Final Technical Report

FCEB Project #33

Grant: Florida Cattle Enhancement Board FY23-24

Title: Impact of rate and source of Nitrogen and Potassium fertilizers on yield, nutritive value, and profitability of Bermudagrass and Bahiagrass hay production in sandy soils of North Florida

Principal Investigator: Emma G. Matcham, Assistant Professor, UF-Agronomy-Gainesville, eg.matcham@ufl.edu
352-294-3901 (office) or 614-633-7315 (cell)

Co-PIs: Angel Sanchez Zubieta, Postdoctoral Research, UF-Agronomy-Gainesville and Marcelo Wallau, Assistant Professor, UF-Agronomy-Gainesville

Specific Aims: Evaluate the effect slow-release sources of N and K at three fertilization rates on the nutrient use efficiency, yield, nutritive value, and profitability of bermudagrass and bahiagrass hay production in sandy soils of North Florida.

Activities and Accomplishments:

1) The 1-year stablished Bermudagrass area previously selected for evaluation had insufficient stand density for high-quality hay production. Instead, we selected a 2-year established area, that better represents currently productive farms hay fields. The area was delimited, and plots were established (see Figure 1).
2) The lack of rain during March and May prevented the application of treatments on plots, thus the conduction of the first herbage sampling.
3) A soil sample was pulled out from the 2-year stablished Bermudagrass area. The sample will be sent to the laboratory for a baseline soil nutrient content analysis. The information will be used to define phosphorus and potassic fertilizations rates. For the new Bermuda and Bahia grasses stablishing plots, the soil test results are presented in Table 1.
4) Soil preparation for the new planting areas continued with a second plow. The third plowing will be conducted just before planting. This later will be conducted by mid-June when the rainy season is established.

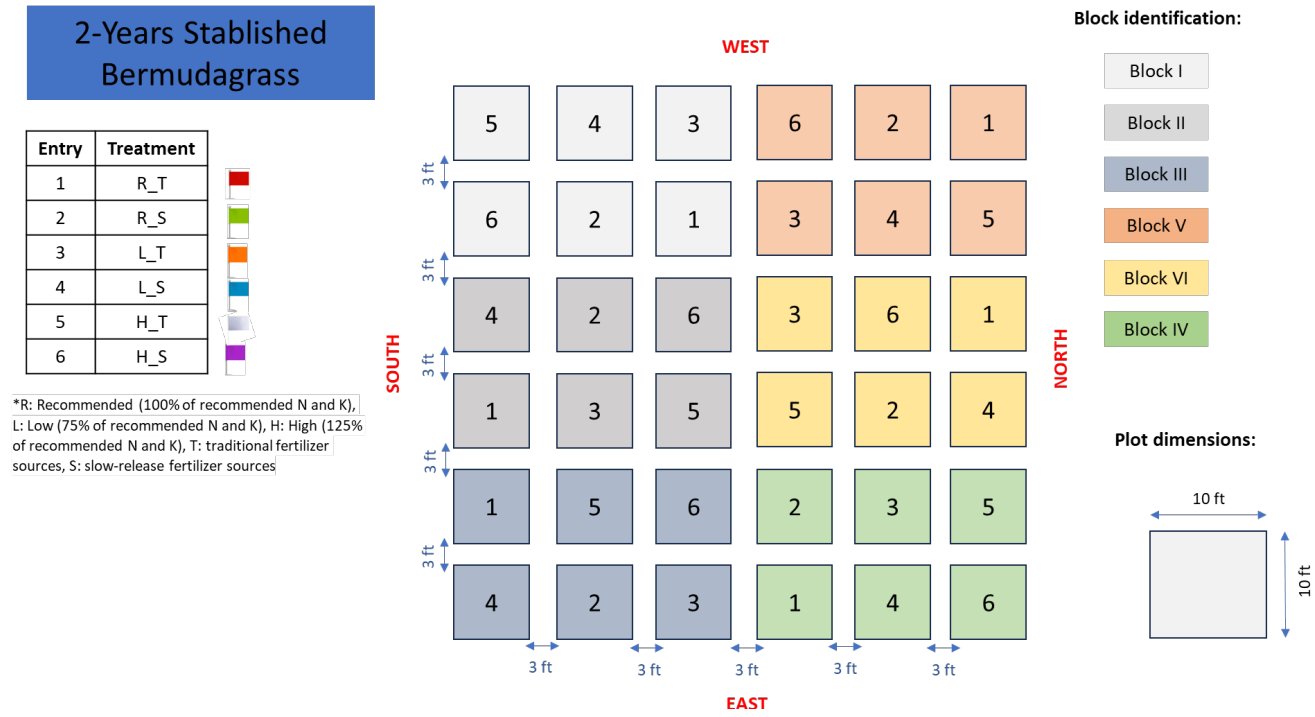

Figure 1. Layout of the 2-year Bermudagrass experimental plots.

Table 1. Soil nutrient (mg kg^{-1}) and organic matter (%) contents, and pH value of experimental areas.

Sample ID	Ca	K	Mg	P	OM	pH
New Bermudagrass	450.43	18.73	69.03	120.00	2.58	5.99
New Bahiagrass	443.44	34.13	32.93	38.78	2.47	5.90
2-years Bermudagrass	--	--	--	--	--	--

The soil sample of the 2-years Bermudagrass still to be analyzed.

