

ACC for Beef Annual Report



Your State Checkoff Dollars Working For You!

2017 Annual Report

Here are samples of just four of the 17 research projects funded in 2017.

Growth and Reproduction in Heifers Selected for Feed Efficiency // D. Pringle, J. Wells, R. Detweiler, T. Krause, J. Duggin, and J. Segers

Growth and reproductive data were collected on 129 heifers produced from Angus bulls with high RADG (top 5% of the breed) and low RADG (bottom 20% of the breed) EPDs. High RADG EPDs are associated with higher feed efficiency. No significant differences in birth, weaning or yearling weights were seen between the high and low RADG groups; however, the high RADG heifers were about 20 pounds heavier at yearling than the low RADG group (866 vs 844 pounds). This is similar to the findings for the steer contemporaries. The percentage of heifers reaching puberty by 12 months of age was lower in the high RADG group than the low RADG group (18.5 vs 36.5%). However, this did not appear to affect reproductive performance since pregnancy rates were similar between the groups. In contrast, a higher percentage of the high RADG heifers conceived from AI breeding, due mainly to a higher percentage conception on the first AI breeding. Age at calving (avg = 23.8 months) was similar between the two groups with the high RADG heifers giving birth 7 days earlier than their low RADG contemporaries. Culling rates for the heifers appeared to favor the high RADG group, as a higher percentage of the low RADG heifers were culled before breeding (reasons included: slow growth, temperament, sickness, small pelvic area, and soundness) and a slightly higher percentage of the low RADG heifers were palpated open when compared to their more efficient contemporaries. Overall, just over ¼ of the high RADG heifers were culled before their first calving, while just over ½ of the less efficient, low RADG heifers were culled prior to their first calving. (For full article see the March 2018 issue of the *Georgia Cattleman*.)

Immune Responses in Stressed and Unstressed Beef Calves // Brent Credille, DVM

The goal of this study was to compare the cell mediated immune responses of multiple source, sale-barn origin calves (STR, n=10) to those of single source calves that had been weaned for 60 days (UNS, n=10). Peripheral blood mononuclear cells (PBMCs) and neutrophils (PMNs) were isolated from blood collected via the jugular vein of each calf. PBMCs were stimulated with BVDV-1, BVDV-2, BHV-1, *M. haemolytica*, and *P. multocida* and evaluated for clonal proliferation and secretion of various immunomodulatory chemical into cell culture supernatants. Functional capacities of PMNs were evaluated in response to stimulation with *S. aureus* antigen (SA), lipopolysaccharide (LPS), and peptidoglycan (PGN). Complete blood counts (CBC) and serum biochemical profiles were performed for each animal at time of sample collection. Compared to STR calves,

UNS calves had significantly greater lymphocyte proliferative responses following stimulation with viral and bacterial antigens ($P < 0.05$). In addition, PMNs isolated from UNS calves had a greater ability to phagocytose *E. coli* and *S. aureus* when compared to STR calves. Serum non-esterified fatty acids (NEFA) were significantly higher in STR calves ($P < 0.01$). Serum β -hydroxybutyrate (BHB) was significantly lower in STR calves ($P < 0.01$). These data suggest that immunologic and physiologic differences exist between STR and UNS calves. While the underlying mechanisms for these differences are not clear, it is possible that combinations of energy imbalances, stress-induced immunosuppression, and general immune naiveté, may predispose STR calves to an increased risk of morbidity and mortality due to bovine respiratory disease. (For full article see the August 2017 issue of the *Georgia Cattleman*.)

2017 Financial Statement

Income

Assessments received	\$506,168
Interest earned	\$1,495

Total Income \$507,663

Expenses Committed

GA Farm Bureau Farm Monitor	\$8,000
GA Grown Exhibit at GA National Fair	\$6,000
University of Georgia Research Projects	\$342,400
GA Beef Board Beef Promotion and Education Projects	\$116,125
Georgia Young Farmers State Summer Tour	\$250
Georgia Department of Ag Admin Fee	\$10,464
Referendum Ballots and Mailing	\$2,846

Total Commitments for 2017 \$486,085

*Georgia cattle producers are always welcome to attend meetings of the Beef Commodity Commission and can request a copy of complete financials with a full listing and details of all funded projects. *



For More Information Contact
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Insecticide Rotation for Horn Fly Suppression // Nancy C. Hinkle, PhD

