

Mississippi Beef Cattle Improvement Association

Mississippi Beef Cattle Improvement Association—Productivity and Quality



Upcoming events:

- May 8—South MS Gain on Forage Bull Test Sale, Tylertown, MS
- June 2—Mississippi Hereford Association State Field Day, MSU South Farm Beef Unit, Mississippi State, MS
- June 6-9—Beef Improvement Federation Annual Convention, Fort Collins, CO
- June 9—Mississippi Angus Association State Field Day, 7L Farms, Wiggins, MS
- June 25-27—MJCA Making Tracks Leadership Camp, Mississippi State, MS
- June 28-29—Cattlemen's Cooler College, MSU Meats Lab, Mississippi State, MS
- August 2-5—Hereford PRIDE Convention, Mississippi State, MS
- September 14-15—Master Stockman Program, MSU Beef and Horse Units, Mississippi State, MS

Inside this issue:

Cattle Transport Guide Available	2
Quality Grade and Tenderness	2
Reproductive Efficiency Goals	3
MBCIA Membership Application	4
BCIA Genetic Profit Tips	4

Registration Open for Beef Improvement Federation Meeting

FORT COLLINS, Colo. – The Rocky Mountains provide the backdrop for the annual meeting and 40th anniversary celebration of the Beef Improvement Federation. The meeting will be held June 6-9 in Fort Collins, Colo. It will focus on the future of genetic evaluation and improvement with a variety of presenters from around the country.

The meeting will take place at the Hilton Fort Collins. To register and for program details go to www.beefimprovement.org under the conventions tab. Pre-registration is due May 15. For information contact Willie Altenburg, 970/568-7792, willie@rmi.net or Mark Enns at 970/491-2722, Mark.Enns@Colostate.edu.

"The BIF meeting is a great opportunity for cattlemen from around the country and the world to come together and discuss genetics and how to improve our industry," says Altenburg, Colorado Planning Chairman. Mark Enns, Colorado State University and program chair, states: "As we put together speakers and topics for this BIF annual meeting, the committee wanted subjects that would get beef producers thinking. And, to capture those thoughts, we will be using an audience response system throughout the meeting and building discussions off the group."

The meeting will kick off with Colorado Welcome Reception on Wednesday evening, June 6. The history of Artificial Insemination (AI) will be the focus of the National Association of Animal Breeders Symposium that evening as well.

On Thursday, June 7, participants will discuss "Performance Programs at a Crossroads" as speakers talk about the current performance programs' cost and benefits and gather the audience's views on the direction for future genetic improvement initia-

tives. Awards for the Commercial Producer of the Year will be presented, and committee meetings will be held in the afternoon.

Thursday also has a spouse/family tour slated to Estes Park and the historic Stanley Hotel, plus a trip to Rocky Mountain National Park. That evening, the group will experience "Foam on the Range" at the Colorado State University Equine Center for an evening of great conversation, a steak dinner, tasting the products of Colorado produced ale and viewing cattle from area seedstock producers.

Friday focuses on "Challenges to Conventional Wisdom." Presenters will lead the discussion on uses of genetics technology and changes seen in the quality grades of cattle. The Seedstock Producer of the Year will be named, and committee meetings will be held that afternoon. Friday evening, attendees can head up to Old Town Fort Collins to enjoy the local restaurants.

Producer tours will visit many Front Range locations throughout the day on Saturday, June 9. Two tours are offered. The first tour, "Beef Industry Players," has stops at Kuner Feedlot, Five Rivers Cattle Feeding, Safeway's Distribution Center and Aristocrat Angus Ranch, as well as lunch with National Cattlemen's Beef Association and Cattle-Fax. The "Seedstock Alliances" tour features Walter Farms, Inc., Five Star Cattle Systems, Kuner Feedlot and Five Rivers Cattle Feeding.

The BIF Annual Research Symposium and Annual Meeting is hosted by Colorado State University, Colorado Livestock Association, Colorado Cattlemen's Association and the Beef Improvement Federation.





Proper animal transport is an important part of Beef Quality Assurance.

