

Project/Activity Number: SERA41

Project/Activity Title: Improving Production Efficiency of the Beef Cow Herd in Southeastern

Period Covered: 01/25/2021 thru 01/26/2022

Date of this Report: 04/5/2022

Annual Meeting Dates: 01/23/2022 and 01/24/2022

### **Summary of Annual Meeting**

Participants:

Nicolas DiLorenzo, UF

Deidre Harmon, NC State

Brandi Karisch, Mississippi State

Kim Mullenix, AU

Justin Rhinehart, UTK

Jason Smith, Texas AgriLife Extension

Robert Wells, Noble Research Institute

Lawton Stewart, UGA

Pedro Fontes, UGA

David Lalman, OSU

Liliane Silva, Clemson

Katie Mason, UTK

Leanne Dillard, AU

The last time we met was in virtual format. Jennifer Tucker described the committee members and recognized the academic advisors.

### **Recognition of current Officers:**

Past-chair: Kim Mullenix

Chair: Jennifer Tucker

Vice-chair: Leanne Dillard

Secretary: Nicolas DiLorenzo

All members of SERA 41 introduced themselves. Minutes from the last meeting were discussed and approved. Motion to approve by Brandi Karisch, seconded by Lawton Stewart.

Leanne nominated Pedro Fontes as secretary of SERA 41 and he accepted the nomination.

Nomination ceased and after voting Pedro was confirmed as incoming secretary.

A brief discussion took place about how the past SERA 41 symposium in Louisville was successful, it was about including legumes in pastures. Attendance was low but there was a great discussion and interaction.

Kim Mullenix talked about the past Kunkle symposium and the upcoming one in Fort Worth.

Topic: fact-based discussion of why cow/calf operations are sustainable. Lawton Stewart

discussed the possibility of creating a summary of the symposia, both SERA 41 and Kunkle.

Discussion took place about whether JAS may charge to publish a proceeding of the symposia. Kim said that she thought JAS was not interested even though ARPAS was supportive of the idea. Jennifer Tucker proposed to combine Kunkle and SERA 41 symposia in terms of publishing reports. Leanne Dillard proposed TAS as an option for publication. No bills were received for publication fees so far.

Jennifer T. discussed the report of accomplishments for SERA 41. Reports should be sent to Leanne D. and she will combine them. Jennifer T. suggested to include multistate and extension activities. Asked to also send those to Leanne D. Brandi Karisch asked if there is a list of SERA 41 members. Jennifer T. indicated that there is no updated official list of members. Leanne D. confirmed on the website that the list is inaccurate. Brandi K. said she would bring Rocky into this meeting. Also, Jennifer and Nicolas indicated that Jose Dubeux (UF) may join SERA 41.

Jennifer T. said there were no updates from administrative advisors.

### **New business**

Jennifer T. asked for input about next meeting topics. Leanne D. said it may be forage-based. Nicolas D. talked about potentially addressing locally finished animals and byproduct usage. Brandi K. talked about potentially addressing grass-finished cattle. Jason Smith agreed that the topic fits in the general idea of the symposium. Lawton S. indicated that a repro-nutrition interaction should be a good topic. Pedro Fontes has a grant working on repro-nutrition interactions for bulls and could be a potential topic for Kunkle symposium, many of the members agreed. It will be defined later at a meeting to finalize the agendas for both symposia. Jennifer T. asked to send ideas for symposia topics.

Jennifer T. indicated there was a recommendation for a grant-writing retreat in the past. Jennifer asked the group if that is something we should pursue. Lawton S. said administrators may have offered to pay for travel. Nothing was confirmed according to Jennifer T.

Jason S. indicated that touring in Amarillo would be a feasible option given the many opportunities for relevant tours (feedlot, processing plants, etc.). He may potentially host the next meeting.

Jennifer T. asked to send ideas for collaborative grants and funding sources. Proposed using the list serve for that.

Liliane Silva said that there will be a collaborative effort to train Extension agents in Alabama April with 5 universities involved. The goal is to train new agents. Cost will be partially covered by several funding mechanisms from each university involved. No final date yet but it will be announced soon.

Pedro discussed the potential of beef-on-dairy as a topic for the future. Asked how much extension interest was in each state.

Extension beef cattle position at TAMU opened. Extension meat science position available in Tennessee. Also, Tennessee has an animal behavior position open. Center Director position open at UF-NRFEC.

Jennifer T. indicated that Tifton is looking for graduate students.

Jason S. said that in Bushland, TX they are looking for a PhD graduate student for projects with cattle feeding emphasis.

Brandi K. motioned to adjourn the meeting. Pedro Fontes seconded.

Meeting was adjourned.

