Volume 15, Issue 2
February 2018

MISSISSIPPI
BCIA
BEEF CATTLE IMPROVEMENT ASSOCIATION

- February 28– MBCIA Annual Membership Meeting, Raymond, MS
- March 1– Hinds/MBCIA Spring Bull Sale, Raymond, MS
- March 15-17– Mississippi State University Artificial Insemination School, Animal and Dairy Sciences Department, Mississippi State, MS
- March 20—BQA, Lucedale, MS
- March 23—Grassfed Beef Conf. Follow Up Tour—White Sands, Poplarville
- April 5-6—SE Cattle Handling for Women Producers, Verona
- April 7– Beef Cattle Basics, Pontotoc

Inside this issue:

Mark your Calendar for March 1, 2018!

Does anyone know how February is over half way over? This month has seemed to fly by! After the Dixie National Jr. Roundup , the Inter-Collegiate Judging Contest, and the Open Cattle Shows, we have been working furiously on the BCIA Sale. Based on the look of the catalog, this offering is one of the best yet. From the bulls that completed the Hinds Bull Test to the BCIA consignments, I feel like this bull offering truly has something for everyone. You can find the catalog for the sale at extension.msstate.edu/beef..

General Comments

At the time of print, there were 30 BCIA bull consignments. Two thirds of those herd sire prospects are sired by popular A.I. studs. Others are sired by herd sires who are products of the consignor's breeding program or have been purchased from reputable seedstock operations.

These bulls must have a minimum adjusted weaning weight of at least 550 lbs. Interestingly, the average adjusted weaning weight of the consigned bulls was 49 lbs over the minimum requirement! We can rest assured the consignors are bringing the best of their calf crops!

Calving Ease Prospects

For producers who breed heifers, the BCIA sale has 13 bulls that are sure-bet calving ease sire prospects. To make this determination, a bull must possess a Calving Ease or Birth Weight EPD in the top 30% of their respective breed and in the top 75% of the breed for weaning or yearling EPDs.

Balanced Trait Prospects

For producers who desire a bull that can be used heifers (with discretion) and cows, we recommend producers chose a balanced trait bull. While there are some bulls in this category who also fall into the Calving Ease designation, most of these bulls will have a little more, but acceptable, birth weight. 23 bulls in this offering are Balanced Trait sire prospects. To make this determination, a bull must possess a Calving Ease or Birth Weight and a Weaning Weight of Yearling Weight EPD in the top 60% of their respective breed.

Terminal Prospects

Terminal prospects are those bulls that will most likely add growth and performance to your calf crop. While some of these bulls also have calving ease and/or balanced trait designations, most of these bulls offer a little more birth weight are more suitable for cows.

Carcass Merit Prospects

If you retain your animals through harvest or feed out animals for freezer beef, pay attention to the carcass merit prospects. These bulls should sire animals that excel on the rail! **We hope you make plans to join us for the annual meeting and joint BCIA/Hinds Bull Test Sale!**

Commercial Replacement Heifer Selection: Part 2

By: Dr. Alison Van Eenennaam, UC Davis & Dr, Darrh Bullock, Univ of Kentucky
Accessed from http://articles.extension.org/pages/73404/commercial-replacement-heifer-selection

Use of Genomic Information

The value of using DNA information in making replacement heifer selection decisions will depend upon the information available at the time of selection (e.g. phenotypic measurements, parentage data, EPDs), the accuracy of the test with regard to the selection objective, and the replacement rate. Typically only a subset of heifers are replacement candidates due to size, other selection criteria (e.g. feet and legs, disposition), and replacement rate (i.e. what proportion of replacement heifers are selected to return to the herd each year). If EPDs are known on the sires of your replacement females then you have an estimate of half of their genetics. Therefore, parentage testing for sires can be a very useful genomics tool to assist in heifer selection and is much less expensive than genomically testing all of the heifers.

To illustrate the interplay between accuracy, heritability and phenotype, consider a test that explains a quarter of the genetic variation (meaning the test has a correlation (r) of 0.5 with the true breeding value) in a lowly heritable trait like heifer pregnancy rate (h2 = 0.1). Although this test would be considered quite predictive for a lowly heritable trait, it would be expected to explain only 2.5% of the phenotypic variation in that trait. While it is important to select sires according to their genetic potential, in the case of commercial replacement heifers their readiness and ability to conceive in the proposed breeding season is important, and this includes both their genetic potential and also the environmental factors to which they have been exposed.

