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ALABAMA BEEF FARMERS
A Division of Alabama Farmers Federation
2015 Deep South Stocker Conference
Schedule

Thursday, August 6, 2015

6:30 p.m. Welcome to Alabama Dinner ACA Building

Friday, August 7, 2014

7:45 a.m. Registration Open Trade Show Open Taylor Conference Center, AUM

Opening Session. Taylor 221-223
Moderator: Mr. Joshua Elmore, Regional Agent. AL Cooperative Extension System

8:30 a.m. Welcome and Introductions
Dr. Kim Mullenix, Extension Beef Specialist, AL Cooperative Extension System
Dr. Gary Lemme, Director, AL Cooperative Extension System
Dr. Billy Powell, Executive V.P., Alabama Cattlemen’s Association

8:45 a.m. CattleFax: Feeder Cattle Market Outlook: Implications for Stocker Production in the Southeast
Mr. Duane Lenz, CattleFax Market Analyst

9:30 a.m. FDA Regulations, Antibiotic Use and the Future
Dr. Carla Huston, D.V.M., Mississippi State University

10:15 a.m. Morning Break in the Trade Show

10:50 a.m. Breakout Session Opportunity I
Option I: Grazing Management and Supplementation Taylor 223
Option II: Herd Health Management Taylor 221
Option III: Ag Lenders Panel Taylor 222

12:00 Noon Lunch

1:15 p.m. Breakout Session Opportunity II
Option I: Grazing Management and Supplementation Taylor 223
Option II: Herd Health Management Taylor 221
Option III: Ag Lenders Panel Taylor 222

2:15 p.m. Afternoon Break in the Trade Show
2:45 p.m.  Breakout Session Opportunity III
Option I: Grazing Management and Supplementation  Taylor 223
Option II: Herd Health Management  Taylor 221
Option III: Ag Lenders Panel  Taylor 222

Afternoon Session.  Taylor 221-223
Moderator: Mr. Kevan Tucker, Clarke County Coordinator. AL Cooperative Extension System
3:30 a.m.  Practical Strategies to Improve Performance and Profitability
Mr. Max Bozeman, Bozeman Cattle Company
Mr. Leo Hollinger, Hollinger Cattle Company
Mr. Brad Etheridge, Etheridge Cattle Company

4:20 p.m.  Closing Comments
Dr. Kim Mullenix, Extension Beef Specialist, AL Cooperative Extension System

Breakout Session Details

Each option will be repeated three times at 10:50 a.m., 1:15 p.m. and 2:45 p.m. It is expected each session will last approximately 50 minutes with plenty of time for questions. Thus, everyone will have the opportunity to hear all three discussions.

Option I: Grazing Management and Supplementation: Current AU Research Q&A
Moderator: Mr. Leo Hollinger, Hollinger Cattle Company

Dr. Kim Mullenix, Extension Animal Specialist, AL Cooperative Extension System
Dr. Jennifer Johnson, Extension Forage Specialist, AL Cooperative Extension System
Dr. Russell Muntifering, Professor, Dept. of Animal Sciences, Auburn University
Auburn University Beef-Forage Program Graduate Students

Option II: Herd Health Management: Immunity and Processing Calves
Moderator: Dr. Soren Rodning, DVM, Extension Veterinarian. AL Cooperative Extension

Dr. Paul Walz, DVM, Auburn University College of Veterinary Medicine
Dr. Carla Huston, DVM, Mississippi State University College of Veterinary Medicine

Option III: Ag Lenders Panel: Loans and Risk Management
Moderator: Mrs. Brenda Glover, Regional Agent. AL Cooperative Extension System

Mr. Charles Thomas, Retired President, The Citizens Bank, Greensboro, AL
Mr. Ben Elliot, V.P. and Branch Manager, Alabama Ag Credit, Montgomery, AL
Mr. Andy Leslie, V.P. and Branch manager, First South Farm Credit, Montgomery, AL
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Dr. Carla Huston, Mississippi State University.
Dr. Carla Huston, Mississippi State University, has trained at both the USDA/ARS Plum Island Animal Diagnostic Center and the DHS Center for Domestic Preparedness in the detection and prevention of foreign animal disease (FAD) and biological weapons of mass destruction (WMD) hazards. Huston has hands on experience in international level disease control, surveillance and national emergency preparedness and response. She responded to the 2001 Foot-and-Mouth outbreak in the United Kingdom, as well as the Exotic Newcastle Disease outbreak in Californian 2003. Most recently, she spent several months in Vietnam studying the persistence of Foot-and-Mouth disease in cattle. Dr. Huston serves as the Beef Quality Assurance Coordinator for Mississippi.

Dr. Jennifer Johnson, Assistant Professor and Extension Forage Specialist. Auburn.
Since 2012, Dr. Jennifer Johnson has served as the Alabama Extension Forage Specialist and as an Assistant Professor in the Department of Crop, Soil and Environmental Sciences. Her Extension program focuses on working with producers, agents, and commodity groups on conducting educational programs focused on improving forage management and utilization. Her research program focuses on improving forage quality and utilization through various management practices. Raised on a farm in Kentucky, Johnson earned her B.S. and M.S. degrees from Western Kentucky University and her Ph.D degree from the University of Kentucky.

Dr. Gary Lemme, Director. Alabama Cooperative Extension System.
Dr. Gary D. Lemme was raised on a small farm in Minnesota and attended South Dakota State University, earning his bachelor’s degree in agricultural education in 1974 and his master’s in agronomy in 1975. In 1979, he earned his Ph.D.in agronomy from the University of Nebraska–Lincoln. Lemme has served as director of the Alabama Cooperative Extension System since 2011, where he provides leadership to the nation’s only joint 1862 and 1890 land-grant university Extension system. As an experienced leader of scientific and academic programs, Lemme’s commitment to the critical role of education in the sustainability of agriculture and rural American communities spans four decades and includes 20 assignments in 16 countries and approximately $2.4 million in grants and contracts. His vision for Extension is renowned across the U.S. for its balance of the intellectual and practical and its incorporation of environmental stewardship, economic development and quality-of-life issues. Hailed for his strong and courageous governance, his leadership abilities include skilled strategic planning, formation of transformational scientific teams, and fostering performance-based partnerships.
Duane Lenz, CattleFax.
Duane Lenz has been a Market Analyst at CattleFax since 1989 and works primarily with Texas, California and Arizona feedlots. Prior to working with CattleFax, Duane spent 9 years as a lamb buyer for Farmstead Foods Corporation (formerly Wilson Foods Corp.). Duane is a graduate of Colorado State University and was raised 30 miles south of Denver on a diversified livestock operation.