**Accomplishments: The following activities represent multi-state Extension and research programs associated with SERA 041 participants.**

**2022 SERA041 Symposium.** The 2022 symposium was held on Sunday, January 23 at the Sheraton Hotel in Fort Worth, TX. The symposium theme that focused on applied-to-basic approaches grantsmanship and research related to beef cattle, forages, and environmental services, as well as communicating with the public. Invited speakers and titles included:

- Dr. Nicholas DiLorenzo 'Grantsmanship and research-how to do systems research and obtain funding'
- Dr. Peter Ballerstedt 'Communicating sustainability to consumers- how to effectively tell our story'
- Dr. Myriah Johnson 'Conducting and communicating environmental impacts of research: forage production, soil health, sustainability'

**2022 Knuckle Symposium.** The 2022 Knuckle Symposium was held on Monday, January 24 at the Sheraton Hotel in Fort Worth, TX. The symposium was titled 'Environmental Sustainability of Beef Production Systems: Ecosystem services, genomic approaches, and cow-calf management strategies.' Invited Speakers included:

- Dr. Jose Dubeux- 'Ecosystem services provided by grassland ecosystems in Southeast USA'
- Dr. Troy Rowan- 'Genomic approaches to improving forage-based beef cow efficiency'
- Dr. David Lalman- 'Cow-calf management strategies and their influence on environmental sustainability'

**Extension Efforts**

*Mid-South Stocker Conference.* The southeast is home to many beef cattle stocker and backgrounding enterprises. There are few educational programs developed for this segment of the beef industry and the Mid-South Stocker Conference has established itself as a great program for more than a decade. The program is a multi-state effort involving Kentucky and Tennessee Extension, Cattlemen's Associations and industry representatives. Attendees were from six states and two countries. This year's conference was hosted virtually due to the COVID-19 pandemic. Attendance exceeded 200 individuals for this mid-day program. Post-program evaluations indicated that knowledge prior to and after the program increased from

17% and 20% being knowledgeable to very knowledgeable to 78% and 66% for the topics on managing health and economic risk, respectively. Those completing the evaluation indicated that the knowledge gained may have a potential economic impact of \$2914 averaged across the responses. We will continue to provide this program as long as interest and participation remains strong.

*Train the Trainer Trouble Shooting Electric Fencing Systems.* North Carolina led an effort on developing a Southern regions SARE grant that was awarded to develop and deliver train the trainer workshops across the southeast on trouble shooting electric fencing systems. University of Kentucky is a collaborator on the effort. Due to COVID-19, these programs were canceled and are expected to be offered in 2022.

*X10D online information dissemination platform.* The University of Kentucky and The University of Tennessee have collaborated to develop a software system to push Extension content to users and manage beef cattle production records. The program is available for Android and Apple mobile users as well as a desktop version. The intent is to facilitate improved communication with Extension clientele and Extension professionals. The management software was also intended to help those that do not utilize production records as tool in managing their operations.

*Alliance for Grassland Renewal Novel Fescue Workshops.* The goal of the Alliance for Grassland Renewal is to promote the adoption of Novel Endophyte Tall Fescue technology where it is appropriate. This technology has been proven by many years of research but adoption has been slow. This group, initially formed by U. MO Extension teams academic institutions, industry partners, non-profits and the USDA to create a clear and simple message, and to provide a uniform approach to education on the topic.

Key participants. Craig Roberts (MO), Ray Smith (KY), Matt Poore (NC), Dennis Hancock (GA), John Andrae (SC), Gabe Pent (VA), Tony Stratton (Ag Research USA). Each state conducting a workshop has multiple faculty involved in the development and delivery of the program.

Cooperators. University of Missouri, University of Kentucky, North Carolina State University, University of Georgia, Clemson University, Virginia Tech, Ag Research USA, Forage and Grassland Foundation, Inc., USDA-NRCS, KY, NC, and VA Forage and Grassland Councils, Corteva, DLF seeds, Pennington Seeds, Barenbrug Seeds, Mountain View Seeds. The Alliance was not able to hold in-person workshops in 2021 due to COVID. In 2022 workshops are planned for South Carolina, Tennessee, and Maryland.

*Extending Information on Alfalfa Production in the South to Forage-Livestock Operations*

In 2021, a producer survey on perceptions on alfalfa production in the South US was released to gather information on potential barriers for legume adoption, and to refine Extension educational strategies on this topic. Most participants had already considered planting alfalfa and sought out information through extension publications (84 and 66%, respectively). Thus, most participants were seeking alfalfa as an option to increase forage quality (48%) and profits (15%). The major considerations associated with low adoption of alfalfa plantings were cost of stand establishment (21%), longevity of stand life usefulness (22%), and “others” (22%). In the latter category, most participants mentioned weather-related conditions that represent a challenge to produce high-quality hay, along with proper management practices. Although environmental benefits of alfalfa incorporation are diverse, including decreasing reliance on nitrogen (N) chemical fertilizer input, only 10% of participants were interested in including alfalfa to reduce N input. The paper is published in Applied Animal Science:

Silva, L.S., M.K. Mullenix, C. Prevatt, and J.J. Tucker. 2021. Perceptions on adoption of alfalfa plantings by forage-livestock producers in the southern US. Applied Animal Science 37(6): 665-669, doi: 10.15232/aas.2021-02194

Members of the SERA 41 group from Auburn University, University of Georgia, University of Florida and Clemson University collaborated with other government-industry personnel to develop a national publication on alfalfa management in bermudagrass systems, including a comprehensive management guide and calendar. This publication was released by the National Aflafla and Forage Alliance in winter 2021, and can be downloaded at the following link:

<https://www.alfalfa.org/pdf/AlfalfaBermudagrass-LowRes.pdf>

The authors of the project are using this resource to 1) create awareness on alfalfa in the South US among technical educators (researchers, Extension, industry, government audiences), and 2) as a decision making tool for producers who are considering the adoption of alfalfa on their farm.