Cattle Transport Guide Available

A new beef checkoff-funded DVD and print piece, "Master Cattle Transporter Guide," illustrates best practices to keep cattle safe and healthy as they move from ranch to rail. Experts at Colorado State University, University of Nebraska, Texas Cooperative Extension, Kansas State University, the Nebraska BQA program, and several transporters, feedlot owners and beef producers helped

develop the program, which extends beef quality assurance principles through the critical transport phase. The DVD covers cattle behavior, proper loading, unloading, driving and biosecurity. The print manual fits inside a glove box and highlights important points covered in the DVD. The DVD and manual are available for \$10, on a cost-recovery basis. Supplies are limited.

Quality Grade and Tenderness

The current beef marketing system provides important carcass premiums for cattle grading Prime (\$150-250) and discounts to cattle grading Select (\$40-160). This price differential is based on the concept that higher grading cattle that have more intramuscular fat will be tenderer. Tenderness is an important trait relative to consumer experience. However, many research studies have concluded that marbling has a relatively low to moderate effect on actual beef product tenderness.

Beef tenderness is influenced by additional factors along with Quality Grade. These factors include both pre and postharvest concepts. The preharvest concepts can be influenced by producers and may become more relevant in the future than marbling. These concepts include physiological maturity — age of the animal. As animals become older, the amount of collagen associated with muscle fiber increases. As collagen increases, beef becomes tougher or harder to chew.

Cattle are harvested at an older age (12-18 months) when compared to lamb, pork, veal and poultry. The fact that the competing species for protein market share are harvested at a young age puts beef at a competitive disadvantage. Producing faster growing yet still efficient beef cattle provides the option to harvest cattle at a younger age, when they have less collagen and will be tenderer.

Gene markers have been identified and marketed that influence tenderness. These markers are associated with the genetic ability to produce calpains and calpastatin.

Calpains are the naturally occurring enzymes that break down muscle fibers post-harvest. Greater calpain activity results in a beef product that is tenderer. Calpastatin is the inhibitor to calpains. The inhibition of the calpains does not allow for an effective breakdown of muscle fibers postharvest.

Variations between breeds and within breed are present for calpain and calpastatin. Calpain concentration/activity in the muscle can be increased by plane of nutrition and extra supplementation of vitamin D.

Variation in muscle fiber diameter, length and type affects tenderness. The use of this variation to improve beef tenderness is not readily available. The fact is important in processing cuts of beef to improve tenderness.

The perceived role of marbling in affecting tenderness will likely be lower in the future. Marbling will, however, remain an important factor in consumer experience as it relates to juiciness and lubrication of beef that is eaten. Juiciness and lubrication become more important as beef is cooked above the medium-rare range.

Within the confines of increased feeding costs and the public interest to reduce fat in dietary intake, producers have the ability to improve tenderness without increasing fat. If and when producers will be paid for these improvements will be an interesting commentary on the future of the beef marketing culture.

Source: Tom Hill, Oregon State University Department of Animal Sciences

“Tenderness is an important trait relative to consumer experience. However, many research studies have concluded that marbling has a relatively low to moderate effect on actual beef product tenderness.”

