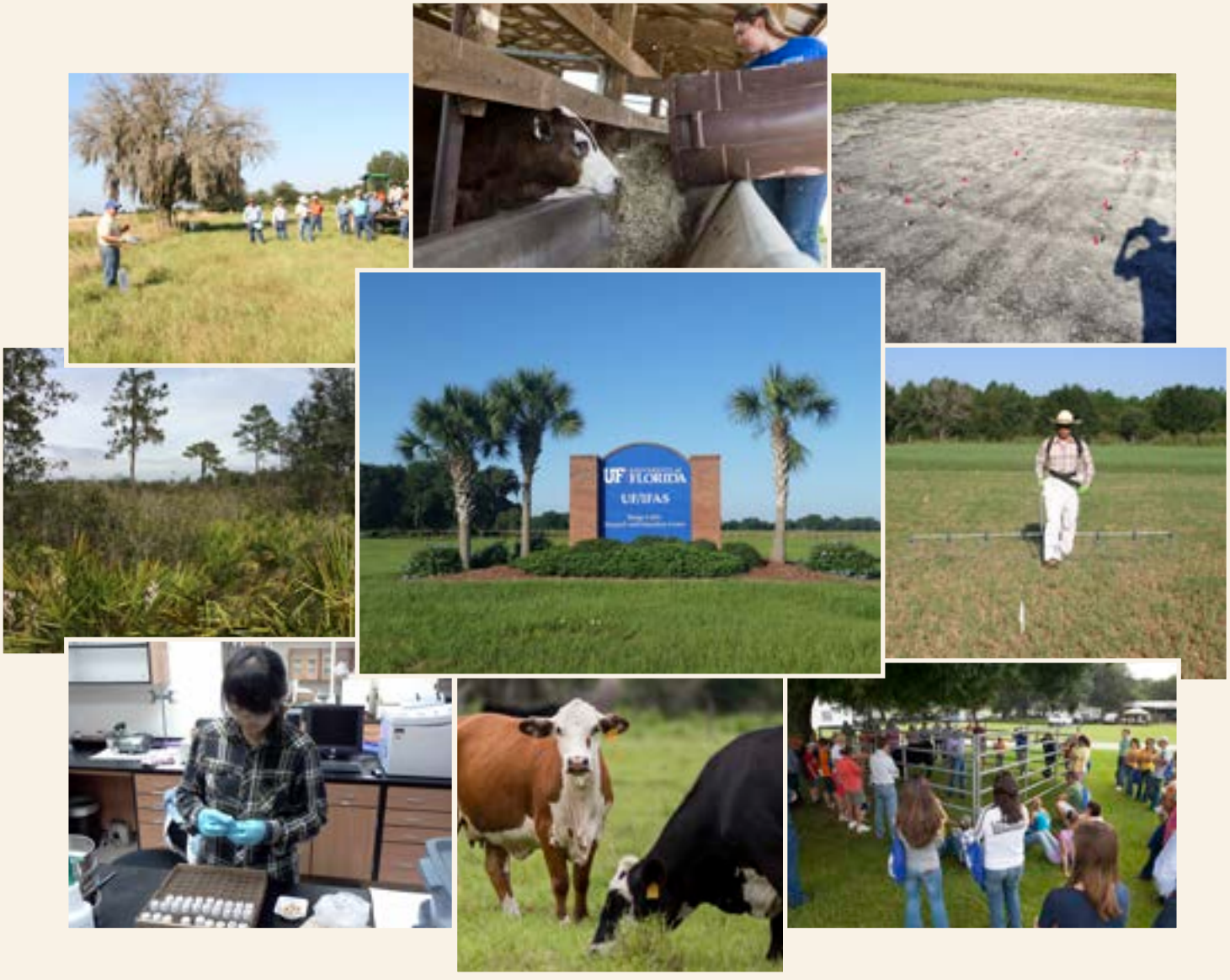
UF IFAS
UNIVERSITY of FLORIDA

UF/IFAS RANGE CATTLE RESEARCH AND EDUCATION CENTER



FACULTY HIGHLIGHTS

John Arthington, Professor and Center Director

Beef Cattle Nutrition and Management
UF Animal Sciences Department · jarth@ufl.edu