Independent estimates of the accuracy of genetic tests are not available for all breeds and tests on the market. To date, data suggest that tests trained and developed for use in one breed are unlikely to work well in a different breed, or in a commercial crossbred population. Many papers have documented it is very difficult to develop genetic tests that have a correlation (r) of greater than approximately 0.2 for commercial crossbred populations. Unfortunately there are not yet any independent, peer-reviewed papers in the scientific literature documenting the field performance of genomic tests for commercial heifer selection.

To estimate the value of genomic testing for replacement heifers, Van Eenennaam modeled the breakeven cost of testing all 45 potential replacement heifers born per 100 cows (weaning rate = 90%; 50% female) per year in a commercial herd with a replacement rate of 20% (i.e. 20 replacement heifers were selected each year). For this estimate it was assumed that the commercial producer was not basing heifer replacement decisions on performance records. To select replacement heifers a multiple-trait maternal selection index was developed that included maternal, pre-weaning performance, post-weaning performance, and carcass traits. For economic weightings it was assumed that the producer was retaining ownership through feeding and marketing the cattle on a value based grid.

The maternal trait with the highest relative economic value in that index was weaning rate (i.e. number of calves weaned per cow exposed). A hypothetical DNA test with an intermediate accuracy (0.3) with regard to the selection objective was then modelled. The breakeven cost of testing replacement heifers was approximately $24 per test. In other words, to test all of your potential replacement heifers the cost of the test would need to be under $24 for it to provide a positive return on investment assuming the accuracy of the test is 0.3. As the accuracy of the test increases, the breakeven cost will decrease. Of this value, less than $10 was associated with traits of economic value to the cow-calf sector (i.e. cow-calf producer that does not retain ownership), with the majority of the value being realized by post-weaning genetic improvement (i.e. feedlot/carcass traits).

If we consider that producers are likely to have at least a visual estimate of weight, and possibly some information on the age of the heifer, utilizing this information would further decrease the breakeven value of the information provided by genomics testing. The value of obtaining a commercial replacement heifer genetic evaluation is significantly less than that for bulls because bulls produce more descendants from which to derive returns for accelerated genetic improvement. The breakeven estimate of $24 per test does not take into consideration the possibility of reallocating those funds for improved bull selection. For the herd with 45 replacement heifers the potential

investment would be $1080. The question becomes, which is better, investing more in the sires that will produce the future replacement heifers or spending the money on a tool to improve the selection of the current crop of replacement heifers?

It should be noted these calculations are based on the value of genomic information to make heifer replacement decisions in a commercial beef herd. The dairy industry is successfully using genomic testing on commercial replacement females. However, there are some important differences between the dairy and beef industry that make genomic testing of commercial replacement heifers a more cost-effective proposition in the dairy industry. The first is that most dairy cattle are straightbred and highly related to mainstream purebred genetics, and there are high accuracy genetic tests available for all traits in the selection index ($NetMerit). Culling rates on modern, well-managed dairy operations tend to be low, and widespread use of sexed semen has generated an excess of replacement heifers.

Dairy producers are using genomic information to make decisions such as keeping versus culling heifers, flushing exceptional heifers, breeding certain high-value heifers with sexed versus conventional semen, and breeding with dairy versus beef semen. There may be some opportunity to use genomic testing of beef heifers in analogous ways, although the value proposition will need to be considered for each operation.

It is important to remember the value of crossbreeding for fitness and survival traits such as longevity, lifetime production, and reproduction rate. Improvements in cow-calf production due to heterosis result from both the improved maternal performance of the crossbred cow (conception rate, percent born alive, percent weaned, age of puberty, milk production and increased longevity) and individual performance of the crossbred calf (percent born alive, percent weaned, weaning growth). Research from the US Meat Animal Research Center (USMARC) reported that the lifetime production of reciprocal-cross and straightbred cows of the Hereford, Angus, and Shorthorn breeds showed the lifetime production of weight of calves weaned was increased by about 36% due to the effects of heterosis. This was broken down into direct effects on crossbred calf survival (+4.9%) and growth (+3.8%), and maternal effects on weaning rate (+6.2%), increased weaning weight of progeny due to the crossbred dam (+5.8%), and longevity (+16.2%) of crossbred cows.