*Southeastern Hay Contest.* The Southeast (SE) Hay Contest was started by a group of Extension agents and specialists from across the Southeast region (GA, FL, SC, and AL as primary participants) with the objective of increasing producer knowledge of the relative forage quality (RFQ) index. This program is held annually at the Sunbelt Ag Expo in Moultrie, GA, and was designed to provide recognition for high-quality forage production among hay growers in the region. Since its inception, the program has grown to over 350 hay and baleage samples annually. Forage samples were categorized into warm-season perennial grass hay, alfalfa hay, perennial peanut hay, cool-season perennial grass hay, mixed annual grass, or other hay, grass baleage, and legume baleage. Samples were analyzed for RFQ and crude protein (CP) using near infrared reflectance spectroscopy (NIRS) at the UGA Forage Testing Center (Athens, GA). Recently, an analysis was conducted to evaluate trends in forage quality over the last decade. In 2021, a large portion of samples (>25%) were disqualified due to moisture being too high. This was very usual, but expected due to the weather, especially in the Deep South. Plans were

made to inform future trainings regarding this problem. A total of 387 samples were submitted, an all time high for submissions. Samples were submitted from Georgia, Florida, South Carolina, North Carolina, Alabama, Virginia, Tennessee, Arkansas, and Louisiana. The highest RFQ was from the alfalfa hay category at 297 RFQ. The winners were announced at the 2021 Sunbelt Ag Expo in Moultrie, GA on October 19. Industry support of this program has grown in the last five years, and each award place class is sponsored by forage equipment, seed, management, or commodity organizations, which illustrates the growth of this program and collaboration among producers, university Extension-research personnel, and private companies. As a result, the executive board is looking to change the sponsorship opportunities in the near future.

### Research Efforts

*Sire milk EPD value and impact on milk and component yield.* The University of Kentucky initiated a study in collaboration with North Carolina and Virginia to study the relationship of sire milk EPD on milk yield and milk components. The genetic trend in the industry for the Angus breed and others are increases in milk and weaning weight EPD values. These increases in maternal contributions to growth of calves is expected to result in greater nutrient needs to support this increased growth. The 2016 NASEM committee stated there was insufficient data on the effect of age of cow, breed, plane of nutrition and other factors to account for variations in milk component yield in beef cows. Two years of data were collected and are currently being summarized.

### Systems Research with Alfalfa-Bermudagrass Stands in the Southeast:

A multi-state research and Extension grant on alfalfa systems management in the South US is ongoing between the University of Georgia, Auburn University, and the University of Florida. Incorporation of alfalfa (*Medicago sativa*) into bermudagrass pastures improves forage quality and decreases the reliance on synthetic nitrogen fertilizer. The objective of this study was to determine forage mass (FM), nutritive value (NV), and botanical composition of 'Bulldog 805' alfalfa and 'Tifton 85' bermudagrass (T85; *Cynodon dactylon*) mixtures managed under three defoliation strategies: 1) hay production (H), 2) grazing (G) or 3) dual-purpose (DP) use. The study was conducted in two locations (Headland, AL and Tifton, GA) using a randomized complete block design with two replicates. In spring 2020, grazed plots were divided in four strips and every 7-d, animals were rotated to a new strip and stocking rate was adjusted. Under DP, plots were grazed until mid-July, then forage was harvested in late August. For H plots, forage was harvested every 28 to 35-d. Forage samples were collected prior defoliation to determine FM and on grazed periods, pre- and post-grazing samples and disk meter measurements were collected. Nutritive value responses were determined using near-infrared spectroscopy. There was no effect of defoliation strategy on FM ( $P= 0.604$ ; mean 3471 kg

DM/ha). Greater FM ( $P= 0.002$ ) was observed in July and August than June (3531 and 3976 vs 2905 kg DM ha<sup>-1</sup>, SE= 263). This response was associated with an up to 40% increase of T85 proportion in the mixture ( $P= 0.001$ ). Alfalfa percentage was 78% greater for DP than G ( $P= 0.029$ ). There were no differences among treatments for NV responses ( $P > 0.05$ ). Among defoliation periods, crude protein, neutral detergent fiber and acid detergent fiber concentrations ranged from 14 to 22%, 45 to 58% and 28 to 35%, respectively. These preliminary results demonstrate multi-use options for this mixture in the region while aiming for increased forage nutritive value, an extended growing season, and sustainability of forage-livestock systems.