Research

- Optimizing the mineral nutrition of grazing beef cattle
- Evaluating strategies to efficiently and economically address the mineral requirements of grazing cattle
- Optimizing the trace mineral status of pre-weaned calves to improve health and performance
- Defining, measuring, and managing stress in grazing cattle to minimize trace mineral losses and improve health and productivity

Extension

- Educating Florida cattle producers on cost-effective strategies to fortify the mineral nutrition needs of grazing Cow/calf herds in subtropical environments

Highlights

- Due to a variety of factors, Florida beef calves are routinely weaned in marginal to deficient selenium status. We have recently developed limit-creep supplementation systems that are effective in reversing this negative outcome. We are currently working at refining these management systems to reduce labor and increase return on investment.
- The term 'Biofortification' refers to the application or fertilization of micronutrients to fields with the intent of increasing the concentration of the forage grown on that soil. Recent research has revealed that calf selenium status is increased when consuming selenium-biofortified forages. Current research is focused on selenium biofortification of grazed forages the long-term impacts on both pre-weaned calves and the developing fetus.
- Current research has revealed breed-related behavioral differences in voluntary free-choice intake of salt-based mineral supplements. These data imply that Brahman cattle make more frequent visits to the mineral feeder with a larger percentage of visits during the hottest hours of the day compared to Angus cattle. To further these initial findings, we are seeking to identify

potential differences in the requirement of selenium and copper among Brahman and Angus cattle. Ultimately, producers and supplement manufacturers will be able to better address the mineral nutrition of these two distinctly different cattle breeds.

Brent A. Sellers, Professor and Associate Center Director

Pasture and Rangeland Weed Management
UF Agronomy Department · sellersb@ufl.edu

Research

- Long-term smutgrass management, including integration of burning, mob grazing and hexazinone applications
- Management of broomsedge species
- Management of Brunswick grass
- Use of low rates of glyphosate for selective control of grass weeds
- Evaluation of new herbicides for weed control and forage management
- Evaluation of herbicide programs for weed control in perennial peanut

Extension

- Pasture Weed Day
- Forage and Weed Nursery
- Annual update of "Weed Management in Pastures and Rangeland"
- Weed identification guide (posters, websites, etc.) for pastures and rangeland

Highlights

- Dogfennel competition in bahiagrass pastures. This research revealed that dogfennel infestations with 50% or greater dogfennel groundcover results in at least 70% less bahiagrass production.
- Reduced rates of hexazinone (Velpar) applied annually provides long-term smutgrass control equal to that of a single full rate application when rainfall is not limited (<0.25 inches) or excessive (>3 inches) within a week of application. Application of 3 pt/A in year one followed by 2 pt/A in year two resulted in smutgrass control equal to or greater than control with a single application of 2 qt/A four years after application (three years after sequential application).
- Limpograss, when established for at least 1 year, is tolerant to applications of 2,4-D when applied during the fall and spring when air temperatures and

relative humidity are typically lower. If applied in the summer, a 20 to 30% yield loss can be expected. Hexazinone should not be applied to limpograss.

Raoul Boughton, Assistant Professor

Rangeland Wildlife and Ecosystems
UF Wildlife, Ecology, and Conservation Department · rboughton@ufl.edu

Research

Invasive species biology and their costs:
- Feral swine and Coyote
- Control methods

Calf loss on Florida Ranchers:
- Categorizing causes from birth to weaning
- Defining predator caused losses

Rangeland management with fire:
- Promotion of grasses, forbs and wildlife biodiversity

Extension

Conflict wildlife, threatened and endangered species:
- Field identification and management of livestock predators
- Developing habitat mosaics for wildlife
- BMPs for ranch wildlife

Supporting tools for ranchers and their wildlife:
- Conservation easements and habitat conservation planning
- Payment systems to support ranchers
- Species recovery planning

Highlights

- Feral swine are invasive animals damaging habitats in Florida. We have shown they compete with wildlife for resources, interact with cattle and increase disease transfer risk between the environment and cattle, damage pastures and forage quality. We are now evaluating the true cost of the damage they cause ranches.
- Predator management is an increasing concern with Florida ranchers. Understanding how many calves are killed, and testing tools that are non-lethal, evaluating changes in animal husbandry, and understanding predator biology is essential if we are to co-exist with increasing predator numbers on the ranching landscape.
- Ranch habitats provide essential resources for threatened species.

