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Mississippi Beef Cattle Improvement Association

Mississippi Beef Cattle Improvement Association—Productivity and Quality

Fundamentals of EPDs—Part 1

Beef cattle genetic evaluation is the process of taking all of the relevant information on an animal and converting it into a useful tool for selection. This process was started long ago when livestock producers began to realize that progeny often performed similar to their parents for certain traits. Even though they did not know this phenomenon was due to genetics, as we know today, the practice of selecting superior animals to produce the next generation is the foundation for animal breeding and is the purpose for beef cattle genetic evaluation.

The first genetic evaluations were simply based on visual appraisal and progress was usually slow and limited. Through scientific discovery and applied practices beef cattle genetic evaluation has evolved into a sophisticated methodology that incorporates pedigrees, phenotypic data and the potential use of genomic information to provide producers with accurate selection tools for a wide variety of economically important traits.

The computation of EPD requires three elements: pedigree, phenotypic data and an estimate of the heritability for the trait. The pedigree is used to determine the relationship of each animal in the data set to the other animals in the data set. This is useful because it is known that closer relatives typically have more genes in common and are therefore more likely to perform similarly for that trait.

The phenotype is simply the measurement of the trait of interest; for example the weaning weight of a calf. The more phenotypic data that is available in a data set improves the estimates of the genetic evaluation. Heritability is the proportion of variation in a trait that can be attributed to additive genetics, or the genetics whose effects get passed from one generation to the next.

If a trait is highly heritable then the offspring tend to perform similar to their parents for that trait. If it is lowly heritable then the environment tends to play a larger role and there is little similarity between parents and offspring for that trait. With this knowledge it is easy to see that when computing EPDs using this basic model the best success will occur when you have a data set with complete relationship information, a highly heritable trait and a trait that is easily measured.

The first EPDs to be computed by breed associations were birth weight, weaning weight and yearling weight. These were economically important traits (birth weight by association to calving ease), moderate heritability, relatively easy to measure and most breeds had good pedigree information.

Different methodologies and models have been used over the years and many additional traits have been added to the evaluation, but the product that has been seen by producers (EPDs) has stayed basically the same with the improvements being in the reliability of the estimates and which animals could have EPD computed.

In other words, the appearance of EPDs and how to use them has not changed over the past 30 years, they have simply gotten better.

Source: Darrh Bullock, Extension Professor, University of Kentucky , National Beef Cattle Evaluation Consortium, www.nbcec.org

National Beef Cattle Evaluation Consortium
Colorado State University-Cornell University-University of Georgia

Upcoming events:

- October 1—Gain on Forage Bull Test nomination deadline
- October 19—Hinds CC Bull Test begins, Raymond, MS
- November 4-6—MSU Artificial Insemination School, Mississippi State, MS
- November 9—Beef Cattle Field Day, MAFES White Sand Unit, Poplarville, MS
- November 17—Mississippi Forage Conference, Starkville, MS
- January 20—Mississippi BCIA Spring Bull Sale nomination deadline
- February 11—MBCIA Annual Membership Meeting, Jackson, MS
- March 3—Hinds CC Bull Test Sale and Mississippi BCIA Spring Bull Sale, Hinds Community College Bull Sale Facility, Raymond, MS
- March 15—Applied Cattle Nutrition Workshop, MSU

Inside this issue:

Cattle Producers: Earn Your MBA

The Master's of Beef Advocacy training is offered online as a self-paced training, similar to the way the Mississippi Master Cattle Producer program if offered

Master's of Beef Advocacy

We face a difficult challenge in the beef industry. The anti-animal agriculture activist community is hard at work raising concerns about the impact of beef production on the environment, the treatment of animals in food production, the role of beef in a healthy diet and the safety of the products we produce. They are passionate and vocal and well-funded.

But we have a great story to tell. Beef producers work hard every day to be good stewards of the land and their animals in providing safe and nutritious beef for America's dinner tables. We need to be equally passionate and vocal in telling our story.

That's what the Masters of Beef Advocacy (MBA) program is about…equipping beef producers across the country to tell their story in presentations to schools and church/civic groups, through local media and in the "virtual" world of the Internet.

Online MBA Program

The MBA program is a self-directed online training program designed to equip beef producers and industry allies with the information they need to be everyday advocates for the beef industry. MBA candidates will be required to complete six courses in beef advocacy, including:

- Modern Beef Production – Sharing the many benefits of modern, efficient U.S. beef production
- Animal Care – Explaining our commitment to raising healthy animals
- Beef Safety – Communicating why producing safe food for consumers is a top priority
- Beef Nutrition – Explaining how great-tasting beef strengthens and sustains our bodies
- Environmental Stewardship – Sharing how we're protecting the environment for future generations
- The Beef Checkoff – Communicating the value of your investment in growing demand for beef

Following completion of these courses, each candidate will be invited to attend a full day "commencement" training session focusing on online advocacy, public speaking and working with the media.

Use MBA Knowledge and Skills in the Real World

Once you have completed all six courses you will be invited to join the Masters of Beef Advocacy Alumni Association – a virtual community for MBA graduates to log your advocacy activity and share stories with fellow MBA graduates, as well as download the latest talking points, fact sheets and presentations you need to be "everyday advocates." This can be as simple as talking to friends, family and neighbors. Graduates also will be equipped to with tools to reach out to broader audiences in their communities by:

- Giving presentations – schools, civic organizations, etc.
- Getting active in the online environment – posting comments/video on Web sites, blogging, etc.
- Participating in media interviews – print and/or broadcast media

All beef producers and industry allies with a genuine interest in promoting the beef industry are invited to enroll in the MBA program. You can enroll as part of a class, complete the program on a set schedule and attend a "commencement" training with the class; or enroll as an "at-large" candidate, complete the program on your own schedule and attend a group "commencement" scheduled in your state/region or at annual cattle industry meetings.