Without biological control options, mechanical fly suppression, or other alternatives, cattlemen are left reliant on insecticides to manage horn flies on their herds. University of Georgia researchers demonstrated that conscientious rotation of available insecticidal products can produce adequate fly suppression. There are only four categories of insecticides registered for fly control on cattle: (1) insect growth regulators (including methoprene and diflubenzuron), (2) macrocyclic lactones such as abamectin, (3) organophosphates, and (4) pyrethroids. For fly control on cattle, organophosphates have been used since the 1950s and pyrethroids have been available for almost four decades, so it is not surprising that resistance to both organophosphates and pyrethroids is widespread. Including insect growth regulators and abamectin in the horn fly management scheme will not only extend the use-life of traditional insecticides, but will also enhance suppression obtained. (For full article see the April 2018 issue of the *Georgia Cattleman*.)

Better Understanding the Bermudagrass Stem Maggot // Dennis Hancock, PhD

The bermudagrass stem maggot (BSM; *Atherigona reversura* Villeneuve) continues to damage bermudagrass pastures and hayfields throughout the Southeast US. Although the degree of damage depends on the bermudagrass variety, latitude of the farm, and time of year, our research has recorded yield losses up to 80% in late summer. The economic impact of the BSM damage depends on several factors, but if a conservative yield loss of 25% is generally applied to just the bermudagrass acreage in Georgia, the potential economic loss totals \$40 million annually!

Summary of findings to date include:

- Order of least damage to greatest damage (research and on-farm observations) is Coastcross II < Tifton 85 < Coastal < Russell = Tifton 44 = Jiggs < Alicia.
- Strategically-timed (~10 days after cutting) applications of labeled pyrethroid insecticides (active ingredients ending in -thrin) can significantly reduce the adult BSM fly population and protect the bermudagrass during the most sensitive regrowth phase.
- Preventing overuse and uneconomical use of insecticides is a crucial educational objective to combat the potential for resistance.
- On-farm research trials indicate the BSM are more active early (before 11 a.m.) and remain deep in the canopy (around 8"). Setting boom height low and mixing the chemical with enough water to ensure canopy penetration can improve the efficacy of insecticide application.

A newly released Extension publication (Managing Bermudagrass Stem Maggots; Bulletin 1484) contains concise and straightforward recommendations for bermudagrass-based beef producers, hay growers, and service providers. The publication may be downloaded online (https://secure.caes.uga.edu/extension/publications/files/pdf/B%201484_1.PDF).

Research Projects Funded in 2017	Researcher
Determining economical methods of managing the bermudagrass stem maggot. (Year 3)	Dr. Dennis Hancock
Using new and novel winter annual forages to build soil organic matter, reduce compaction, and increase water-holding capacity.	Dr. Dennis Hancock
The "Annual Ryegrass" for the fall of the year? Using brassicas for raising stockers and replacement heifers in the fall and early winter. (Year 2)	Dr. Dennis Hancock
On the road again, support of UGA Beef Team. (Year 2)	Dr. Lawton Stewart
Beef Improvement Federation Meeting 2017 - Young Producers Symposium	Dr. Jacob Segers
Evaluating the management and use of bermudagrass and bermudagrass/alfalfa mixtures as a high-quality baleage feed source for livestock producers. (Year 2)	Dr. Jennifer Tucker
Field comparison of horn fly control in pastured beef cattle .	Dr. Nancy Hinkle
Agent Training Scholarship - UGA 2 Day Beef School	Jason Duggin
Development of novel creep feeding rations for improved animal performance: calf performance and microbial populations. (Year 2)	Dr. Lawton Stewart
Developing value-added beef enterprise program in Georgia.	Dr. Arnad Mohand
The use of reproductive technologies to increase production of high-quality beef.	Dr. Dean Pringle
Using Next Generation Sequencing to characterize strains of <i>Moraxella</i> from the eyes of cattle with and without clinical signs of pinkeye.	Dr. Rebecca Wilkes
Immune responses to vaccination in high-risk stocker calves.	Dr. Brent Credille
Cull and Choice Reviews; product reviews for Georgia cattlemen and dairymen.	Dr. Dennis Hancock
Making Lemonade out of Lemons: Using Johnsongrass from infested hay fields as baleage.	Dr. Lawton Stewart
Mechanisms of antimicrobial resistance in bacteria isolated from the respiratory tract of stocker cattle.	Dr. Brent Credille
The impact of selection using residual average daily gain EPD on reproductive performance, growth performance and carcass traits in Angus cattle.	Dr. Dean Pringle