Dr. Kim Mullenix, Assistant Professor and Extension Specialist. Auburn.
Dr. Kim Mullenix is an Assistant Professor and Extension specialist, working closely with Auburn’s Animal Science and Forage Extension Team to help develop and deliver educational programs related to beef cattle management systems. The systems approach enables her team to look at how all of the production pieces work together to form management recommendations for producers. Kim’s academic appointment at Auburn is 75 percent extension and 25 percent research. Her research program is focused on developing forage management and supplementation strategies that improve beef production efficiency and the economic viability of these systems. Mullenix earned both her B.S. and M.S. degrees from Auburn University Department of Animal Sciences. Her Ph.D. degree was earned at the University of Florida. She joined the faculty at Auburn in 2014.

Dr. Russell Muntifering, Professor. Auburn University.
Dr. Russell Muntifering is a Professor in the Department of Animal Sciences with an emphasis in ruminant nutrition. He holds a research and teaching appointment and teaches undergraduate biochemistry to over 250 students per year. Muntifering has a wide range of research interests as it related to forages including how the environment impacts forage growth and nutrition. Muntifering earned his B.S. and M.S. degrees from the University of California-Davis and his Ph.D. at the University of Arizona. Muntifering established research and teaching programs at the University of Kentucky and Montana State University before arriving in Auburn in 1992.

Dr. William Powell, Executive Vice President. Alabama Cattlemen’s Association.
Dr. William Powell grew up on a cattle and timber farm in Washington County, AL that later became Powell Red Angus Farm. After completing both a bachelor’s and Ph.D degree from Auburn, Powell worked briefly as an assistant professor in the Animal Sciences Department. For the next several years, Powell worked in private industry, heading the feed division of a regional grain company. In 1983, Dr. Powell was was tapped as the Alabama Cattlemen’s Association assistant executive vice president. In 1985, he became executive vice president of the Association and editor of Alabama Cattleman magazine. Recognized as an innovative and progressive leader, Powell has represented the state cattle industry on committees and task forces at local, state, and national levels. He has been an advocate for agriculture both in Montgomery and in Washington, D.C. His efforts in fundraising for agriculture at Auburn have benefitted the diagnostic laboratory, the beef research facility, and the meat science laboratory on the Auburn University campus. Among the many honors and awards bestowed upon Powell was the 2005 dedication of Auburn’s Lambert-Powell Meats Laboratory.
Dr. Paul Walz, DVM, Ph.D.  Department of Pathology, College of Veterinary Medicine, Auburn.

Dr. Walz received his D.V.M. from Michigan State University in 1992. Following two years in a mixed animal practice in Corunna, Michigan, he returned to Michigan State University for a residency in Food Animal Medicine, Surgery, & Production Medicine. Dr. Walz completed his residency, received his M.S. degree in 1997, and became board certified by the American College of Veterinary Internal Medicine in Large Animal Medicine. Dr. Walz continued his graduate studies at Michigan State University and received the Ph.D. degree in 2000. Dr. Walz joined the faculty at Auburn University in 2004 in the Section of Food Animal Medicine in the Departments of Clinical Sciences and Pathobiology. Dr. Walz currently serves as the Coordinator of Animal Health Research. Dr. Walz’s clinical and research interests include medical and surgical conditions affecting food animals, as well as infectious diseases of cattle. His primary research focus is bovine viral diarrhea virus (BVDV) infection in cattle. Specific interests involve improving diagnostics for BVDV, and evaluating the pathophysiology of disease associated with this viral infection of cattle.
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Deep South Stocker Conference
August 2015

Stocker Cattle Profitability
Summer Grazing Program

Beef Cow Inventory

Source: CattleFax

Source: USDA
Projected 2016-2018
2015 Forecasts
Production = 24.3 bil. Lbs. (+6%)
Per Cap. Net Supply = 48.6 lbs. (+2.4 lb.)

Weekly Average Commercial Pork Production

Source: USDA, forecast CattleFax

USDA Pork Cutout Price

Price ($/cwt)

2015
2014
2013
2012

US Consumer Expenditures on Beef

Source: USDA
U.S. red beef supply valued at all fresh retail
### Implied Feeder Futures Price based on Live Cattle & Corn Futures

<table>
<thead>
<tr>
<th>Live Cattle Futures Price</th>
<th>Corn Futures Price $/BU</th>
</tr>
</thead>
<tbody>
<tr>
<td>$125</td>
<td>$175.55 $172.83 $170.10 $167.38 $164.65 $161.90</td>
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</tr>
<tr>
<td>$155</td>
<td>$226.30 $223.40 $220.50 $217.60 $214.70 $211.88</td>
</tr>
</tbody>
</table>

*This table does not imply cash feeder cattle breakeven levels*
More food will be needed in the next 50 years, than was consumed in the last 7,000 years

Source: US Department of Commerce, plus other published estimates

Global Demographics

- The global middle class is beginning a major wave of growth: 2 billion (2012) to 4.9 billion (2030)
- David Rohde, Reuters
- Asia’s middle class spent $4.8 billion in 2010; by 2030 they will spend $32.6 billion (+580%)
- OECD, Kiplinger
Export values per head have increased 6% on average for the last 20 years. If this trend continues, exports will contribute $500/head by 2020.

Equal to $27/cwt on fed cattle prices in 2014.
Equal to $70/cwt on calf prices in 2014.

Weekly Change in the Value of Fed Cattle, 2011 to Current

Since 2011, 34% of the time the weekly price change was $30/hd or more and 62%, of the time greater than $20/hd.

Cattle Prices

Source: CattleFax
2015-18 Projected
• The market is changing rapidly, so in order to remain profitable, your buying habits or risk management practices may need to change as well.

• Prices for all cattle segments will come down over time, so controlling what you can, namely selling prices in order to make a profit whenever you have a chance to be profitable will become a necessity.

Thank You for attending!
Travel Safe!
Thank You

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For Sponsoring the Herd Health Management Seminar

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Antibiotic Use, FDA Regulations, and the Future
Carla Huston, DVM, PhD, ACVPM
College of Veterinary Medicine
Mississippi State University

Background on antibiotic use
There has been a growing concern that the use of antibiotics in veterinary medicine, specifically those used in food-producing animals, is contributing to the increasing problem of antibiotic resistance in humans. Of particular concern is the recent Food and Drug Administration (FDA) report indicating that 94% of all medically important antibiotics used in food animal production are delivered through the feed or water. Antibiotics are available for livestock in three ways: over-the-counter (OTC), prescription (Rx), or through a veterinary feed directive (VFD). While the first two categories have been around for many years, the VFD option is a fairly recent one in livestock production.