Upcoming Spring Activities:

During Q3-2024, we will start the evaluation of the 2-year Bermudagrass experimental plots and establish the new planting areas of the Bermudagrass and Bahiagrass. This includes the following activities:

1) Controlling weed infestation
2) Marking plots *in situ* with their corresponding codes (plot, block, treatment) for the new planting areas. The 2-year Bermudagrass experimental area is already established (Figure 1).
3) Creating a plot map of the new planting areas.
4) Soil sampling on each plot for the 2-years and new planting areas.
5) Homogenization cut on all plots on the 2-years Bermudagrass area.
6) The rainy season is expected to stablish by mid-June. At this point, we will be able to start data collection for yield, quality and profitability.

The establishment of the new planting areas is scheduled for the beginning of the rainy season (mid-June 2024).

Timeline of activities accomplished during the Q2 and scheduled for the next quarter (Q3; June-September 2024).

Quarter/Moth	Q2 2024	June 2024		July 2024				August 2024				September 2024	
Week		3	4	1	2	3	4	1	2	3	4	1	2
2-year established Bermudagrass													
Selection of experimental site	X												
Soil sampling (full site, 0-6" depth)	X												
Mowing the experimental area	X												
Weed control	X												
Plots establishment and plot map elaboration (2-y Bermudagrass; Figure 1).	X												
Soil sampling per plot (0-12" and 12-24" depth)		X											
Homogenization cut		X	X										
Treatments establishment		X	X	X	X								
*Forage sampling					X			X			X		
New planting Bermuda and Bahiagrass													
Selection of experimental site	X												
Soil sampling (full site, 0-6" depth)	X												
Disc plow (first pass)	X												
Disc plow (second pass)	X												
Disc plow (final pass)		X											
Plots establishment and plot map elaboration		X											
Soil sampling per plot (0-12" and 12-24" depth)			X										
Weed control			X				X				X		

The "X" highlighted in green refers to the activities successfully completed.
The X highlighted in blue refers to the activities that will be done during the following quarter.
*means that the activity will be done if weather conditions allows grass to growth.
.

UF | UNIVERSITY of FLORIDA

PLEASE REMIT TO:
UNIVERSITY OF FLORIDA BOARD OF TRUSTEES
Contracts & Grants
PO Box 931297
Atlanta, GA 31193-1297

SPONSOR:
FL CATTLE ENHANCEMENT BOARD
P.O. Box 421929
Kissimmee FL 34742-1929
United States

Invoice Date:	08/14/2024
Invoice Period:	03/01/2024 - 07/31/2024
Principal Investigator:	Matcham,Emma G
Award Begin Date:	10/30/2023
Award End Date:	07/31/2024
UF FEIN:	59-6002052

Sponsor Award ID:	33
Award Title:	Impact of rate and source of Nitrogen and Potassium fertilizers on yield, nutritive value, and profitability of Bermudagrass and Bahiagrass hay production in sandy soils of North Florida
Award Amount:	$30,888.00

Invoice #	I000130475
UF Award #	AWD15796
Primary Project #	P0324587
Primary Department:	60080000
Current Invoice Amount:	$10,068.08

Description	Current	Cumulative
Personnel - Salary	$5,356.07	$8,408.10
Personnel - Fringe Benefits	$627.73	$987.82
Materials and Supplies	$599.65	$599.65
Contractual Services	$720.00	$720.00
Other Expenses	$285.00	$285.00
Domestic Travel	$1,400.88	$1,400.88
Direct Cost	$8,989.33	$12,401.45
Facilities and Administrative Costs	$1,078.75	$1,488.23
Total	$10,068.08	$13,889.68

For billing questions, please call 352.392.1235
Crawford,Ashleigh crawford.a@ufl.edu
Please reference the UF Award Number and Invoice Number in all correspondence

By signing this report, I certify to the best of my knowledge and belief that the report is true, complete, and accurate, and the expenditures, disbursements and cash receipts are for the purposes and objectives set forth in the terms and conditions of the federal award. I am aware that any false, fictitious, or fraudulent information, or the omission of any material fact, may subject me to criminal, civil, or administrative penalties for fraud, false statements, false claims or otherwise. (U.S Code Title 18, Section 1001 and Title 31, Sections 3729-3730 and 3801-3812).

Certifying Official

Payment History	
Cumulative Invoices:	$13,889.68
Payments Received:	$3,821.60
Outstanding Balance:	$10,068.08
Note: Outstanding balance includes current invoice amount	

FOR UF USE ONLY Additional Projects: N

Project ID	Deptid	Department Name	Current	Cumulative

UF | UNIVERSITY of FLORIDA

PLEASE REMIT TO:
UNIVERSITY OF FLORIDA BOARD OF TRUSTEES
Contracts & Grants
PO Box 931297
Atlanta, GA 31193-1297

SPONSOR:
FL CATTLE ENHANCEMENT BOARD
P.O. Box 421929
Kissimmee FL 34742-1929
United States

Invoice Date:	08/14/2024
Invoice Period:	05/01/2024 - 07/31/2024
Principal Investigator:	Matcham,Emma G
Award Begin Date:	10/30/2023
Award End Date:	07/31/2024
UF FEIN:	59-6002052

P0324587	60080000	AG-AGRONOMY	$10,068.08	$13,889.68