

PERFORMANCE OF KIKO WETHERS AND KATAHDIN RAMS CO-GRAZED IN WOODLANDS WITH DIVERSE VEGETATION

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ABSTRACT

Small-ruminant production in the Southeast USA is mainly pasture based and most of the producers are small scale. Woodland grazing is becoming familiar to producers and can serve as an alternative grazing system in the Southeast. Some literature is available on the performance of mature goats and sheep stocked separately in woodlands. However, information is lacking on the performance of goats and sheep when co-grazed in woodlands. The objective of the study was to evaluate the performance of Kiko wethers and Katahdin rams co-stocked in woodlands. Eight Kiko wethers and five Katahdin rams (both mature) were co-stocked rotationally in three woodland plots (0.4 ha) from mid-May to mid-October 2019. Each study plot had four different virtual sections with average vegetation-canopy height of 0.82m, 1.34m, 1.67m, and 1.73m (treatments) at the beginning of the study. Animals were stocked together in each plot and moved to the next plot when 50% of the available vegetation within animal's reach was consumed. Animal performance data on live weight, body condition score (BCS), and FAMACHA score were collected before stocking animals in study plots and every 14 days thereafter. Animal performance data were analyzed using GLM procedure with MANOVA option in SAS 9.4. Results showed that live weight of Kiko wethers ranged from 74 to 80 kg (SE 5.9), BCS ranged from 2.4 to 3.4 (SE 0.09), and FAMACHA score ranged from 2.0 to 2.4 (SE 0.08). Katahdin rams maintained the live weight between 90 and 96 kg (SE 11.6), body condition score between 2.7 and 3.7 (SE 0.09), and FAMACHA score between 1.8 and 2.2 (SE 0.12). The BCS and FAMACHA score were in the normal range for grazing goats and sheep. Both animal species maintained a satisfactory live weight, BCS, and FAMACHA score in woodlands when co-stocked. Further study is needed to determine the performance of animals in higher nutritional demand.

Keyword: Body condition score (BCS), FAMACHA score, live weight, understory vegetation

INTRODUCTION

- Goats producers in Alabama are small scale, limited resource farmers with the goatherd size of 18 and average pastures of four hectares (Karki, 2011).
- Pasture-based small-ruminant production is a common practice in the Southeast USA and supplement feeding is costly (Karki & Karki, 2017).
- Previous studies showed that woodland vegetation were consumed well by small ruminants: 26 out of 37 (Khatri et al., 2016), 23 out of 37 (Karki, 2017), 8 out of 23 (Bhattra, 2019), and 17 out of 34 (Paneru, unpublished).
- Previous study of Kiko wethers and Katahdin rams stocked separately in woodlands showed satisfactory performance (Bhattra, 2019).
- However, performance of Kiko wethers and Katahdin rams co-stocked in woodlands from the Southeast USA is not reported.

Objective: To evaluate the performance of Kiko wethers and Katahdin rams co-grazed in woodlands

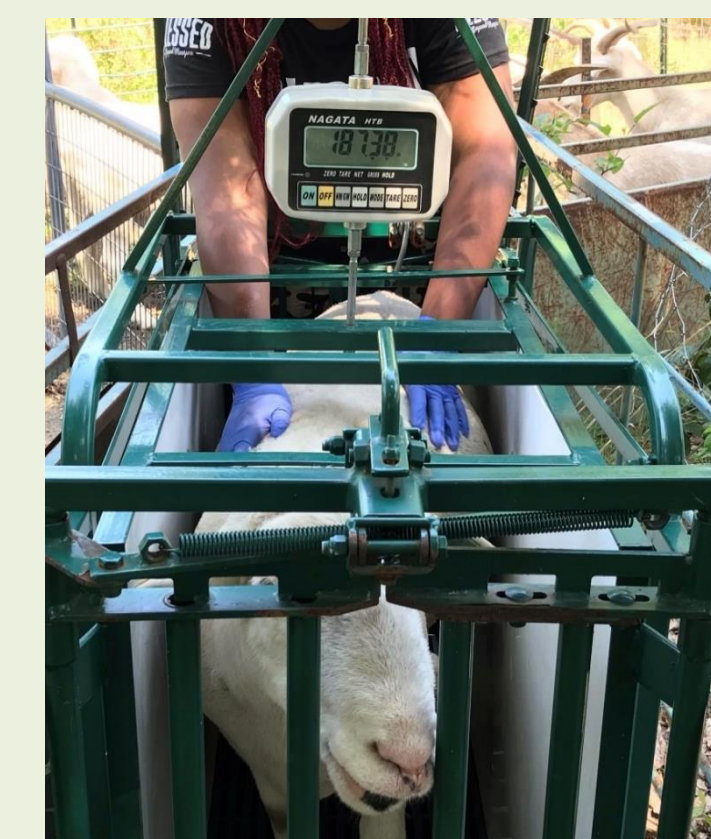
MATERIALS AND METHODS



Study Plots: Atkins Agroforestry Research and Demonstration Site, Tuskegee University