Our Burrowing Owl project highlights the importance of ranches for many species continued existence.

Philipe Moriel, Assistant Professor

Beef Cattle Nutrition and Management
UF Animal Sciences Department · pmoriel@ufl.edu

Research

- Primary focus = better understand the interactions among nutrition, immunity and reproduction of beef cattle
- Nutritional programming of pregnant beef females to enhance growth, reproduction and immunity of the offspring (*Fetal-programming*)
- Alternative nutritional management practices to permanently modulate the metabolism of young growing calves (*Metabolic imprinting*) and improve their future performance
- Identify strategic supplementation programs for replacement heifers, such as altered frequency of supplementation and essential fatty acids, to increase profitability of cow-calf producers
- Impacts of timing of vaccination and implant insertion on calf value and health

Extension

Nutrition for Beef Females = The major goals of this extension program include:
- Increase the knowledge and skills of producers and livestock agents on body condition scoring and nutritional management of beef females
- Assist producers on implementing strategic nutritional programs to improve reproductive performance of beef females, decrease calf loss, and optimize future calf growth and health.

Highlights

- Nutrition vs. Immunity: Protein deficiency and reduced frequency of concentrate supplementation decreased post-weaning calf growth and vaccine response. Gradually reducing the frequency of supplementation was able to overcome such negative impacts.
- 2018 IFAS - Early Career Seed Funds: Cows supplemented with molasses added with rumen-protected methionine had greater body condition score at calving. Currently, we are evaluating the impact of this supplementation strategy on calf performance after birth.
- Beef Enhancement Funds (FL Cattlemen): Cows supplemented with molasses or range cubes during the entire year and cows supplemented

with distillers grains during late gestation had greater body condition score at calving and at the start of breeding season. Currently, we are evaluating the reproduction of these cows and growth, carcass quality, and reproduction of calves born from these cows.

Chris Prevatt, State Specialized Agent II

Beef Cattle and Forage Economics
UF/IFAS Southwest Extension District · prevacg@ufl.edu

Extension

- Developing and maintaining enterprise budgets for cattle and forage operations
- Proving economic insight into the Cattle Industry through Market Outlooks
- Generating decision aids for producers to analyze Cow-Calf Profitability, Unit Cost of Production, and the Value of the Next Unit of Production
- Economics of artificial insemination versus natural service
- Providing economic insight on cost-effective management practices
- Developing a marketing plan to evaluate marketing alternatives and risk management strategies
- Developing an economic analysis of low cost perennial forage systems
- An Economic Analysis of Annual Forage Systems
- Analyzing the economic viability of inter-seeding legumes into Florida's grasslands

Highlight

The monthly Florida Cattle Market Price Watch report compares the current August Feeder Cattle Futures Price to the previous year and the 3-year average of the August Feeder Cattle Futures Price to provide cattle producers with information about the direction of the market. The use of the August Feeder Cattle Futures Contract combined with the historical basis for Florida calves determines the "Expected Cash Price" for Florida feeder calves well in advance of delivery. The "Expected Cash Price" can be used by cattle producers to evaluate profitability and marketing opportunities by comparing the Expected Cash Price with their break-even price and price objective for their feeder calves.