Enrollment

To enroll, fill out an application online. For more information, send an e-mail or contact Daren Williams at the National Cattlemen's Beef Association (303-694-0305).

MBA website:
www.beef.org/mastersofbeefadvocacy.aspx

"…Beef cattle producers can now enroll in the free MBA program by filling out an online application."

Mississippi 2010 County Cattle Rankings

Top 25 Mississippi counties for number of cattle and calves as of January 1, 2010

	County	Head of Cattle
1.	Covington	37,300
2.	Hinds	27,500
3.	Walthall	26,400
4.	Jones	24,700
5.	Scott	22,900
6.	Tate	22,800
7.	Lincoln	22,600
8.	Clay	22,400
9.	Pike	21,600
10.	Leake	21,400
11.	Smith	20,100
12.	Marion	19,300
13.	Marshall	19,100
14.	Monroe	18,600
15.	Noxubee	18,300
15.	Panola	18,300
17.	Neshoba	18,200
17.	Newton	18,200
19.	Carroll	17,500
20.	Madison	15,800
21.	Oktibbeha	15,200
22.	Lee	13,800
23.	George	13,200
23.	Pontotoc	13,200
25.	Wayne	13,100

18 additional counties had over 5,000 head of cattle and calves at the start of 2010.

Beef cattle are raised in all 82 Mississippi counties.

Source: www.nass.usda.gov/ms

"…Mississippi's 2010 cattle inventory approached one million head."

Artificial Insemination Resources

The Mississippi State University Extension Service and Animal and Dairy Sciences Department host two Cattle Artificial Insemination (AI) Schools each year. The AI Schools are held in March and October/November annually. Upcoming AI School dates are November 4 - 6, 2010 and March 17 - 19, 2011.

The website for these schools is: *msucares.com/livestock/beef/aischool.html*

Several new Mississippi State University Extension Service publications related to artificial insemination are now available:

P2616—The Estrous Cycle of Cattle
P2610—Estrus (Heat) Detection in Cattle
P2614—Estrous Synchronization in Cattle
P2615—Reproductive Management of Beef Herds
P2628—Artificial Insemination Programs for Cattle
P2569—Sex-sorted Semen for Beef Cow-calf Production
P2486—Economic Impact of Artificial Insemination vs. Natural Mating for Beef Cattle Herds
P2501—Calving Season Selection Considerations

These publications are available online at *http://msucares.com/livestock/beef/beefpubs.html* or upon request through any office of the Mississippi State University Extension Service.

An estrous synchronization calendar is available for free download as a Microsoft 2007 Excel spreadsheet on this website. An estrous synchronization calendar Blackberry app is also available for free upon request.

Mississippi Commodity Feed Source Listings

The Mississippi Commodity Feed Sources Directory is designed to assist Mississippi livestock producers in locating feed supplies. The list provided includes contact information and available feed types from manufacturers, brokers, and dealers. The directory is available site at *msucares.com/livestock/beef/feedsources.html*.

A wide variety of feedstuffs can be sourced through contacts in the MS Feed Source Directory

Mississippi Beef Cattle Improvement Association—Productivity and Quality

Mississippi Beef Cattle Improvement Assn.
Box 9815
Mississippi State, MS 39762

Phone: 662-325-7466
Fax: 662-325-8873
Email: jparish@ads.msstate.edu

Send questions or comments to Jane Parish,
Extension Beef Cattle Specialist,
Mississippi State University Extension Service

Visit MBCIA online at http://msucares.com/livestock/beef/mbcia/

MBCIA 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
Jane Parish, Extension Beef Cattle Specialist
Box 9815, Mississippi State, MS 39762

Signs and Stages of Calving

Parturition (Calving)

Observation of cows and heifers before and during the calving season is necessary to ensure a good calf crop percentage. Observe cows at least daily during the calving season, and observe heifers more frequently (perhaps several times a day). It is important that you are familiar with the signs of impending parturition, as well as the sequence of events associated with normal labor and delivery to determine when assistance is necessary.

Signs of Impending Parturition

- The udder and vulva will often enlarge 1 to 3 weeks prior to parturition.
- Cows and heifers often become nervous (restless) and will isolate themselves from the rest of the herd just prior to parturition.
- Cows and heifers may show signs of abdominal discomfort by kicking at their belly. They may also glance to the rear nervously.

It might be necessary for you to assist when parturition does not proceed as described, and early intervention is the key. Waiting too long to provide assistance unnecessarily risks the life of the cow or heifer and her calf. Seek the help of a veterinarian as needed.

Stage	Duration	Comments
Stage I Preparatory	cows (4 to 8 hours) heifers (6 to 12 hours)	• Cow or heifer may become nervous and isolate herself from the rest of the herd. • Uterine contractions begin. • "Dropping" of colostrum into the teats. • Water bag appears toward the end of this stage. Stage II begins when the water bag breaks.
Stage II Delivery of the calf	cows (< 1 hour) heifers (1 to 4 hours)	• Cow or heifer is now actively straining. • In normal parturition, the calf's forelegs and head protrude first about 70 percent of the time, and the hind legs and tail come first about 30 percent of the time. • The calf is delivered.
Stage III Expulsion of the placenta (afterbirth)	cows (1 to 12 hours) heifers (1 to 12 hours) This usually occurs within the first few hours.	• Cow or heifer straining decreases. • Uterine contractions continue, and the placenta is expelled. • If the placenta is not expelled soon after birth, do not manually remove the placenta by pulling it out.

Source: ANR-1323. Alabama Cooperative Extension System.