ANIMAL PERFORMANCE DATA

➤ Taken every 14 days



Measuring live weight

- Live weight
- Body condition score (BCS) (1-5)
- FAMACHA score (1-5)
- Data Analysis: SAS 9.4, GLM- MANOVA option
- Alpha = 0.05



Taking FAMACHA score
Photo credit: Dr. Uma Karki



Rams grazing in woodlands



Rams drinking water

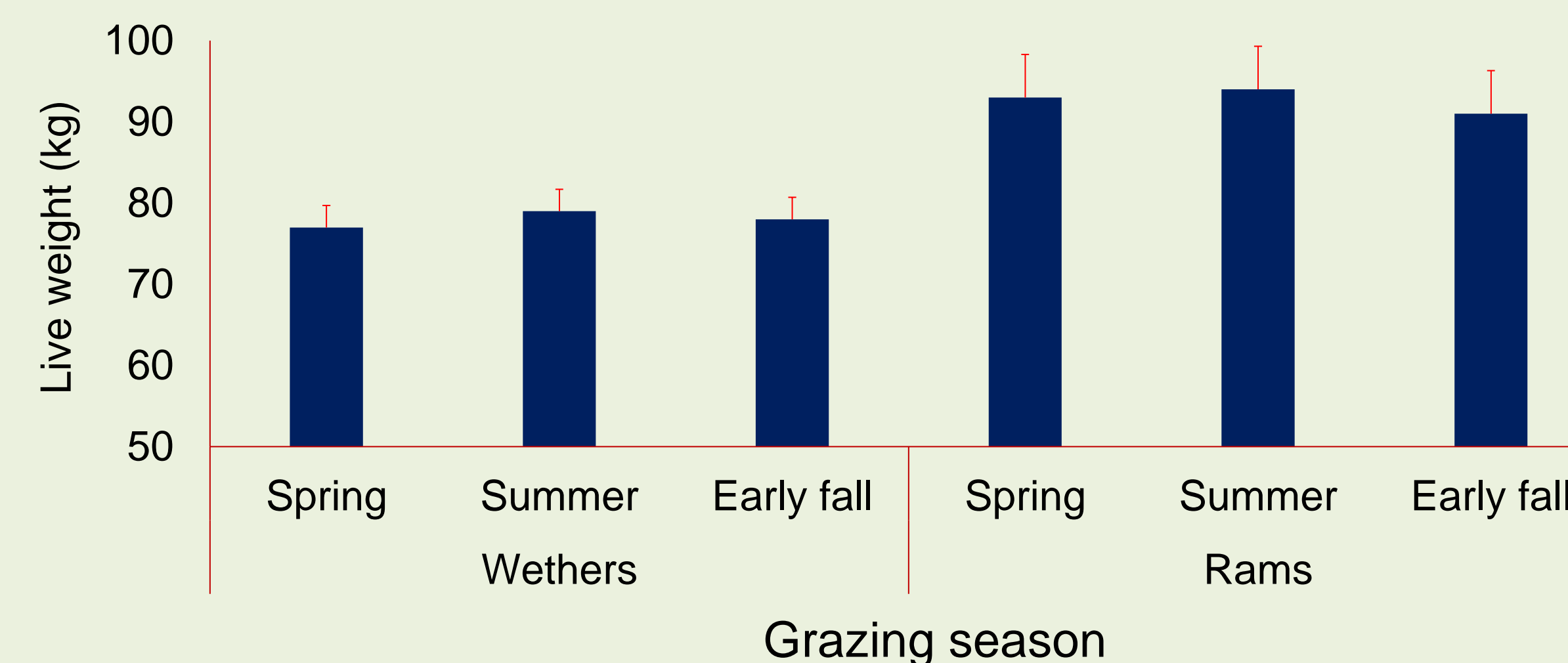


Wethers browsing in woodland

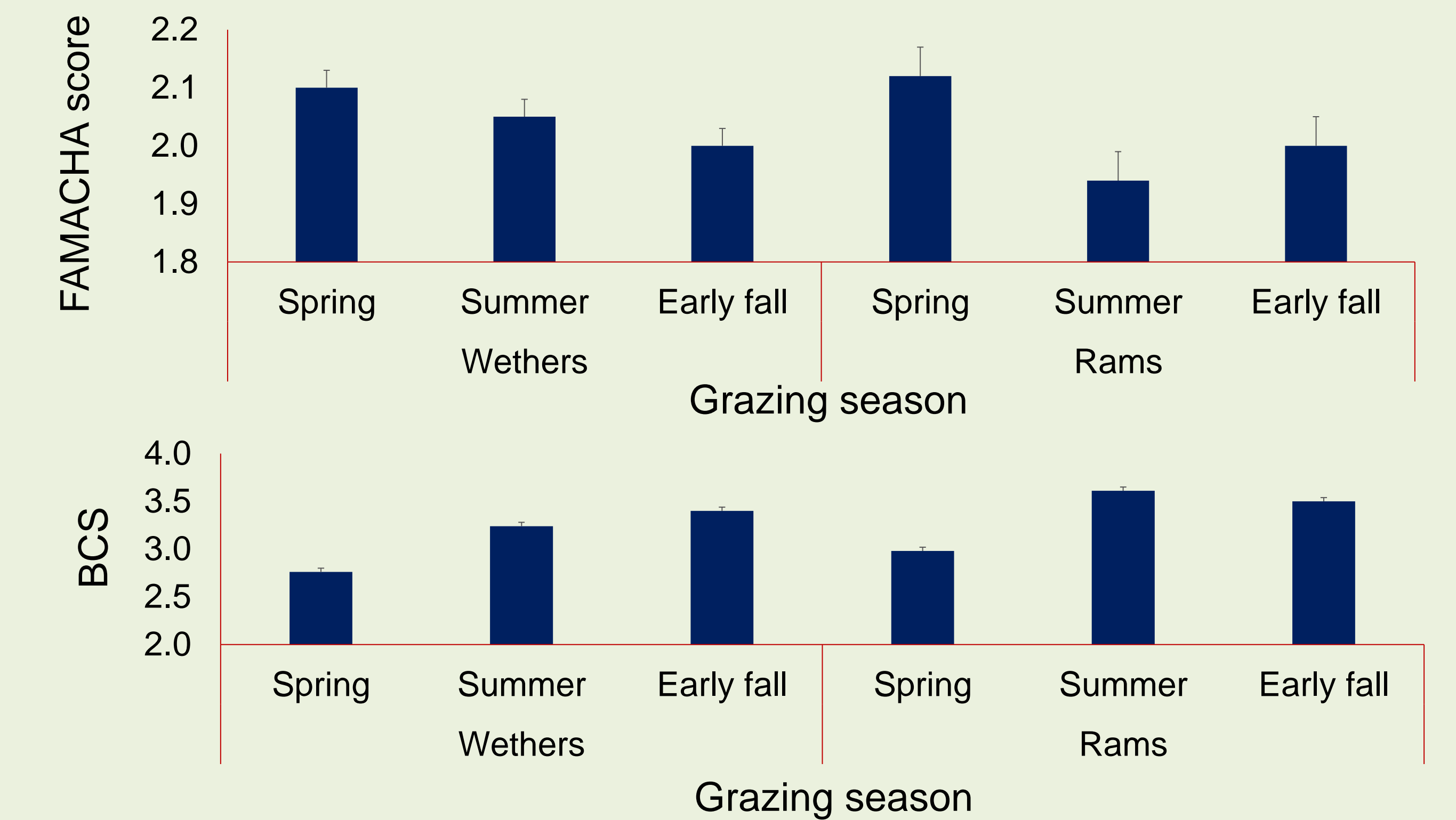


Co-grazing wethers and rams

RESULTS & DISCUSSION



- Wethers' initial live weight was 74 kg, which increased to 80 kg in early summer and ended up with 78 kg at the end of the study.
- Rams' initial weight was 91 kg, which reached to 96 kg in mid-summer and ended up with 90 kg at the end of the study in early fall.
- Vegetation maturity and decreasing quality might be the reason for weight loss in fall, as most of the understory vegetation started yellowing then.



Pearson's correlation: Wethers

	Live weight	FAMACHA score
Live weight	1	
FAMACHA score	-0.28***	1
BCS	0.4****	-0.19**

Pearson's correlation: Rams

	Live weight	FAMACHA score
Live weight	1	
FAMACHA score	-0.03	1
BCS	0.23**	-0.33***

CONCLUSIONS

- Both animal species gained weight during summer; however, lost in early fall.
- Body condition score was in the desirable range for both wethers (2.4-3.4) & rams (2.7-3.7)
- Both animal species maintained a healthy range of FAMACHA score: wethers – 2.0-2.4, rams: 1.8-2.2
- This study established that mature wethers and rams can be raised well in woodlands when enough understory-vegetation is available for animals.
- Further study is needed to determine the performance of animals in higher nutritional demands

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ACKNOWLEDGEMENTS

- Major funding: USDA-NIFA-AFRI Grant# 2016-68006-24764
- Partial support: USDA/NIFA/McIntire Stennis Cooperative Forestry Research Program at Tuskegee University award no. NI19MSCFRXXXG011