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September 2009

Mississippi Beef Cattle Improvement Association

Mississippi Beef Cattle Improvement Association—Productivity and Quality

Mississippi Farmer Tax Break for Tractor/Implement Purchases

A Mississippi new law is in effect that allows Mississippi livestock and other agricultural producers to pay a reduced sales tax rate on farm tractors and farm implements. The reduced sales tax rate also applies to parts and labor used to maintain or repair qualifying farm tractors and implements. The reduced tax rate is 1.5% compared to the normal 7% retail sales tax rate. Producers interested making qualifying purchases under the reduced tax rate must fill out and have notarized an affidavit from the State Tax Commission and then present the affidavit at the time of purchase. Each notarized affidavit expires annually on December 31, so be sure to complete out a new one each calendar year. Affidavit forms are available online at *www.mstc.state.ms.us*.

New Mississippi Beef Cattle Extension Publications

Since 2008 the Mississippi State University Extension Service has developed many new and updated producer publications on a wide variety of beef cattle production topics. Completed publications available include:

P2464 - Freeze Branding Beef Cattle
P2484 - Mineral and Vitamin Nutrition for Beef Cattle
P2485 - Growth-Promoting Implants for Beef Cattle
P2486 - Economic Impact of Artificial Insemination vs. Natural Mating for Beef Cattle Herds
P2487 - Mississippi Animal Disease and Disaster Preparedness Program
P2488 - Replacement Beef Heifer Development
P2489 - Fiber in Beef Cattle Diets
P2490 - Beef Cattle Water Requirements and Source Management
P2491 - Expected Progeny Differences and Selection Indices for Beef Cattle Selection
P2499 - Protein in Beef Cattle Diets
P2501 - Calving Season Selection Considerations
P2503 - Understanding the Ruminant Animal Digestive System
P2505 - Selecting a Feedlot for Beef Cattle Finishing
P2506 - Stocker Cattle Receiving Management
P2507 - Hurricane Preparedness and Recovery for Beef Cattle Operations
P2508 - Body Condition Scoring Beef Cattle
P2509 - Ultrasound Scanning Beef Cattle for Body Composition
P2514 - Beef Cattle Seedstock Marketing
P2518 - Feed Additives for Beef Cattle
P2519 - Beef Cattle Nutritional Disorders
P2520 - Market Cow and Bull Management and Marketing
P2521 - Anti-quality Factors in Beef Cattle Diets
P2522 - Beef Grades and Carcass Information
P2524 - Creep Feeding Beef Calves
P2528 - Beef Cattle Nutrient Requirements
P2538 - Livestock Fencing Systems for Pasture Management
P2551 - Identifying Sick or Injured Cattle
P2552 - Marketing Feeder Calves
P2555 - Early Weaning Beef Calves
P2556 - Marketing Fed Cattle
P2558 - Beef Cattle Calving Management
P2563 - Direct Marketing Beef

In addition, new publications are being added each month. Contact a local Extension office to request a copy of a specific publication. Publications can also be viewed and printed online from: *msucares.com/livestock/beef/beefpubs.html*

Upcoming events:

- **September 1—Mississippi BCIA Fall Bull Sale nomination deadline**
- October —Bulls arrive at Hinds CC Bull Test, Raymond, MS
- October 24—Prairie Research Unit Field Day, Prairie, MS
- October 29-31—MSU Extension Service Artificial Insemination School, Mississippi State, MS
- **November 12—Mississippi BCIA Fall Bull Sale, Hinds Community College Bull Sale Facility, Raymond, MS**
- January 12, 14, 19, 21—Mississippi Master Cattle Producer Program Internet-based Certification and Live Chat
- January 20—Mississippi BCIA Spring Bull Sale nomination deadline
- March 4—Hinds CC Bull Test Sale and Mississippi BCIA Spring Bull Sale, Hinds Community College Bull Sale Facility, Raymond, MS

Inside this issue:

MAFES Prairie Research Unit Field Day—October 24

New research on weaning stress will be presented at the PRU Field Day

The Prairie Research Unit will be hosting a Beef and Forage Field Day this fall on October 24, 2009. The program will highlight many innovative and exciting research projects being conducted at Prairie.

The topics will include a report on new agronomic lines of tall fescue containing a novel endophyte which are being tested under grazing conditions. Preliminary study results suggest that these new forages hold promise for cattle production in the South.