FDA Regulations:
The Animal Drug Availability Act (ADAA), passed by Congress in 1996, established a new regulatory category for distributing certain animal drugs in or on animal feed (21 CFR 558.3) called a veterinary feed directive (VFD). A VFD is required when it has been determined that certain new animal drugs used in the feed require veterinary oversight. Examples of animal drugs approved with a VFD label include florifenicol use in fish and tilmicosin for use in swine and cattle.

Antibiotics used in food animals are categorized as either medically important or not medically important to human medicine, as defined by the 2003 FDA Guidance for Industry (GFI) #152. Antibiotics used in animal feeds are also categorized according to the required drug withdrawal times: Category I drugs require no established drug withdrawal at the lowest approved use level, and Category II do require a withdrawal period at the lowest approved use.

The goals of recent FDA actions have been to promote the judicious use of medically important antimicrobials in food animals, which includes phasing out the use of medically important antibiotics in food animals for production purposes. GFI #209, published in 2010, stated that the use of medically important antimicrobial drugs in food-producing animals should be limited to those uses that are considered necessary for assuring animal health, and that such uses should be limited to those that include veterinary oversight or consultation. GFI #213, published in 2013, provided the roadmap for companies to comply with those recommendations and included a timeline for implementation.

Final rule: Veterinary Feed Directive
The final VFD regulation was published on June 3, 2015. Antibiotics considered “medically important” in human medicine that are used in animal feeds will require a VFD by Dec. 2016, the target date for implementation at set forth by the FDA.

Producers will be required to obtain a VFD from their veterinarian for medicated feeds such as chlortetracycline (CTC) crumbles and medicated milk replacers. Specific requirements for a proper VFD can be found in the final ruling. For example, the veterinarian must be licensed in the state where the animals reside. The VFD’s must be filled through an approved feed mill or feed distributor. Telephone orders will not be allowed, although electronic means may be used to deliver the VFD request. VFD’s will expire according to the date on the feed label; if none is provided, then the VFD is good for a period of 6 months, which is actually longer than most of the current VFD’s allow. Multiple premises may be
listed on the VFD order if they have the same owner. Additional details such as number and type of animals being treated, condition being treated, and level of antibiotic to be delivered to the animals will also be required. There will be a two-year record-keeping requirement for the veterinarian, the distributor, and the producer.

The FDA requires that a valid veterinary-client-patient relationship (VCPR) exists when a VFD order is written. In addition to being required for a VFD order, a VCPR is required for any extra-label drug use (ELDU) in food-producing animals as defined by the 1994 Animal Medicinal Drug Use Clarification Act (AMDUCA). This applies to both OTC and prescription drugs. It is important to remember that off-label use of any medicated feeds is not permissible under any circumstances; therefore a VFD order may not be used off-label or altered by anyone.

The VCPR is a term used to define the relationship between veterinarians and their clients. Many state veterinary boards have defined the VCPR as part of their practice acts, requiring the existence of a VCPR prior to a veterinarian diagnosing or treating an animal, or prescribing or dispensing medications. Under AMDUCA, a VCPR exists when:

1. A veterinarian has assumed the responsibility for making medical judgments regarding the health of (an) animal(s) and the need for medical treatment, and the client (the owner of the animal or animals or other caretaker) has agreed to follow the instructions of the veterinarian;
2. There is sufficient knowledge of the animal(s) by the veterinarian to initiate at least a general or preliminary diagnosis of the medical condition of the animal(s); and
3. The practicing veterinarian is readily available for followup in case of adverse reactions or failure of the regimen of therapy. Such a relationship can exist only when the veterinarian has recently seen and is personally acquainted with the keeping and care of the animal(s) by virtue of examination of the animal(s), and/or by medically appropriate and timely visits to the premises where the animal(s) are kept.

The VCPR is not as easily defined in large animal settings for several obvious reasons. “Sufficient knowledge” of the animals and “timely visits” to an operation may need to be defined on an individual basis by need on a particular operation system. Organizations such as the American Association of Bovine Practitioners provides guidelines for establishing and maintaining a VCPR in bovine practice, including maintaining written agreements with producers and maintaining relationships with consultants and other veterinarians. As written, the VCPR is subject to various levels of interpretation.

A more flexible VCPR requirement has been added to the FDA VFD Final Rule to rely more on the individual state’s practice act. If the state does not have a defined VCPR, the federal definition of the VCPR under AMDUCA will apply. The FDA is expected to publish a list of states that have their own VCPR requirements on its website in the near future.

Also according to the FDA final rule, OTC water soluble antibiotics will become prescription only. Ionophores will be exempt as they are considered “not medically important” in human medicine. Injectable OTC antibiotics are also not affected by this ruling.

The Future
The new drug laws should be seen as both an obligation as well as an opportunity for stocker cattle operators. Producers can work with their veterinarians to evaluate herd health plans, including current and future medicated feed usage. Principles of judicious use of antimicrobials should be reviewed, and
continued evaluation of preventive medicine practices will be essential. Developing systems to prevent disease will reduce the overall need for antibiotics. For example, establishing good backgrounding strategies can help reduce the need for antibiotics later in the production system. Low-stress weaning, good pre-wean and weaning bunk management, and a good pre-wean vaccination program can help give a calf the best opportunity to develop good immunity.

Clearly, the continued availability of effective antimicrobial drugs is critically important for combating infectious disease in both humans and animals. Education and communication between all beef sectors will be key to a smooth transition under the new FDA drug guidelines.

References:


Food and Drug Administration Veterinary Feed Directive Producer Requirements. 

Food and Drug Administration Veterinary Feed Directive Veterinarian Requirements. 

Thank You

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SUPPLEMENTATION FOR STOCKER CATTLE: TERMS, CONCEPTS, AND APPLICATIONS

TERMS AND CONCEPTS

**Forage mass/allowance**

Forage mass is the total dry weight of aboveground forage per unit of land area (e.g., pounds [lb] forage dry matter [DM]/acre), whereas forage allowance is a forage-to-animal relationship between the mass of forage DM and total body weight (BW) of animals per unit land area. To illustrate, an acre of pasture with 2,000 lb of aboveground forage DM being grazed by two 500-lb stocker calves provides a forage allowance of $2,000 \div (2 \times 500) = 2$ lb forage DM/lb total animal BW.