Maria Silveira, Associate Professor

Soil and Water Sciences
UF/IFAS Soil and Water Sciences Department · mlas@ufl.edu

Research

Research efforts target both the agronomic and environmental aspects of grazing land management in subtropical ecosystems. Current projects include:

- Development and implementation of pasture fertilization strategies that optimize forage production while protecting soil and water resources
- Ecosystem response to nitrogen additions in subtropical grasslands
- The impacts of grazing land intensification on soil carbon sequestration in subtropical ecosystems

Extension

Extension efforts are to provide training, educational materials, and outreach activities to county faculty and stakeholders on issues related to soil fertility and nutrient management that affect the cow-calf industry in Florida and the broader society.

Highlights

- Phosphorus recommendations for established bahiagrass pastures: Dr. Silveira's research group took the lead in developing and implementing new tools to better predict phosphorus (P) fertilization needs in bahiagras pastures. For over 15 years, UF/IFAS fertilization recommendations for established bahiagrass in Florida did not include soil testing or P fertilization for the region south of I-4. The incorporation of tissue testing into the fertilizer recommendations created an opportunity to identify and correct P deficiency in bahiagrass pastures.
- Soil carbon sequestration and greenhouse gas emissions: Considerable effort is currently being placed on better understanding the impacts of pasture management on soil carbon sequestration and greenhouse gas emissions. Our research results showed that management practices intended to increase forage production can increase soil carbon sequestration and are also beneficial to soil quality and fertility.

Joao Vendramini, Associate Professor

Forage Management

UF Agronomy Department · jv@ufl.edu

Research

- Adaptability of *Arachis pintoi*, a perennial peanut propagated by seed, to south Florida
- Development of new limpograss hybrid cultivars with greater N use efficiency
- The use of additives to increase supplement efficiency in cow-calf systems
- Creep-feeding supplements to efficiently increase weaning weight of replacement heifers
- Nitrogen and potassium fertilization methods to optimize production and persistence of bahiagrass pastures
- Testing additives and inoculants to improve nutritive value and fermentation characteristics of warm-season grass silage and haylage in south Florida

Extension

- Increasing awareness of the importance of forage testing and providing reliable forage testing results for Florida forage producers
- Developing educational programs on forage management to assist county Extension faculty and producers.
- Collaborating with county faculty on development and delivery of educational programs and providing assistance to producers who have forage management questions.

Highlights

- The forage management program has tested the adaptability of new warm-season grass and legume cultivars. Some of the tested forage species and cultivars include Jiggs, UF-Riata, Mulato, *Nina stylosanthes, Tupi humidicola,* and the perennial peanut propagated by seed (Pintoi).

STUDENT HIGHLIGHTS

Graduate student training is a high priority at the RCREC, which offers outstanding field resources for students desiring to pursue careers in livestock and forage production, as well as the enhancement of natural resources that are associated with grazing landscapes. Some of the most recent graduates include:

Logan Martin, M.S. (2016)

Juliana Ranches, M.S. (2016)

JK Yarborough, M.S. (2016)

Gleise da Silva, M.S. (2017)

Ke Zhang, M.S. (2017)

ABOUT THE CENTER

OUR VISION: To be the worldwide leader in research and education impacting tropical and subtropical grazinglands

OUR MISSION: Provide science-based information to address the challenges affecting owners and managers of grazinglands

Established in 1941 through the efforts of legislators, cattlemen, and local citizens, the UF/IFAS Range Cattle Research and Education Center (RCREC) is the only university-owned subtropical center of its kind in the United States focused on the enhancement of livestock, forages, and the natural resources of Florida's grazing lands. Located in Hardee County, the RCREC is near 80% of Florida's 1.7 million beef cattle. Through decades of working closely with these cattlemen, its come to be known as "The Cattlemen's Research Center." With 2,840 acres of native and improved pastures, it is the largest in area of UF's 12 research and education centers, located throughout the state. This land, and its 700+ beef cattle, provide researchers an ideal field laboratory for research, Extension, and the training of graduate and exchange students.

Extension Activities

Bovine Veterinary Practitioner Continuing Education and Round Table Discussion Sessions

Beginning in 2012, these educational sessions have been held twice a year and are open to all bovine veterinary practitioners. The benefits of these meetings are twofold: practitioners gain the latest research knowledge impacting beef producers, and the RCREC faculty learn about the current challenges affecting Florida ranchers from a herd health perspective. In certain cases, practitioners can also receive continuing education credits.