Research on transportation stress is being evaluated with a unique series of equipment to monitor behavior and environmental conditions of cattle during transport. Weaning stress trials are also being conducted at Prairie evaluating methods of weaning that can potentially reduce stress during this critical time in the life of a calf.

Research planned for native warm-season grass pastures for livestock, wildlife, and ecosystems will be presented by MSU Department of Wildlife and Fisheries faculty.

There will also be an update on the MAPP (Management Applications for Performance and Profitability) Demonstration Herd which resides at Prairie. This herd serves as a prototype for the typical small herd producer.

Visitors with also get a preview of the new state of the art GrowSafe Feeding Facility currently under construction. This facility will be used in the future to conduct research on feed efficiency, diet selection, behavior and many other pertinent topics in the industry.

A hands-on pasture evaluation tutorial will be given during the Field Day. Producers will receive tips on techniques of appraising their own grazing lands and forages.

Registration will begin at 8:00 a.m. at the main office located at 10223 Hwy. 382, Prairie, MS. Lunch will be provided and there will be a drawing for door prizes given away during the meal. For more information contact the Prairie Research Unit at (662) 369-4426, or email to htb32@msstate.edu.

Fall MSU Artificial Insemination School Ahead in October

Practical AI equipment training and semen handling techniques are part of the MSU AI School

"…opportunity to practice on more than 40 cows in easy-access lock-up stanchions."

Classroom instruction for the Fall 2009 MSU AI School will begin on the evening of Thursday, October 29th. In that session, faculty from the Department of Animal and Dairy Sciences will explain the anatomy of the cow's reproductive tract, the hormones that control the estrous cycle and how to use those hormones to synchronize estrus. A wet lab will follow the classroom instruction that night where participants will have time to work with dissected tracts and evaluate semen under the microscope.

The next morning (Friday, October 30th) more classroom instruction will deal with reproductive health, nutrition, heat detection and genetic selection. Lunch will be provided and the group will go to the MSU Dairy to start practicing in live cows.

On Saturday morning, more time will be spent practicing "passing rods." Several instructors will be on hand to give guidance and suggest different techniques.

Artificial insemination certification from the MSU Extension service has a great reputation for providing a low-cost class, balancing classroom and hands-on instruction that addresses a wide scope of reproductive management for a successful AI program. Past participants have sited many benefits of the program that include the opportunity to practice on more than forty cows in easy-access lock-up stanchions; interacting with several well-trained and experienced instructors; a useful package of reference materials and a laid-back atmosphere where it is easy to ask questions.

People travel from across the U.S. to attend this inexpensive and high-impact training. However, training Mississippi producers and BCIA members remains the priority.

The class will be held in Starkville on the MSU campus. The registration fee is $150 per person but is limited to the first 30 registrations. This fee will likely be increased for future classes, so plan to attend this fall's session for a great value. Husband and wife teams may enroll for a single fee.

To register, please send a check, payable to Northeast Area Livestock, to: **Mike Howell N.E. Area Livestock Agent, PO Box 1690, Verona, MS 38879** or call 662-566-2201.

MAFES Research: Impact of Bull Breeding Exam on Ultrasound

Yearling performance measurements are routinely taken on registered beef bulls for assessment of production performance, genetic selection, and to provide information for use in cattle marketing. Common yearling measurements include yearling weights, hip heights, scrotal circumference and ultrasound body composition trait measurements.

Ultrasound scanning for carcass traits is a useful tool for obtaining valuable carcass information from a live animal. Body composition traits that can be measured include 12th to 13th rib fat thickness, rump fat thickness, ribeye area, and intramuscular fat percentage (marbling).

Many beef cattle producers also perform breeding soundness evaluations (BSE) on yearling bulls to identify and cull bulls that are not reproductively sound and in preparation for the breeding season and bull marketing. Breeding soundness evaluations are a crucial part of bull selection for determination of reproductive soundness of the animal as well as serviceability and marketability of that animal in a breeding herd.

The BSE routinely performed involves a physical examination, scrotal circumference measurement, and a semen evaluation. Electro ejaculation with a mild electrical stimulation administered rectally to the reproductive organs is a common method used in performing the semen collection of the BSE.

The impact of the stress of a BSE and handling on ultrasound body composition traits taken within a short time frame after electro ejaculation is unknown. Therefore, the objective of this research project was to examine the influence of a BSE with electro ejaculation for semen collection on live animal carcass characteristics in the days following the BSE.