**Stocking rate/density**

Stocking rate refers to the number of animals per unit of land area over a specified *period of time*, whereas stocking density is the number of animals per unit of land area at a specific *point in time*, which may be greater or less than the grazing-season average. A 10-acre pasture occupied by 20 stocker calves over the grazing season has a stocking rate of 2 animals/acre. If the pasture is rotationally grazed such that all the animals are restricted at a given time to one-fourth of the pasture in a 4-paddock rotation system, the stocking density at that time is $20 \div 2.5 = 8$ animals/acre.

**Supplementation**

The practice of adding feedstuffs to the base diet. Supplements can be provided to grazing animals to overcome nutrient deficiencies or to provide additional nutrients required for a desired level of production. Supplements for stocker cattle are formulated to provide primarily energy, protein or both, and may include vitamins, minerals and/or other feed additives.

**Crude protein**

Crude protein (CP) is the approximate amount of true protein in a feedstuff that is calculated from its nitrogen (N) concentration as $N \times 6.25$ (assumes that protein contains 16% N). The CP fraction is largely true protein, but it also contains non-protein N (NPN) from compounds such as nucleic acids.

**Degradable Intake Protein**

Degradable intake protein (DIP) is the proportion of feed CP that is digested or degraded by rumen microorganisms and used for microbial protein synthesis. It consists primarily of soluble N, NPN and soluble true protein, and is sometimes referred to as rumen degradable protein (RDP).

**Undegradable Intake Protein**

Undegradable intake protein (UIP) is the proportion of feed CP that escapes rumen degradation and together with microbial protein is digested in animal’s small intestine. It is sometimes referred to as ‘bypass protein’, ‘escape protein’ or rumen undegradable protein (RUP).
**Total Digestible Nutrients**

Total digestible nutrients (TDN) is an estimate of the energy value of a feedstuff derived from nutrient digestion and absorption. This term is commonly used by forage and feed analysis laboratories in the Southeast to report the energy value of a feedstuff.

**Energy Supplements**

Energy supplements are typically provided to stocker cattle when energy content of low-quality grazed forage is limiting to performance, or to simply increase performance from high-quality forage. Energy supplements are high in their concentration of TDN (typically ≥ 70%) derived from simple sugars (e.g., molasses), fat (e.g., oilseeds, tallow, etc.), starch (e.g., cereal grains) and/or highly digestible fiber (e.g., hulls, pulps, etc.). Energy supplements are typically most effective when fed at rates equivalent to 0.25 to 0.75% of animal BW daily, but may negatively affect forage digestibility, intake and utilization when fed at excessively high rates, especially in the case of high-starch feedstuffs. Such effects are typically more pronounced for high- than low-quality forage, and can be exploited effectively by the forage manager to stretch the forage supply and/or increase stocking density in order to maintain a target forage mass/allowance.

**Protein Supplements**

Protein supplements (typically ≥ 20% CP) are provided to stocker cattle when protein content and/or degradability characteristics (i.e., balance of DIP and UIP) of forages are limiting to animal performance. Examples of high-protein feeds having relatively greater DIP than UIP value are soybean meal, legume hay, fermented feeds (e.g., silages and baleage) whole cottonseed, corn gluten feed and wheat middlings. Examples of feeds having relatively greater UIP than DIP value are blood meal, corn gluten meal, feather meal, cottonseed meal and distillers grains.

**APPLICATIONS**

**Expected responses and approaches to supplementation**

Stocker average daily gain (ADG) response to supplementation of grazed forage can be quite variable. However, as a general rule, the best responses in ADG are typically observed with supplements that contain > 60% TDN and provide supplemental CP intake > 0.05% of body weight (BW); e.g., ¼ lb CP for a 500-lb stocker, equivalent to 1 lb of a 25% CP supplement.

Supplementation with protein will generally result in increased DM intake of forages containing < 7% CP or having a TDN:CP ratio > 7. Supplemental DIP is especially beneficial when forage contains low to intermediate concentrations of CP, in which case supplemental energy may also be warranted.

Supplement can decrease forage intake when supplemental TDN intake is > 0.7% of BW (e.g., 3½ lb TDN for a 500-lb stocker, equivalent to 4 lb corn), forage TDN:CP ratio is < 7 (usually reflects N adequacy), and/or high-starch supplements are offered at levels > 0.4% of BW (e.g., 2 lb corn for a 500-lb stocker steer).
If concentrations of TDN, UIP and DIP in grazed forage and supplemental feeds are known or can be estimated from published tabular values, a good approach is to first estimate the forage intake and balance the supplement formulation for TDN; then balance for DIP (should be approximately 10-13% of TDN); and, lastly, check the UIP balance and substitute if necessary with a high-UIP feed source, making sure not to perturb the DIP formulation.

Prepared by Russ Muntifering, Ph.D., Professor, Department of Animal Sciences, Auburn University. Released August 2015.
Beef cattle performance from grazed mixtures of triticale and wheat with ryegrass

This Timely Information Sheet highlights the results of a cool-season annual grazing trial for growing cattle in South Alabama.

Why small-grain/ryegrass mixtures for growing cattle?
The main reason is the opportunity to extend the grazing season!
By planting mixtures of cool-season annuals that differ in their growth pattern, high-quality forage can be distributed more uniformly throughout the winter grazing season. The addition of ryegrass with small-grains is not a novel practice, but is often underutilized. The combination of small grains and ryegrass can produce longer grazing seasons, greater gain per acre and greater number of grazing days compared with cool-season annuals grown alone.

Why plant wheat and/or triticale with ryegrass?
Previous research in this area has shown that, when grown alone, ryegrass and wheat support greater beef performance than triticale. However, little information is available on beef production from mixtures of these species. A two-year study was conducted at the Wiregrass Research and Extension Center in Headland, Alabama to evaluate forage and animal production from these mixtures.

What are the forages mixtures that were evaluated?

<table>
<thead>
<tr>
<th>Treatments:</th>
<th>Seeding rates:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Triticale + ryegrass</td>
<td>92 lb/ac ‘Trical 2700’ triticale + 10 lb/ac ‘Marshall’ ryegrass</td>
</tr>
<tr>
<td>Wheat + ryegrass</td>
<td>92 lb/ac ‘SS 8641’ wheat + 10 lb/ac ‘Marshall’ ryegrass</td>
</tr>
<tr>
<td>Triticale + wheat + ryegrass</td>
<td>45 lb/ac ‘Trical 2700’ triticale + 45 lb/ac ‘SS 8641’ wheat + 10 lb/ac ‘Marshall’ ryegrass</td>
</tr>
</tbody>
</table>

How were they established?
The above mixtures were planted into a prepared seedbed on replicate 3.5-acre pastures in November of each year of the experiment.