Goal Setting to Increase Reproductive Efficiency

Item	Procedure
Measure reproductive performance	Permanently identify cows and calves; record breeding inventories, bull exposure dates, and A.I. breeding dates; record calving dates, calving difficulty, mothering ability, and calf survival; determine average calving date, calving interval, pregnancy rate, and weaning rate.
Provide adequate nutrition	Match breeding/calving seasons to nutritional resources; monitor body condition scores for rebreeding; determine nutritive value of stored feeds; sort cows by condition scores and provide better nutrition to under-conditioned cattle; maintain adequate pre- and postpartum nutrition; monitor pasture quantity and quality.
Select bulls and predict their fertility	Use healthy bulls with acceptable breeding soundness; match bull/cow ratio to environmental conditions; observe herd for mating activity; match bull birth weight and calving ease EPDs to intended mates; cull bulls causing increased dystocia; screen bulls for testicle morphology and scrotal circumference; if heifers are not cycling at the start of breeding, select for decreased age at puberty EPDs, increased scrotal circumference EPDs, or larger yearling scrotal circumference.
Pregnancy test and examine cows	Cull open females; cull cows with significant structural, eye, tooth, or udder problems.
Control breeding seasons	Synchronize estrus to concentrate breeding and calving; cull cows with late calves or extended postpartum interval; fit calving season to labor, feed, and environment.
Use crossbred cows	Use heterosis to increase reproduction and cow longevity; use breeds and crosses whose genetic potential for reproduction, milk, and growth matches feed resources.
Select and manage first calf heifers	Calve heifers at two years of age; select early-born replacement heifers; select daughters of sires that fit the management situation for frame size, growth, and milk yield; manage heifers to reach critical breeding weight; mate heifers two weeks before mature cows; maintain adequate nutrition for pregnancy and growth; use bulls with appropriate calving ease or birth weight EPDs; cull heifers with small pelvic areas; monitor heifers carefully at calving; manage first calf heifers separately; maintain adequate postpartum body condition.
Implement an effective health management program	Develop an effective vaccination program; purchase animals from herds with good health programs; maintain internal and external parasite control; obtain postmortem examination of aborted fetuses or abnormal births.

“...Use breeds and crosses whose genetic potential for reproduction, milk, and growth matches feed resources.”

Source: Beef Improvement Federation. 2002. *Guidelines for Uniform Beef Improvement Programs*. 8th ed.



Adequate nutrition is critical to reproductive success.

Mississippi Beef Cattle Improvement Association—Productivity and Quality

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

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



Send questions or comments about this newsletter to Jane Parish, Extension Beef Specialist, Mississippi State University Extension Service

Mississippi State University does not

discriminate on the basis of race, color, religion, national origin, sex, sexual orientation or group affiliation, age, disability, or veteran status.



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 payable to Mississippi BCIA should be mailed to:

Mississippi Beef Cattle Improvement Association
c/o Jane Parish, Extension Beef Specialist
Box 9815, Mississippi State, MS 39762

BCIA Genetic Profit Tips – May 2007

Efficient reproduction is necessary to profitable and efficient beef cattle production. Management and environment significantly affect male and female reproductive performance, but genetics also is important. Because reproductive traits generally are considered lowly heritable, little emphasis has traditionally been placed on them in genetic improvement programs. However, with the development of appropriate analytical methods that account for the unique properties of categorical traits, the industry now is able to produce useful genetic predictions for some reproductive traits.

Using inventory based methods of Whole Herd Reporting, breeders are encouraged to record male and female reproductive performance in their herds. This information can be used to monitor overall reproductive performance, identify genetic, environmental, and management areas in which to concentrate improvement efforts, assist in selection and culling decisions, and generate data for producing genetic predictions for reproductive traits.

Measures of Sire or Herd Reproductive Efficiency

Several measures can be computed to describe reproductive efficiency (or inefficiency) of herds or bull mating groups. Identification of bull or overall herd problems will allow breeders to determine where action should be taken to improve reproduction in their herds. Measures to calculate are as follows:

Number of cows exposed. This is the number of cows exposed for either A.I. or natural service breeding, either in the present year's breeding season or in the past year's breeding season. This figure should be calculated on a bull-mating-group basis.

Percent diagnosed pregnant. This is a measure of the success of the breeding season. It is calculated as follows:

$$\text{Percent Diagnosed} = \frac{\text{No. of cows diagnosed pregnant}}{\text{No. of cows exposed}} \times 100$$

Live calving percent. This is a measure of success of the breeding and calving seasons. It is calculated as follows:

$$\text{Live Calving Percent} = \frac{\text{No. of live calves}}{(\text{No. of cows exposed} - \text{No. of cows sold or died} + \text{No. of pregnant cows purchased})} \times 100$$

Weaning percent. Also called "percent calf crop weaned", this is a measure of overall reproductive efficiency. It is calculated as follows:

$$\text{Weaning Percent} = \frac{\text{No. of calves weaned} + \text{No. calves sold preweaning}}{(\text{No. cows exposed} - \text{No. cows sold or died} + \text{No. of pregnant cows purchased})} \times 100$$