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# What is the feed value of fall-fertilized forage in Florida?

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## Introduction

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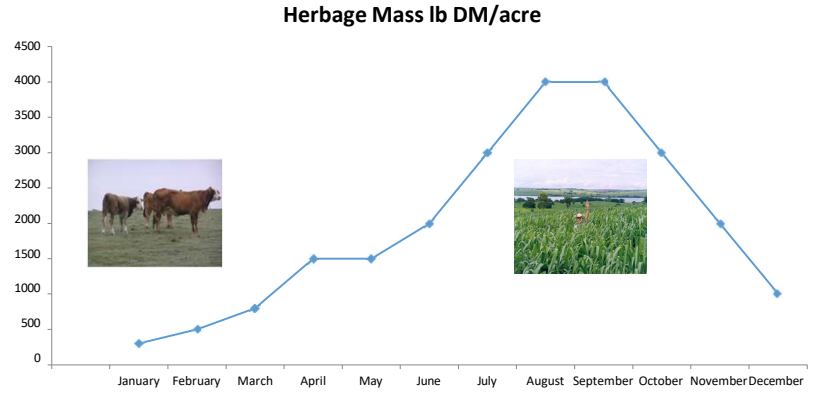
- Warm-season perennial grasses are the most adapted and productive forages in Florida
- The main warm-season perennial grass species cultivated are bahiagrass, bermudagrass, and limpograss, and the majority of the forage production occurs during the spring and summer months due to greater temperature, daylength, and rainfall

# Introduction




# Warm-season grass species

**'Argentine' bahiagrass**

**'Gibtuck' limpograss**

# New warm-season grass cultivars

**‘Mislevy’ bermudagrass**

**‘Camello’ brachiariagrass**

# Fertilization

- Fertilization is a management practice that has potential to offset the limited forage production of warm-season perennial grasses in the fall months. However, fertilization is one of the most-costly inputs in cow-calf production systems
- Due to differences in seasonal production among species, timing of fall fertilization may also be an important factor to optimize nutrient use efficiency of warm-season perennial grass species

# Objectives

- The general objective of this proposal is to evaluate the effects of fall fertilization on forage production and nutritive value of different warm-season perennial grass species. In addition, we aimed to compare the value of the produced forage with purchased feed
- This study addresses the FCA Research and Education Priorities Fertilization (Economic efficiency of fertilizer use) and Pasture and Forage Management (Optimize grazing, fertilization, and irrigation management)

# Material and Methods

- The experiment was conducted at the Range Cattle Research and Education Center, Ona, FL, from August to December 2024
- Treatments were the split-plot arrangement of four forage species (bahiagrass, limpograss, bermudagrass, and brachiariagrass) and four fertilization treatment/dates (August 23$^{rd}$, September 23$^{rd}$, and October 23$^{rd}$) distributed in a randomized complete block design with four replicates

# Material and Methods

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- The fertilization level will be 50 lb N/acre
- Plots were harvested 8 weeks after the fertilization treatment.

# Results

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Table 1. Forage production of four warm-season grass species fertilized on three different dates and harvested after 8 weeks regrowth interval

| Forage Species | Fertilization date | | |
|---|---|---|---|
| | August 23rd | September 23rd | October 23rd |
| | -------lb DM/acre------- | | |
| Bahiagrass | 1,600a[1] | 1,000b | 400c |
| Bermudagrass | 780b | 1,000b | 250d |
| Limpograss | 1,500a | 1,000b | 620b |
| Brachiariagrass | 1,400a | 2,300a | 1,100a |
| SE | 50 | | |

[1]Means followed by the same lower-case letter within column are not different ($P > 0.05$)

# Results

Table 2. Digestibility of four warm-season grass species fertilized on three different dates and harvested after 8 weeks regrowth interval

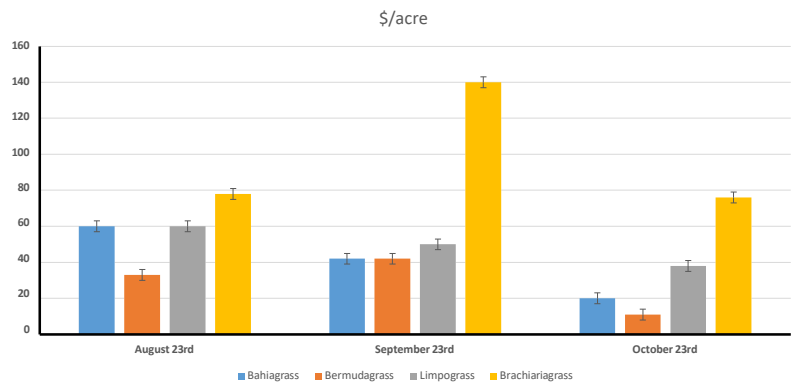
| Forage Species | Fertilization date | | |
|---|---|---|---|
| | August 23rd | September 23rd | October 23rd |
| | | Digestibility (%) | |
| Bahiagrass | 38c[1] | 44c | 50c |
| Bermudagrass | 42b | 42c | 46d |
| Limpograss | 42b | 50b | 61b |
| Brachiariagrass | 56a | 61a | 69a |
| SE | | 2 | |

[1]Means followed by the same lower-case letter within column are not different ($P > 0.05$)

# Results

- The value of the digestible dry matter produced ($/acre) was calculated based on forage production and digestibility of the different treatments, using $ 0.10/lb of digestible dry matter. This value was calculated based on the digestible DM equivalent in a ton of corn silage with 35% dry matter, 70% digestibility, and $ 90/ton

# Results




# Results

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| | Forage Species | | | *P* value | SE |
|---|---|---|---|---|---|
| | Camello | Mislevy | Gibtuck | | |
| DM (%) | 26 | 28 | 26 | 0.17 | 1.0 |
| pH | 4.7a | 4.5b | 4.1c | <0.01 | 0.05 |
| CP (%) | 9.5a | 10.2a | 7.5b | 0.01 | 0.2 |
| Latic Acid (% DM) | 2.8 | 2.4 | 2.6 | 0.59 | 0.27 |
| Acetic Acid (% MS) | 3.4 | 2.6 | 2.6 | 0.01 | 0.18 |
| Butyric Acid (% DM) | 0.07b | 0.18a | 0.02 | 0.07b | 0.04 |
| Isobutyric Acid (% DM) | 0.27a | 0.17b | 0c | <0.01 | 0.01 |
| Ammonia (% N) | 16a | 13b | 9c | <0.01 | 2.9 |

# Conclusions

- Bahiagrass pastures can be fertilized no later than late August to be grazed or harvested in early fall, but it is important to mention that the forage may have limited digestibility, and supplementation may be needed to meet the cow's nutritional requirements
- Limpograss and brachiariagrass can be fertilized in late September or October; however, delaying the fertilization to October would decrease lbs/DM per acre

# Conclusions

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- Limpograss is adapted to poorly drained soils, while brachiariagrass must be cultivated in well-drained soils
- Due to greater digestibility, brachiariagrass can be grazed by animals with greater nutrient requirements, such as replacement heifers, while limpograss can be grazed by mature cows with less requirements.

# Thank you

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