How were they managed?
Four Angus × Simmental steers were placed on each pasture to graze for the entirety of the grazing season beginning in January 2013 (Year 1) and December 2013 (Year 2). Prior to the start of the grazing season, steers were backgrounded on medium-quality bermudagrass hay for 60 days.
Additional steers were added to pastures in order to maintain a forage mass of 1,500 to 2,000 lb of dry matter/acre. Grazing was terminated in May of each year when forage quantity and quality could no longer support animal performance greater than 2 lb of gain per day.

What are the key results and conclusions?
- All treatments produced high ADG with an average of ≥ 3 lb per day across the experiment.
- The table below shows the animal performance of the test steers during the experiment. There were no differences in animal performance among pasture systems. Mixtures of triticale + ryegrass were comparable to mixtures that include wheat + ryegrass in supporting average daily gain and total body weight gain per acre.
- Mixtures of triticale + wheat + ryegrass did not offer an advantage over triticale + ryegrass or wheat + ryegrass mixtures in the present study.
- The cost of gain was also similar among production systems.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Triticale + ryegrass</th>
<th>Wheat + ryegrass</th>
<th>Triticale + wheat + ryegrass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial body weight (lb per hd)</td>
<td>763</td>
<td>768</td>
<td>763</td>
</tr>
<tr>
<td>Final body weight (lb per hd)</td>
<td>1179</td>
<td>1181</td>
<td>1177</td>
</tr>
<tr>
<td>Average daily gain (lb per day)</td>
<td>3.1</td>
<td>3.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Grazing season length (days)</td>
<td>128</td>
<td>128</td>
<td>128</td>
</tr>
<tr>
<td>Gain per acre (lb per acre)†</td>
<td>492</td>
<td>506</td>
<td>476</td>
</tr>
<tr>
<td>Stocking Rate (steers per acre)</td>
<td>1.2</td>
<td>1.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Cost of gain ($/lb of body weight)</td>
<td>0.66</td>
<td>0.63</td>
<td>0.64</td>
</tr>
</tbody>
</table>

†Calculated from average daily gain x grazing season length x stocking rate

Final Thoughts?
Many environmental and management factors affect the productivity and quality of small-grain/ryegrass mixtures. These different levels of forage productivity and quality affect animal performance and thus profitability. Producers should also consider the cold-tolerance of a given variety when selecting for more northern locations. Forages should be kept in a vegetative state and not allowed to become reproductive to maintain nutritive value throughout the grazing season.

Prepared by Kim Mullenix, Extension Beef Cattle Systems Specialist, Auburn University, Kaleb Marchant, University of Georgia Feed Mill Manager, and Walt Prevatt, Extension Livestock Economist, Auburn University. MKM-R14-1.
Supplementation of stocker cattle grazing annual ryegrass

This information sheet highlights the results from a stocker cattle grazing and supplementation evaluation in Central Alabama.

Ryegrass and Stocker Cattle
Stocker cattle are newly weaned cattle that graze high-quality forages from weaning until they are between 700 to 900 pounds (lb). Stockering has become a common practice for adding weight to cattle before they are sent to feedlots for finishing. In the Southeast, grazing fall stockers on a high-quality pasture such as annual ryegrass can be profitable and produce good weight gains.

Supplementation: Why, What, and How Much?
Supplementing cattle grazing high-quality cool season annuals such as ryegrass with a high-energy supplement has been shown to increase weight gain and enable greater stocking rates. Both high-starch supplements such as a corn-based ration, and high-fiber supplements like hulls and pulps can produce these beneficial outputs. Supplements should be fed at low levels calculated as a percentage of animal body weight (% BW). Research suggest that energy supplementation at 0.30% BW improves digestible energy intake, while minimizing negative effects on forage digestibility. However, numerous studies have been conducted evaluating supplementation levels ranging from 0.2% BW to 2.0% BW.

Objective:
While research has been conducted to evaluate supplement type and level individually, little work has been done to evaluate both type and level simultaneously. The objective of this study was to determine how type and level of energy supplementation with locally available feedstuffs affect stocker performance and forage utilization from annual ryegrass.

Supplement Types and Levels Evaluated:
Types: Cracked corn (CC), pelleted citrus pulp (CP), pelleted soybean hulls (SH)
Levels: 0.25, 0.50, 0.75% BW

Treatments: Supplement Type x Level

<table>
<thead>
<tr>
<th>Cracked Corn 0.25% BW</th>
<th>Citrus Pulp 0.25% BW</th>
<th>Soybean Hulls 0.25% BW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cracked Corn 0.50% BW</td>
<td>Citrus Pulp 0.50% BW</td>
<td>Soybean Hulls 0.50% BW</td>
</tr>
<tr>
<td>Cracked Corn 0.75% BW</td>
<td>Citrus Pulp 0.75% BW</td>
<td>Soybean Hulls 0.75% BW</td>
</tr>
</tbody>
</table>

An unsupplemented control (CON) was also included.
Establishment and Management:
Thirty 2-acre pastures were planted with annual ryegrass in October of 2013 (Year 1) and September of 2014 (Year 2). Only 20 pastures were viable in year 1 due largely to inclement weather in that year. Pastures were randomly assigned to 1 of the 9 supplementation treatments or the unsupplemented control. Cattle were stocked with 4 crossbred steers weighing approximately 523 lbs (2 animals/acre). Grazing began when forage mass was approximately 855 lb dry matter (DM)/acre. Grazing lasted 98 days in year 1 and 118 days in year 2. Cattle were removed from pasture when forage quantity and quality could no longer support ADG of 1.5 lbs.