Forage Extension Laboratory

The Forage Extension Laboratory has tested more than 3,400 forage samples for livestock and forage producers in Florida. The procedures used in the laboratory are the most appropriate to test the forages cultivated in Florida and provide reliable results for diet formulation decisions. Visit the lab's web page on the RCREC website for additional information.

Cattle and Forage Field Day

Every 18 months a field day is held that highlights the latest research findings of RCREC programs. The timing of the field day alternates between October and April to highlight cool and warm season research projects. Field days typically include faculty presentations, lunch, and a tour of field research sites.

Forage and Weed Nursery

This one-acre site, open to the public year-round, allows visitors an up-close look at approximately 200 species of weeds and grasses in small demonstration plots, identified by their common and scientific names. This site may be especially useful for cattlemen, county Extension, state and federal agency personnel, and youth groups.

Joe What? Podcast

Joao 'Joe' Vendramini, faculty member at the UF/IFAS Range Cattle Research and Education Center, interviews leaders in agriculture and science about current challenges and opportunities in beef cattle production. The monthly podcast can be found at **http://ufifasrcrec.podbean.com**

Youth Field Day

The RCREC's youth field day is structured specifically for students ages 8-18. It allows them to see facilities; meet faculty, staff, and students; learn about programs; and learn about common and not-so-common ag science topics. The event involves morning class sessions, lunch, and an afternoon learning expo. The RCREC strives to provide a positive learning environment with hands-on learning opportunities. Parents and/or youth leaders usually accompany students at this event. It is typically held every 2 years in June, with the next to be held June 28, 2018.

Pasture Weed Day

Every 2-3 years we hold a field day to highlight the latest in pasture weed research findings. It is intended for cattlemen, land managers, county Extension faculty, and state and federal agencies.

Predator and Calf Loss Management Short Course

Calf loss can range from 5% up to 20% in the Florida cattle industry and is often unconfirmed. The causes of these losses are varied and hard to identify because of the inability to find calves soon after death, and even when found difficulties arise in discerning among causes. *Was my calf stillborn and scavenged upon or killed by a predator?* In this course we cover the likely causes of calf loss in Florida, including how to ascertain a calf is stillborn, common genetic disorders, and how to identify depredation events and the likely predator. We suggest different strategies to undertake predator management that include non-lethal and lethal tools, and their pros and cons. The recovery of populations of endangered predators is an amazing conservation success, but it must somehow be balanced with increasing conflict upon livestock.

UF/IFAS Range Cattle REC Advisory Council

Pictured left to right, seated: Chuck Syfrett, Edgar Davis, Terry Weaver, Cliff Coddington, standing: Joe Hilliard II, Jim Strickland, Cary Lightsey, Jim Selph, and Mike Adams with John Arthington. Missing from photo: Mark Griffin, Wade Grigsby, and Wes Williamson.

Exchange Visitors






Each year we host between 12-18 exchange visitors. These international students come by invitation and work under the direction of a faculty supervisor for 3-12 months as interns, short-term scholars, or research scholars. Here they are able to advance their research methods, learn about American culture, and improve their English skills.

Charitable Giving

The long-term success of the RCREC is largely the result of close relationships among the stakeholders we serve. Our programs benefit from the generosity of our alumni, friends, and industry partners. Our Center's endowments fuel RCREC research and extension programs, which focus on addressing priorities outlined by the Florida cattle industry, such as the Florida Cattlemen's Association's Research Priority List. The annual earnings of these endowments provide a source of renewable, flexible, and permanent funding to be used exclusively at the Range Cattle Research and Education Center. Gifts may be given to support current endowments, used to establish an individually named endowment targeted toward a donor specified research and education program, or deferred through a gift annuity. We welcome your support. If you have any specific questions or would like to visit directly about endowments or other giving opportunities, please give us a call.

You may also visit:
http://rcrec-ona.ifas.ufl.edu/give.shtml.

Learn More

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