Over a 2-year study, yearling bulls (Angus n=50, Hereford n=14, and Charolais n=21) completed a 120-day concentrate based development test (diets consisted of either soybean hull-based or corn gluten feed-based diets) at which time body weight, hip height, scrotal circumference and real-time ultrasound body composition traits were collected for ribeye area, rib fat, intramuscular fat percentage (IMF) and rump fat. A blood sample was collected from each bull via tail vessel and serum harvested for evaluation of cortisol and testosterone concentrations by radioimmunoassay. Bull temperament scores were assessed by 2 individuals during handling, and respiration rates recorded by visual observation during restraint in a handling chute.

Bulls were randomly allotted to one of two treatment groups stratified by breed and previous diet for either performance of a BSE (treatment n=43; Day 0) or no BSE (control, n=41). During the BSE, electro ejaculation equipment was set to a standard setting for all bulls. Bulls were returned to paddocks and diets after handling. Ultrasound for body composition traits, collection of blood for cortisol and testosterone concentrations, temperament scores and respiration rates were again collected from all bulls on day 1, 3 and 10 after initial yearling measurements and BSE.

Breed of bull ($P = 0.001$) influenced body composition traits, body weights, ADG, scrotal circumference and respiration rates. Day post-BSE influenced ($P = 0.001$) respiration rates and average temperament scores as well as cortisol and testosterone concentrations. However, a single BSE, which included handling and electro ejaculation, did not have a negative effect on ultrasound body composition measurements in yearling beef bulls.

Producers wishing to schedule several yearling measurement events (i.e., BSE, ultrasound for body composition traits, and body weights) within a 10-day window should be able to do so without any negative impact of the handling and electro ejaculation for the BSE on the value of the ultrasound body composition measurements.

For more information about this MAFES research project, contact Rhonda Vann at 601-857-5952 or Jane Parish at 662-325-7466.

"…Animal handling and semen collection did not hurt ultrasound measures such as ribeye area or intramuscular fat within a 10-day period."

Ultrasound data are less expensive and time consuming to collect compared with actual harvest data

Mississippi Beef Cattle Improvement Association—Productivity and Quality

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

Phones: 662-325-7466, 662-325-7465
Fax: 662-325-8873
Email: jparish@ads.msstate.edu
jrhinehart@ads.msstate.edu

Send questions or comments to Jane Parish or Justin Rhinehart, Extension Beef Specialists, 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

BCIA Genetic Profit Tips — September 2009

Evaluating Marker Tests

Ask the following questions when evaluating the use of marker-assisted selection in a breeding program:

1. Will marker-assisted selection make you money? For profitability, the increased returns from greater genetic gain as a result of using the markers must outweigh the cost of genotyping. Producers need to consider how they are being financially compensated for DNA testing.

2. What impact does increasing the frequency of the marker allele have on the trait of interest in your herd? The genetic gain that can be achieved by using marker-assisted selection depends on the amount of additive genetic variation that is accounted for by the marker, and marker data should be accordingly weighted. If the marker accounts for only a small proportion of the additive genetic variability for a trait, then little genetic improvement will be made by exclusively focusing on increasing the marker frequency.

3. Is it a single gene test, or are there results from more than one gene? The results from DNA-based marker tests can be reported in many ways. Know which form of the marker is associated with a positive effect on the trait of interest. Ideally, tests that include multiple genes or SNP locations will quantify the relative effect of each loci on the trait of interest. Results should distinguish between a two-star animal that is homozygous at one gene and carries no copies of the desirable allele (i.e., the star allele) at the other gene, and a two-star animal that is heterozygous at both genes. Because every individual receives one marker allele from each parent, it is not possible for an animal to ever have more that two favorable alleles for any given marker locus.

4. What form of the marker do you want for your herd and production environment? The "best" marker allele may differ depending on the environment. If a marker is associated with increased milk production, then using a homozygous bull may be desirable for a beef producer with highly productive irrigated pasture, while a bull carrying no copies of that marker may be better suited to a range cow-calf operation in a dry environment with limited feed resources. Likewise, some tests are recommended only for use in certain breeds of cattle.