Key Results and Conclusions (Table 1 and 2)
- Supplemented cattle gained more than unsupplemented cattle
- There was no difference among the supplement types with respect to ADG
- Supplementation at 0.50% BW resulted in maximum ADG from fibrous supplements
- Starchy supplements reached maximum ADG when fed at 0.25% BW
- Implementing an energy supplementation system resulted in ungrazed forage being left in the pasture which could allow for greater stocking rates

Table 1. Animal performance of stocker calves grazing annual ryegrass

<table>
<thead>
<tr>
<th>Treatments†</th>
<th>CC 0.25%</th>
<th>CC 0.50%</th>
<th>CC 0.75%</th>
<th>CP 0.25%</th>
<th>CP 0.50%</th>
<th>CP 0.75%</th>
<th>SH 0.25%</th>
<th>SH 0.50%</th>
<th>SH 0.75%</th>
<th>CON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial BW (lb/hd)</td>
<td>525</td>
<td>520</td>
<td>520</td>
<td>526</td>
<td>528</td>
<td>521</td>
<td>522</td>
<td>522</td>
<td>526</td>
<td>525</td>
</tr>
<tr>
<td>Final BW (lb/hd)</td>
<td>812</td>
<td>775</td>
<td>805</td>
<td>774</td>
<td>791</td>
<td>772</td>
<td>769</td>
<td>795</td>
<td>787</td>
<td>742</td>
</tr>
<tr>
<td>ADG (lb/d)</td>
<td>2.62</td>
<td>2.32</td>
<td>2.60</td>
<td>2.27</td>
<td>2.40</td>
<td>2.30</td>
<td>2.25</td>
<td>2.50</td>
<td>2.40</td>
<td>1.98</td>
</tr>
</tbody>
</table>

†Where CC = cracked corn, CP = citrus pulp, and SH = soybean hulls at 0.25, 0.50, or 0.75% BW, respectively.
Table 2. Forage mass (lb DM/acre) responses as related to energy supplement type and level.

<table>
<thead>
<tr>
<th>Treatments†</th>
<th>CC 0.25%</th>
<th>CC 0.50%</th>
<th>CC 0.75%</th>
<th>CP 0.25%</th>
<th>CP 0.50%</th>
<th>CP 0.75%</th>
<th>SH 0.25%</th>
<th>SH 0.50%</th>
<th>SH 0.75%</th>
<th>CON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Forage Mass (lb DM/acre)</td>
<td>939</td>
<td>778</td>
<td>796</td>
<td>959</td>
<td>803</td>
<td>846</td>
<td>1021</td>
<td>947</td>
<td>820</td>
<td>861</td>
</tr>
<tr>
<td>Final Forage Mass (lb DM/acre)</td>
<td>588</td>
<td>463</td>
<td>495</td>
<td>335</td>
<td>463</td>
<td>502</td>
<td>441</td>
<td>497</td>
<td>509</td>
<td>239</td>
</tr>
<tr>
<td>Change in Forage Mass (lb DM/acre)</td>
<td>-351</td>
<td>-316</td>
<td>-301</td>
<td>-624</td>
<td>-340</td>
<td>-344</td>
<td>-580</td>
<td>-450</td>
<td>-310</td>
<td>-622</td>
</tr>
<tr>
<td>Residual Forage Mass‡ (% of initial)</td>
<td>71</td>
<td>61</td>
<td>65</td>
<td>42</td>
<td>62</td>
<td>56</td>
<td>55</td>
<td>58</td>
<td>68</td>
<td>32</td>
</tr>
</tbody>
</table>

† Where CC = cracked corn, CP = citrus pulp, and SH = soybean hulls at 0.25, 0.50, or 0.75% BW, respectively.
‡ Residual Forage Mass is calculated as the mass of the forage remaining at the end of the grazing season in comparison with the mass of the forage at the beginning of the grazing season. It is expressed as a percent (%) of the initial forage mass (lb DM/acre).

**Final Thoughts:**
Implementing an energy supplementation system for stocker cattle grazing a cool-season annual increases ADG and enables greater stocking rates. Neither type nor level of supplementation greatly affects ADG. Level of supplementation more greatly affects forage utilization and potential stocking rates than does supplement type.

**References:**

Prepared by: Kim Mullenix, Extension Beef Cattle Systems Specialist, and Carla Weissend, Graduate Research Assistant, Department of Animal Sciences, Auburn University. MKM-R15-1. Released August 2015.
Thank You

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Effects of an extended release anthelmintic on performance of grazing beef cattle

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Mississippi Ag and Forestry Exp. Station- White Sand Branch Unit, Poplarville

Abstract
Seventy-four crossbred beef steers (average BW = 527 lb) were used in a randomized complete block design to evaluate the use of a long acting anthelmintic on performance and fecal egg count. Steers were sorted by BW into sixteen 3-ac pastures of annual ryegrass, and pasture was randomly assigned to one of two treatments: a single injection of an extended release eprinomectin (EXT) or two injections (d 0 and d 64) of a typical dewormer used in stocker operations (doramectin; DOR). Stocking rate was adjusted within each block to account for forage biomass differences. Steers were allowed to graze pastures for 114 d. No differences (P = 0.36) were noted for initial BW, however at final BW, steers treated with EXT were heavier (P = 0.04) than steers treated with DOR. Moreover, steers treated with EXT had greater ADG (P = 0.05) and overall greater gain per acre (P = 0.04) than steers treated with DOR. Total cost of gain was greater (P = 0.04) for cattle treated with EXT. No differences (P = 0.67) were noted regarding initial total fecal egg count, nor were differences noted for final total fecal egg count (P = 0.31). In the present study, both products had similar effects on internal parasites; however, DOR resulted in greater performance, perhaps due to less stress of re-working cattle.

Introduction
Stocker cattle production is an important economic industry in South MS and in many parts of the United States. Stocker systems typically involve placing lightweight cattle on higher quality pastures for a period of time in an attempt to capture best net return (Reuter and Beck, 2013). Stocker cattle production is an extensive operation in which cattle may be spread out over a vast geographic region, which can result in limited access to cattle. Anthelmintics have also shown to improve grazing beef cattle performance (Stromberg et al., 1997), however, they too have limited days of efficacy, and to fully capture the benefit of the anthelmintic would involve reworking cattle, which can incur additional labor and possibly impact animal performance (Wallace et al., 2008). Therefore the aim of the present study was to examine the use of an extended release anthelmintic agent on performance of grazing beef cattle, to quantify costs associated with reworking stocker cattle and to determine if differences existed in fecal egg counts.

Procedures
All procedures were approved by the Mississippi State University Institutional Animal Care and Use Committee.
Cattle and Pastures. Eighty head of crossbred beef steers were purchased from an order-buyer facility in Brookhaven, MS, and transported approximately 104 mi to the White Sand Branch Research Unit, located 10 mi west of Poplarville, MS. Upon arrival, cattle were offloaded and placed in a large (30 ac) dormant pasture with free choice
access to hay. Animals were maintained in that pasture for 16 d prior to the initiation of the study.