Choosing the right management tools to make genetic improvement in the beef herd is critical to economic viability. Taking advantage of heterosis, along with good sire selection decisions are proven means of positioning the herd for profitability. It is important in genetic management, as in all other management practices, to weigh the cost/gain balance of available tools. For every dollar invested you should expect at least an additional dollar in return. To determine what that value is in regard to commercial heifer selection using genomics is complicated and involves many factors. Under current market conditions and technologies and in the absence of any other information the value seems to be approximately $24 in retained ownership with replacement heifer operations, but closer to $10 in a market at weaning, retained heifer operation.

WEBINAR OPPORTUNITY:

Thursday, February 22, 2018 at 7 p.m.

Expected Progeny Differences (EPD) have been a fantastic selection tool to change performance traits in beef cattle. However, EPDs are in the unit of measurement of that trait (pounds, percentages, centimeters, etc.) with no indication of whether that change will add to or subtract from the bottom line. Selection Indices are a different story. Join this webinar to better understand how Indexes can enable producers to select for multiple performance traits simultaneously based on how that animal will affect profitability in their management and marketing scheme compared to other animals in that breed. Darrh Bullock, PhD at the University of Kentucky and Jared Decker, PhD at University of Missouri will lead the discussion. If you missed our first webinar in this genetics series which focused on EPDs, be sure to find the link at WWW.NCBA.ORG

February 2018 — Management Calendar

GENERAL

Continue winter-feeding to ensure good rebreeding and calf performance. Evaluate remainder of winter feed supply. Watch body condition, and utilize winter-feeding groups according to cattle nutritional demands and feed and forage supplies. the flush of spring growth based on soil test results. Keep proper free-choice minerals available for cattle at all times, continuing feeding of high magnesium mineral supplements for cows on lush winter pastures to prevent grass tetany. Keep a close eye on water sources, particularly watering tanks that may freeze over. Maintain a complete herd health program in consultation with a veterinarian including internal and external parasite control and vaccinations.

SPRING CALVING—January, February, March

Continue supplementation of pregnant females so that they will be in good condition at calving. Have calving supplies on hand including calving record books, ear tags, obstetric equipment, disinfectants, calf scales, and colostrum. Check expected calving dates, and observe bred cattle closely as calving approaches, paying extra attention to heifers. If calves do not nurse, administer colostrum with a bottle or stomach tube within the first six hours of life. Provide shelter for newborn calves during severe weather. Separate lactating cows, first-calf heifers, and dry cows into groups to feed more efficiently. After calving, move pairs to clean pasture, and watch calves for scours. Consult with a veterinarian for advise on scours prevention and treatment. Tag, castrate, dehorn, and implant calves as appropriate. Always maintain good calving records including calf birth weights. Consult with a veterinarian to schedule pre-breeding vaccinations or order vaccines. Take yearling measurements on bulls and replacement heifers, reporting performance data on seedstock cattle to breed associations. Make final heifer selection decisions based on genetics, dam performance information, temperament, soundness, breeding goals, and progress to target breeding weights (minimum 2/3 of mature weight by breeding time). Schedule breeding soundness evaluations, and make certain bulls are in good condition and are provided with exercise as the breeding season approaches.

FALL CALVING—October, November, December

Continue using the best hay (based on forage test results) and feeds for lactating cows now. Monitor breeding activities in herds exposed for fall calving. If a high percentage of cows return to heat after 40 days of breeding, have bulls rechecked for breeding soundness, consult with a veterinarian on possible reproductive disease problems, and re-evaluate the nutritional program. Check on bull condition during the breeding season, and provide supplemental feed as needed. Prepare to remove bulls after a controlled breeding season. Keep bulls in a small pasture traps with effective fences. Castrate and dehorn late calves or those missed in early working.

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Membership Application

Name:_____

Address:_____

City:_____

County:_____ State:_____ Zip:_____

Phone:_____ Email:_____

(Check one) Seedstock:____ Commercial:____

Cattle breed(s):_____

Completed applications and $5 annual dues or $100 lifetime dues payable to Mississippi BCIA should be mailed to:

Mississippi Beef Cattle Improvement Association
Box 9815, Mississippi State, MS 39762