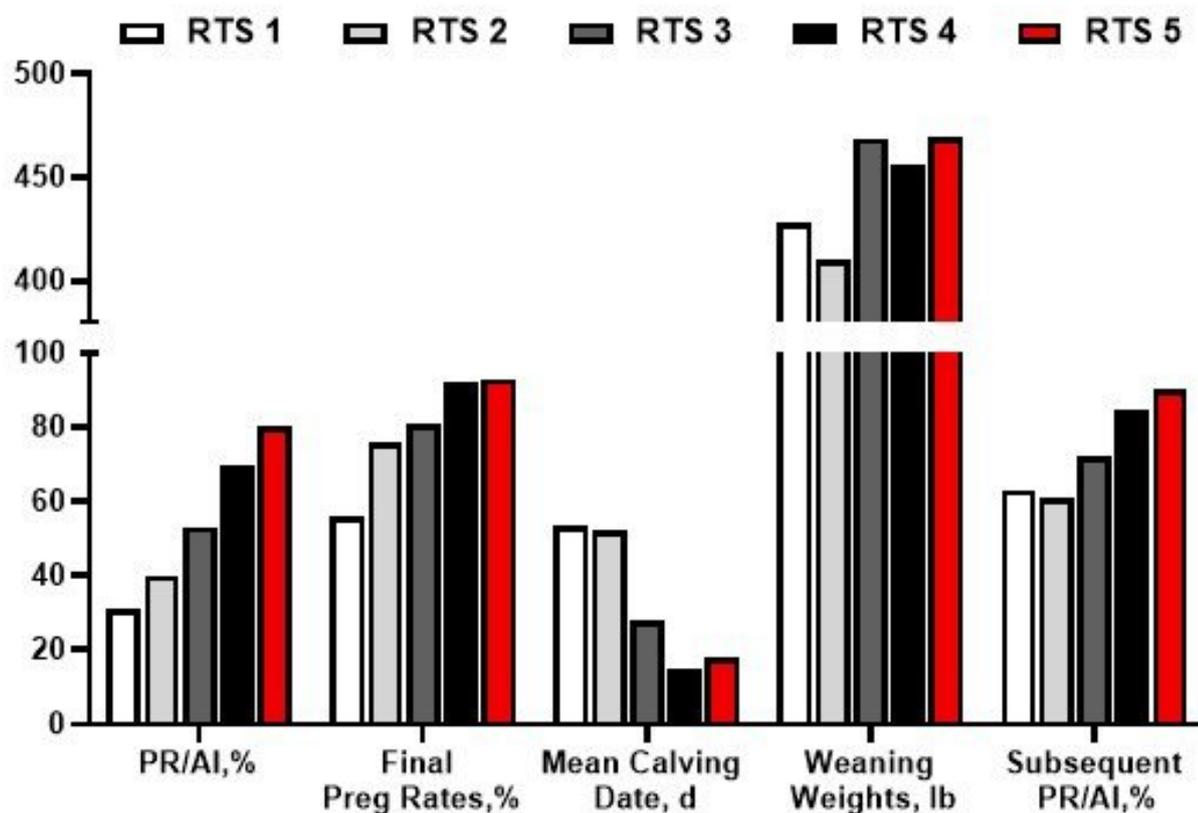


Figure 1. Replacement heifers performance according to their reproductive tract score (RTS) before their first breeding season (Adapted from Holm et al., 2009).

Holm, D. E., P. N. Thompson, P. C. Irons. 2009. The value of reproductive tract scoring as a predictor of fertility and production outcomes in beef heifers. *J. Anim. Sci.* 87:1934-1940.

Jones A. J., R. D. Berghaus, M. W. Studstill, J. S. Siegers, J. D. Duggin, P. T. Cannon, R. L. Stewart. Using performance data and reproductive measurements to predict fertility in replacement beef heifers. *Transl. Anim. Sci.* 2018.2:74-80

MARK YOUR CALENDAR

- | | |
|--------------|---|
| 9/28 | GrassMasters Webinar "Options for Extending the Grazing Season" |
| 11/01 | Calhoun HERD Entry Deadline |
| 11/01 | State Heifer and Market Beef Show Entry Deadline |
| 12/03 | Calhoun Bull Sale |

CONTRIBUTING AUTHORS



SHANNA REYNOLDS

Editor

Oglethorpe County

Extension Agent

706-743-8341

shanna.reynolds@uga.edu



PEDRO FONTES

UGA Beef Extension

Specialist

706-542-9102

pedrofontes@uga.edu



CAROLE KNIGHT

Madison County

Extension Coordinator

706-795-2281

clh@uga.edu



JASON DUGGIN

UGA Beef Extension

Specialist

706-624-1403

jduggin@uga.edu



UNIVERSITY OF GEORGIA

EXTENSION