Development of Grazing Recommendations and On-Farm Decision Tools for Managing Alfalfa-Grass Mixtures in Southeastern U.S.

J.J. Tucker[1], M.K. Mullenix[2], C. Prevatt[3], J. Dubeux[3], and E. Rios[3]
[1] University of Georgia [2]Auburn University [3]University of Florida

Abstract

This integrated research-extension project is a collaboration between three southeastern universities (University of Georgia, Auburn University, and University of Florida) to address alfalfa management strategies in the Southeast related to the development of grazing parameters and decision tools to support efficient forage utilization and stand survival in mixed alfalfa-bermudagrass pastures. Recently, there has been growing interest in interseeding high-quality legumes, like alfalfa, into existing bermudagrass stands as a step towards improving forage, animal, economic, and ecosystem sustainability in the Southeast. Since expansion opportunities are limited for cattle operations, the utilization of alfalfa will provide producers with a needed tool to improve production efficiency and minimize traditional inputs with current land resources. Limited work has evaluated the use of alfalfa-bermudagrass mixed swards under grazing conditions, and these evaluations have primarily used either fixed residual height or fixed rest periods to determine grazing period end points. It has been noted that both grazing intensity and frequency impact overall stand production over time; however, no published work has evaluated the associated relationship between harvest height and frequency to better define grazing parameters to be later implemented in research grazing evaluations. The objectives of this work are to (1) define alfalfa grazing metrics in alfalfa-bermudagrass mixed swards, (2) develop extension tools to help producers better manage their alfalfa mixed stands, and (3) ultimately increase alfalfa knowledge and awareness, utilization, and acreage in the Southeast. This project utilizes six locations on university research stations in three states. We are currently in the establishment phase of this work.

Evaluation Location(s)

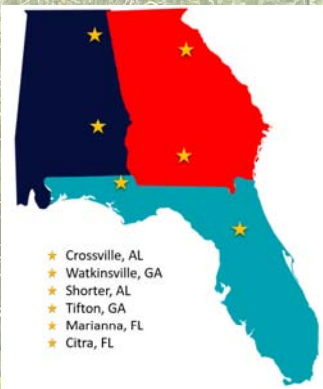

Figure 1. Map of evaluation locations

- Six locations in three states (Fig. 1)
- Grazing tolerant alfalfa varieties chosen based on location suitability
- Three varieties are used in this evaluation.

Location	Alfalfa Variety
Crossville, AL	'Bulldog 505'
Watkinsville, GA	'Bulldog 505'
Shorter, AL	'Bulldog 805'
Tifton, GA	'Bulldog 805'
Marianna, FL	'Bulldog 805' and 'UF2015Alf-Pers'
Citra, FL	'Bulldog 805' and 'UF2015Alf-Pers'

Experimental Design

Randomized complete block with four replications. Thirty-six plots (1.5 x 4.6 m) established in hybrid bermudagrass to evaluate influence of harvest frequency (2, 4, and 6 weeks) and harvest height (5, 10, and 15 cm) on alfalfa-bermudagrass mixed sward yield, persistence, stand density, botanical composition, nutritive value as a livestock feed source, and change over time.

Treatments are designed to represent common grazing practices on warm-season perennial grass pastures in the southeast. Three defoliation frequencies represent varying rest periods (2, 4, and 6 weeks) in a rotational stocking system. Three harvest heights (5, 10, and 15 cm). based on common grazing practice on hybrid bermudagrass (5 cm), recommended target grazing height on alfalfa (10 cm), and (15 cm) to represent the mantra of 'take half/leave half' when implementing rotational stocking. The combination of these height and frequency treatments should allow us to begin development of grazing recommendations when utilizing an alfalfa-bermudagrass sward.

Treatments	
Harvest Frequency	Harvest Height
2 weeks	5 cm (2 inch)
4 weeks	10 cm (4 inch)
6 weeks	15 cm (6 inch)

Current Progress

Objective 1: ***Simulated grazing small-plot evaluation: harvest height & frequency***

- All locations were established Fall of 2017
- Two locations (Northern, AL and Southern, GA) re-established in Spring 2018
- Two locations in Florida – failed establishment, will re-establish in Fall 2018
- Two students have been hired for work on this project (Auburn University and University of Georgia)

Bulldog 505 in Watkinsville, GA – March and May 22, 2018

Bulldog 805 in Tifton, GA – Replant in February and May 22, 2018

Objective 2: *Economic Assessment and Development of Yield Estimation Tools*

- Materials acquired and training of students has occurred for development of yield estimation tool during small-plot data collection

Objective 3: *Extension and Outreach Component: Knowledge, awareness, and application of integrated alfalfa-bermudagrass systems for cattle producers*

- Project has been highlighted and introduced to peers and producers at "Alfalfa in the South" workshops (4)
- Tifton location served as stop on farm tour during workshop/field day May 9, 2018
- Planned first of three webinars to be recorded August 2018 and disseminated via www.secattleadvisor.com

Alfalfa in the South Workshop – Tifton, GA - May 9, 2018

USDA NIFA United States Department of Agriculture National Institute of Food and Agriculture
College of Agricultural & Environmental Sciences UNIVERSITY OF GEORGIA
AUBURN UNIVERSITY Alabama Agricultural Experiment Station
UF IFAS UNIVERSITY of FLORIDA