Mitigation Strategies for Heifer Development on Tall Fescue

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Introduction

- Valued for its adaptability to a wide range of climates and environmental factors, tall fescue *(Schedonorus arundinaceus)* , is the predominant cool season perennial forage in the Eastern U.S.
- The endophyte *(Neotyphodium coenophialum)* that aids in the success of tall fescue, has been observed to cause vasoconstriction amongst other negative health effects which may lead to a decrease in conception rates.
- Toxic endophyte tall fescue contributes to an annual loss of around $2 billion in the cattle industry.
- Alternative grazing strategies must be explored in order to mitigate the toxic effects of endophyte infected tall fescue in replacement beef heifers.

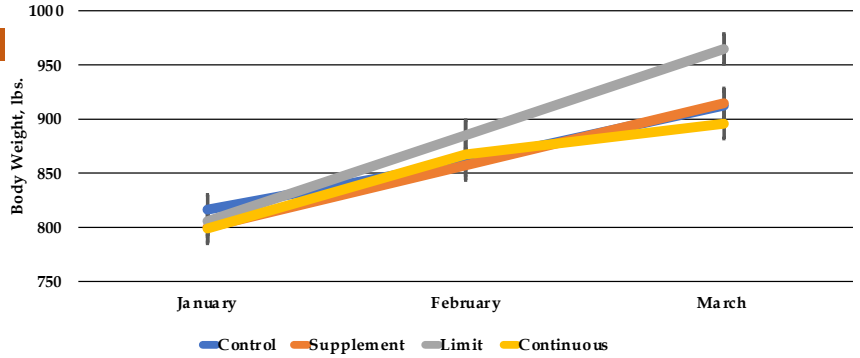

FIGURE 1: Average Body Weight For Heifers Grazing Four Cool-Season Forage Treatments. Error bars represent standard error of the mean.

Experimental Design

- Randomized Design
  - 4 grazing treatments
    - Tall Fescue (Control), Supplemental Feed (Supplement), Limit Graze (Limit), & Continuous-Cool Season Annual Graze (CSA)
- Forages used
  - KY 31 Tall Fescue
  - Coker Oats
  - Dixie Crimson Clover
  - Marshall Annual Ryegrass

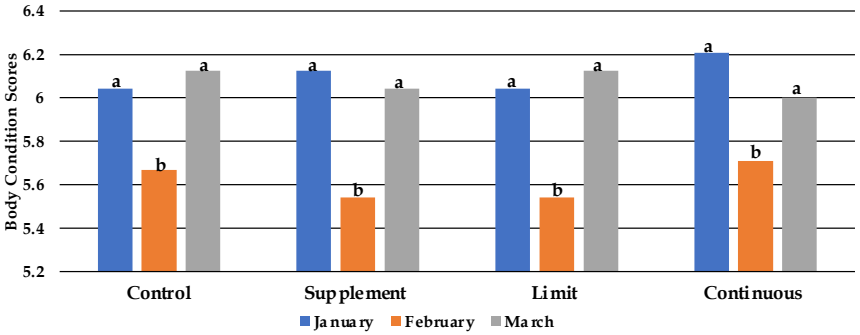

FIGURE 2: Average Body Condition Score For Heifers Grazing Four Cool-Season Forage Treatments

Methods

- 48 Heifers were used in this project
  - The supplemental feed group was fed at 1% body weight.
  - The limit grazing group was offered grazing of CSAs for 24 h a week.
  - The supplemental feed group as well as the control group were offered fescue hay when nutritional needs were not met.
- Study was conducted at the E.V. Smith REC in Shorter, AL
- Every 30 d, body weights (BW), body condition scores (BCS), and hair coat scores (HCS) were recorded and forage samples were taken
- On April 1, 2022, the heifers underwent artificial insemination and conception rates were observed 45 d after insemination
- Data was analyzed using Proc GLIMMIX of SAS 9.4 (SAS Institute, Cary, NC), $\alpha = 0.05$.

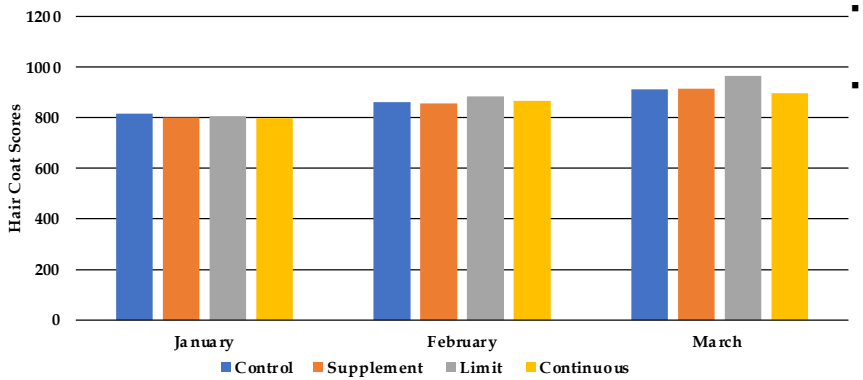

FIGURE 3: Average Hair Coat Scores For All Treatments[1]
[1]Data not statistically analyzed. Numerical differences only.

Results

BW

- There were no difference among forage treatments (P=0.4232).

BCS

- There was a significant date effect (P<0.01) on BCS; however, there was no significant differences of forage treatment (P<0.7850) on BCS.

HCS

- There was no significant differences in HCS observed at any weigh date.

CONCEPTION

- Conception rates were 75, 67, 42, and 50% for the continuous-cool season, limit graze, supplemental feed, and tall fescue treatments, respectively.

Conclusion

- Results of the forage nutritive value and ergovaline concentrations will assist in determining the cause of the reduction in BCS in February.
- At this time, the results indicate that limit grazing cool-season annual forages can be an economically advantageous option to mitigate fescue toxicosis in replacement heifers grazing toxic-endophyte tall fescue.

Literature Cited

- IJ. K. Porter, F. N. Thompson, Jr., Effects of fescue toxicosis on reproduction in livestock, *Journal of Animal Science*, Volume 70, Issue 5, May 1992, Pages 1594–1603
- S.P. Schmidt, T.G. Osborn, Effects of endophyte-infected tall fescue on animal performance, Agriculture, Ecosystems & Environment, Volume 44, Issues 1–4, 1993, Pages 233-262