5. What are you giving up to use animals that are carrying the marker of interest? Selection usually focuses on more than one trait. Do not narrow down the set of animals eligible for selection based solely on their genotype for a marker. Selecting from a smaller set of animals that carry the marker could eliminate animals with high EPD for other economically relevant traits. This will decrease the intensity of selection, and hence genetic progress, that is being made for these other traits. Take special care to ensure that selection for the marker does not negatively affect genetic improvement in other traits of economic importance. Despite the trend to label commercial DNA tests as having an influence on only one trait, it is unlikely that any gene affects only one single trait.

6. Could good progress in that trait be achieved without the expense of marker-assisted selection? Markers are most useful for traits that are not routinely recorded (have no phenotypic measurement data) and for individuals that have low accuracy EPD. Also, as trait heritability increases, the benefit due to marker information decreases as it becomes easier to select superior animals based on performance records.

Source: National Beef Cattle Evaluation Consortium. 2006. Beef Sire Selection Manual.

Sales and Use Tax Bureau
Street Address:
1577 Springridge Road
Raymond, Mississippi 39154

www.mstc.state.ms.us

Mailing Address:
Post Office Box 1033
Jackson, Mississippi 39215

Telephone: 601-923-7015
FAX: 601-923-7034

MISSISSIPPI

STATE TAX COMMISSION

AFFIDAVIT OF FARMER PURCHASING TRACTORS, FARM IMPLEMENTS AND/OR PARTS AND LABOR

STATE OF MISSISSIPPI
COUNTY OF _____

BEFORE ME, the undersigned authority, on this day personally appeared

_____, who after being by me first duly sworn,
(NAME)

on oath deposed and said:

Under the penalty of perjury, I hereby certify that I am a farmer growing agricultural products on a commercial scale for market. I hereby certify that all farm tractors and farm implements that I purchase at the reduced 1.5% rate of sales tax will be used directly in the production of poultry, ratite, domesticated fish as defined in Miss. Code Ann. Section 69-7-501, livestock, livestock products, agricultural crops or ornamental plant crops or used for other agricultural use in my farming operation. I hereby certify that parts and labor used for the maintenance or repair of farm tractors and/or farm implements purchased at the reduced 1.5% rate of sales tax will only be used on farm tractors and farm implements that qualify for the reduced 1.5% rate of sales tax as provided in Miss. Code Ann. Section 27-65-17. I further certify and agree that if I fail to put farm tractors and/or farm implements and parts and labor used to maintain and/or repair such farm tractors or farm implements to the use set out above, I will pay to the Mississippi State Tax Commission the difference between the one and one half percent (1.5%) sales tax I am paying to the vendor on the farm tractors and/or farm implements and parts and labor used to maintain or repair such farm tractors or farm implements described herein and the seven percent (7%) retail sales tax rate, plus a fifty percent (50%) fraud penalty and interest at the rate of one percent (1%) per month from the date of purchase until this additional tax is paid. I affirm that if I cease to be a farmer prior to December 31, of the current year, I will notify the dealer so that applicable sales tax rates may be charged on future purchases. THIS AFFIDAVIT WILL ONLY SUPPORT THE REDUCED 1.5% RATE OF SALES TAX THROUGH **DECEMBER 31, 2009.** I understand purchases made after December 31, of the current year will require a new affidavit.

WITNESS MY SIGNATURE, this the _____ day of _____, 2009.

_____ _____
(SIGNATURE) (PRINTED NAME)

_____
(STREET ADDRESS)

_____
(MAILING ADDRESS)

Telephone Numbers: Work – (___) _____ Home - (___) _____

SWORN AND SUBSCRIBED, this the _____ day of _____, 2_____.

_____

My Commission Expires: _____

MISSISSIPPI MAFES AGRICULTURAL & FORESTRY EXPERIMENT STATION

Prairie Research Unit
Beef & Forage Field Day

Saturday, October 24, 2009
8:00 a.m. – 1:00 p.m.
10223 Hwy 382, Prairie, MS

Program Topics

- **New Novel Endophyte Tall Fescues**
- **Transportation Stress**
- **Weaning Stress**
- **Native Grasses for Grazing & Wildlife**
- **MAPP Demonstration Herd Update**
- **Hands-on Pasture Evaluation Tutorial**
- **Preview our new GrowSafe Feeding Facility**

Lunch will be provided
Door prize giveaway

MISSISSIPPI STATE UNIVERSITY EXTENSION SERVICE

Contact for more information:
Prairie Research Unit, (662) 369-4426, htb32@msstate.edu