On 0-d of the study cattle were weighed and individually identified with an ear tag. Cattle were stratified by BW and sorted into groups of similar BW. At weighing a fecal grab sampled was obtained to measure parasite load. Body weight was used as a blocking factor, with each block having an equal number of treatments (pastures). Each pasture was 3-ac in size and had been no-tilled seed with annual ryegrass (*Lolium multiflorum*) at the rate of 35 lb/ac in late October of 2014. Thirty days prior to grazing, each pasture was fertilized with 60 lb N/acre of ammonium nitrate/urea combination. Pasture samples were taken periodically (every 28 d) to determine forage quality (Table 1). Stocking rate was determined by the forage biomass measurements taken prior to the initiation of the study in conjunction with the BW obtained at sorting, to ensure that all animals had similar quantities of forage available. There were equal numbers of animals per treatment. Within each block, pastures had been randomly assigned to treatment by use of a random number generator. Treatments were: 1 mL of extended release epinomectrin per 110 lb of BW (EXT), or 1 mL of doramectrin per 110 lb of BW (DOR). Cattle were then moved into their respective pastures. After 64-d on pasture, DOR cattle were brought back and re-treated with 1 mL of doramectin per 110 lb of BW, while the cattle in the EXT treatment groups were left alone. Following 114-d of grazing, all cattle were individually weighed, fecal samples were collected again, and the study was terminated.

*Fecal samples.* Following collection, samples were kept cold 40°F, and shipped overnight to an analytical lab in Georgia for total parasite count.

*Costs.* Since one of the objectives was to quantify the costs of reworking cattle, all costs involved with the study were recorded and maintained, including time spent working cattle ($12.00/h hourly wage), a chute fee ($0.25/animal) and medication costs ($1.07/mL for EXT and $0.29/mL for DOR). Additionally, seed, fertilizer and other costs associated with site preparation were recorded.

*Statistics.* All data were analyzed as a mixed model using PROC MIXED of SAS (SAS 9.3). Pasture was the experimental unit, fixed effects included treatment, and random effects included block. Least square means were separated using the PDIF option in SAS.

**Results**

*Performance data.* Performance data are presented in Table 2. No differences were noted for initial BW (*P* = 0.36). However, at the end of the grazing study, differences were noted for final BW (*P* = 0.04) with cattle treated with EXT weighing about 19 more lbs. Additionally, greater ADG was noted for the EXT treatment group as well (*P* = 0.05). On an acre basis, EXT gained more weight per acre than DOR (*P* = 0.05).

*Economic data.* Economic data are presented in Table 2. Despite the fact DOR cattle had to be handled twice, it was more inexpensive to work DOR cattle than EXT (*P* = 0.01), due to the cost differences of the anthelmintic. Additionally, when factoring pasture preparation costs, the overall costs for EXT were greater than DOR (*P* =0.01). Despite the economic advantage DOR possessed, the greater gain associated with EXT resulted in a more favorable cost of gain compared to DOR (*P* = 0.04).
**Parasite Load.** Data are presented in Table 3. Initial parasite load was similar for both treatment groups ($P = 0.67$), and was similar for both groups at the end of the grazing period ($P = 0.32$). Both treatments appeared to reduce fecal parasite load in a similar fashion ($P = 0.13$).

**Discussion**
It is unclear why a performance difference existed in the current study. Stromberg et al (1997) demonstrated the performance advantages associated with controlling the parasite load in beef heifers. Nonetheless, in the present study both treatments seemed to control internal parasites similarly, therefore, parasite load cannot explain the performance differences noted in the current study. Wallace et al. (2008) determined the costs of reworking cattle in the feedlot (reimplant), and noted that DMI was decreased for up to 10 d following re-working. Perhaps the stress of reworking cattle in the present study caused a similar decrease in DMI. Using NRC (2000) to calculate DMI based upon forage quality samples and performance data, there is a 0.45 lb difference in calculated DMI, between the two treatments; however, it is unclear if this is due to reworking cattle in DOR groups. Cattle fed diets greater in moisture (as would be the case for ryegrass pasture) have greater percent shrink than cattle fed dryer feedstuffs (Cravey et al., 1991). We hypothesize that the shrink the DOR group underwent due to reworking, coupled with a possible decrease in DMI following reworking led to the differences in performance noted; however, Macoon et al., (2003) demonstrated the difficulties obtaining DMI values for cattle grazing pastures, therefore it is unclear whether effects noted were due to DMI decrease.

**Implications**
Under the conditions of the present study both anthelmintic products had similar results with fecal parasite load. While cattle treated with an extended release anthelmintic was more expensive, they exhibited greater performance thus resulting in decreased cost of gain. Further work is warranted to see if these effects are consistent across various seasons in south Mississippi.

**Acknowledgments**
The authors gratefully acknowledge Merial Animal Health for product donation and assistance with the conduction of this study.

**Literature Cited**


Table 1. Quality characteristics of annual ryegrass (*Lolium multiflorum*) grazed by beef cattle in the present study\textsuperscript{a}.

