Poster # PSIV-26

Effects of extended-release eprinomectin on heifer growth and reproductive performance while grazed on endophyte-infected tall fescue or housed in drylot

S. M. Graham [1], J. Navarrete[2], L. T. Neira[1], J. C. McCann[1], D. W. Shike[1]

[1]University of Illinois at Urbana-Champaign, [2]Illinois State University

INTRODUCTION

Tall fescue is a common grass in the US that beef producers graze their herds on. Most tall fescue is infected with an endophyte which produces ergot alkaloid. This alkaloid results in fescue toxicosis which is characterized by decreased growth and lowered reproductive performance. Administering cattle with LongRange, a slow release eprinomectin designed to decrease the parasite load, increased BCS and BW while improving pregnancy rates of beef heifers grazing fescue. However, this previous research did not have a negative control with heifers not grazing fescue. Therefore, further work is needed to evaluate the effect of LongRange on heifers grazing endophyte-infected fescue or in a drylot setting with no fescue toxicity.

Hypothesis: LongRange would improve heifer reproductive performance in heifers grazing endophyte-infected tall fescue but would have no effect on heifers housed in a drylot while being fed alfalfa hay.

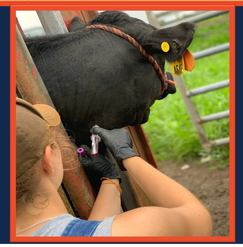
Objective: Analyze the effects of an extended-release eprinomectin injection (LongRange) on beef heifer reproductive performance while grazed on endophyte-infected tall fescue or housed in drylot and fed alfalfa hay.

MATERIALS AND METHODS

- 153 Angus x Simmental heifers used in a split-plot design
- Heifers (initial BW =283 kg) were stratified by BW into 6 groups
- Groups assigned randomly to 1 of 2 environmental treatments:
  - 3 groups grazing endophyte-infected tall fescue pastures (Pasture)
  - 3 groups maintained in drylot and fed alfalfa hay (Drylot)
- Within these, groups were then further divided into 1 of 2 treatments:
  - LongRange (1 mL/49.9 kg BW)
  - Saline (1 mL/49.9 kg BW)
- Pasture heifer groups were rotated biweekly through 5 pastures (2.02 hectares) and supplemented with 2.27 kg as fed of DDGS
- Drylot offered ab libitum 90% alfalfa hay/10% DDGS mix
- SafeGuard, an oral fenbendazole, administered to all heifers on June 18, 2019
- Statistical analysis conducted with MIXED procedure of SAS

RESULTS

		Treatment					P-values		
		Drylot		Pasture		SEM			
		LR	S	LR	S		LongRange	Environment	Interaction
BW, kg	d 140	369^{a}	360^{b}	363^{ab}	338^{c}	6.0	0.01	0.15	0.01
	AI breeding	352	336	363	336	6.8	0.01	0.57	0.20
	AI preg	327^{b}	318^{c}	353^{a}	326^{bc}	4.9	0.01	0.06	0.01
	Final preg	391^{b}	384^{b}	415^{a}	389^{b}	4.5	0.01	0.05	0.01
BCS	d 140	4.7	4.5	5.1	4.7	0.12	0.01	0.15	0.48
	AI preg	4.9	4.9	5.2	4.9	0.09	0.13	0.20	0.11
	Final preg	5.0	5.0	5.0	5.0	0.01	0.48	0.32	0.29
HCS	d 140	3.0	3.0	3.0	3.0	0.15	0.88	0.64	0.57
RR, breaths/min	d 140	50.0	52	60.0	65	3.6	0.14	0.06	0.70
FEC, egg/g	d 140	0.0	0.0	0.0	0.0	0.01	0.98	0.42	0.96
PCV	d 140	40.0	40.0	39.5	38.0	0.56	0.20	0.10	0.20
Pregnancy Rates, %	AI preg	19.4	21.6	39.4	49.5	-	0.60	0.21	0.78
	Overall preg	70.1^{b}	83.9^{ab}	95.3^{ax}	82.1^{aby}	-	0.51	0.11	0.03



CONCLUSIONS

- LR increased BW to a greater magnitude in pasture than in drylot heifers on d 140, at AI pregnancy determination, and final pregnancy determination
- At breeding, LR increased heifer BW compared to control
- On d 140, LR increased heifer BCS compared to control
- On d 140, pasture heifers tended to have greater RR than drylot
- Treatment did not affect HCS, FEC, PCV, or AI pregnancy rate
- LongRange tended to increase heifer final pregnancy rate compared to control on pasture

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