<table>
<thead>
<tr>
<th>Item\textsuperscript{b}</th>
<th>Nutrient Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 0</td>
<td></td>
</tr>
<tr>
<td>ADF, %</td>
<td>23.4</td>
</tr>
<tr>
<td>CP, %</td>
<td>25.6</td>
</tr>
<tr>
<td>NEm, Mcal/lb</td>
<td>0.79</td>
</tr>
<tr>
<td>NEg, Mcal/lb</td>
<td>0.53</td>
</tr>
<tr>
<td>Day 28</td>
<td></td>
</tr>
<tr>
<td>ADF, %</td>
<td>28.4</td>
</tr>
<tr>
<td>CP, %</td>
<td>21.8</td>
</tr>
<tr>
<td>NEm, Mcal/lb</td>
<td>0.71</td>
</tr>
<tr>
<td>NEg, Mcal/lb</td>
<td>0.45</td>
</tr>
<tr>
<td>Day 56</td>
<td></td>
</tr>
<tr>
<td>ADF, %</td>
<td>31.2</td>
</tr>
<tr>
<td>CP, %</td>
<td>17.6</td>
</tr>
<tr>
<td>NEm, Mcal/lb</td>
<td>0.66</td>
</tr>
<tr>
<td>NEg, Mcal/lb</td>
<td>0.40</td>
</tr>
<tr>
<td>Day 84</td>
<td></td>
</tr>
<tr>
<td>ADF, %</td>
<td>35.7</td>
</tr>
<tr>
<td>CP, %</td>
<td>14.4</td>
</tr>
<tr>
<td>NEm, Mcal/lb</td>
<td>0.61</td>
</tr>
<tr>
<td>NEg, Mcal/lb</td>
<td>0.37</td>
</tr>
<tr>
<td>Day 114</td>
<td></td>
</tr>
<tr>
<td>ADF, %</td>
<td>38.9</td>
</tr>
<tr>
<td>CP, %</td>
<td>11.6</td>
</tr>
<tr>
<td>NEm, Mcal/lb</td>
<td>0.57</td>
</tr>
<tr>
<td>NEg, Mcal/lb</td>
<td>0.32</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Nutrient Analysis conducted by Midwest Laboratories using wet chemistry methods.  
\textsuperscript{b}ADF = Acid detergent fiber, %; CP = Crude Protein, %; NEm = Net energy maintenance; NEg = Net energy for gain.
Table 2. Grazing performance and economic data of cattle treated with doramectin (DOR) or extended release epinomectrin (EXT)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Item</th>
<th>DOR</th>
<th>EXT</th>
<th>SE\textsuperscript{b}</th>
<th>P-value\textsuperscript{c}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial body weight, lbs</td>
<td>526.7</td>
<td>528.2</td>
<td>18.0</td>
<td>0.36</td>
</tr>
<tr>
<td>Final body weight, lbs</td>
<td>788.9</td>
<td>807.9</td>
<td>20.9</td>
<td>0.04</td>
</tr>
<tr>
<td>Average daily gain, lb/d</td>
<td>2.29</td>
<td>2.45</td>
<td>0.06</td>
<td>0.05</td>
</tr>
<tr>
<td>Gain, lbs per acre</td>
<td>452.1</td>
<td>482.5</td>
<td>30.1</td>
<td>0.05</td>
</tr>
<tr>
<td>Cost to work cattle, $/hd\textsuperscript{d}</td>
<td>7.96</td>
<td>8.29</td>
<td>0.14</td>
<td>0.009</td>
</tr>
<tr>
<td>Total cost per acre, $\textsuperscript{e}</td>
<td>245.42</td>
<td>246.56</td>
<td>0.20</td>
<td>0.009</td>
</tr>
<tr>
<td>Cost of gain, $/lb</td>
<td>0.55</td>
<td>0.51</td>
<td>0.01</td>
<td>0.04</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Extended release epinomectrin administered at d0 of study; doramectin administered at d 0 and again at d 63.

\textsuperscript{b}Standard error of treatment means

\textsuperscript{c}Probability value

\textsuperscript{d}Includes labor ($12/hr) and medication costs

\textsuperscript{e}Includes labor, medication and pasture preparation costs (seed and fertilizer)

Table 3. Fecal worm data of cattle treated with doramectin (DOR) or extended release epinomectrin (EXT)\textsuperscript{a}

<table>
<thead>
<tr>
<th>Item</th>
<th>DOR</th>
<th>EXT</th>
<th>SE\textsuperscript{b}</th>
<th>P-value\textsuperscript{c}</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial fecal sample\textsuperscript{d}</td>
<td>104.6</td>
<td>94.3</td>
<td>18.7</td>
<td>0.67</td>
</tr>
<tr>
<td>Final fecal sample\textsuperscript{d}</td>
<td>20.8</td>
<td>9.7</td>
<td>7.3</td>
<td>0.32</td>
</tr>
<tr>
<td>Percent reduction</td>
<td>76.1</td>
<td>88.8</td>
<td>6.08</td>
<td>0.13</td>
</tr>
</tbody>
</table>

\textsuperscript{a}Extended release epinomectrin administered at d0 of study; doramectin administered at d 0 and again at d 63.

\textsuperscript{b}Standard error of treatment means

\textsuperscript{c}Probability value

\textsuperscript{d}Log transformed data of fecal worm counts
Evaluation of Initial Body Weight and Supplementation Levels on Health, Performance, and Growth of Newly Received Stocker Calves

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Mississippi State University College of Veterinary Medicine

Stocker cattle systems are a powerful tool in the beef industry that add value to cattle and improve cattle health prior to entering the feed yard. The southeastern United States provides many opportunities to the stocker producer. First, southeastern stocker operations are able to produce large quantities of high quality cool season of forage and take advantage of lower feeder cattle prices compared to Mid-Western states. Stocker operation’s profitability is dependent on maximizing gains and improving animal health. Increasing profitability through additional gain can be increased by several management practices such as supplementation and careful consideration of what weight of calves to purchase. Also, previous research has linked retained hair coats with a decrease in post-weaning growth. The objectives of this study were to: 1.) Evaluate the effects of initial bodyweight and supplementation effects on gain and animal health 2.) Evaluate the effects of hair coat on performance and health.

This study was a 2 x 2 factorial design with 2 levels of body weight (300 or 500 lbs) and 2 levels of supplementation (supplemented with soybean hull pellets at 1 % BW or no supplementation). Crossbred heifer calves (n=120) were purchased from an order buyer in Mississippi and cattle were all from Southeastern origin. The 45-day trial lasted from May 8 to June 22, 2015. Heifers were housed in 2 acre paddocks which consisted of annual ryegrass. Pens were blocked by forage availability and heifers were blocked by weight (300 or 500 lbs) and Brahman breed influence then randomly assigned to pen (6 head per pen).

No differences arose in gain when comparing the light weight cattle (300 lbs) to heavy weight cattle (500 lbs) (P=0.78). However, heavier initial body weights resulted in
a lower incidence of BRD. During the study, 47 lightweight heifers were treated for BRD over 941 days at risk, giving a total incidence density of 53.7 cases of BRD per 1000 calf days. BRD morbidity for lightweight calves totaled 78% with mortality of 0%.

Heavyweight heifers were treated for BRD 28 times over 1686 days at risk, giving a total incidence density 19.0 cases for 1000 calf days. BRD morbidity for heavyweight heifers totaled 47% with a mortality rate of 0%.

Heifers that received supplement during the trial outgained cattle not supplemented (P = .0001). However, no differences arose in BRD incidence when comparing supplemented animals to cattle not supplemented. Shedding scores were assigned to cattle on a 1 to 5 scale with a score of 1 representing cattle that were completely shed and a score of 5 representing a completely retained hair coat. Cattle that received the low hair shedding classification (1 to 2.5) (n=14) had a higher total gain (P=.00016), and ADG (P=.00016) compared to cattle receiving shedding classification of medium to high (2.5 to 5.0) (n=106). Also, this study indicated that cattle with retained hair coats had a higher incidence for BRD (P=0.0366).

This study indicates that heavier weight stockers have a lower incidence of BRD and supplementation will positively affect gain. Also, hairs shedding can impact not only gain but will also affect animal health.
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