



Effects of Eprinomectin on Heifers Grazing Endophyte-Infected Tall Fescue



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Introduction

- Tall fescue (*Festuca arundinacea*) is a common, hardy, and nutritious forage grazed most commonly throughout southeastern parts of the US.
- Fescue toxicosis symptoms are believed to be caused by ergot alkaloids, ergovaline, lysergic acid, etc. within the grass.
- Previous studies suggested that a commercial 28 day dewormer, Ivermectin, could be effective at reducing fescue toxicosis.
- LongRange (eprinomectin) is a long lasting dewormer that is injected subcutaneously and remains effective ~100-150 days.
- Both Ivermectin and Eprinomectin are both dewormers in the avermectin class and expected to have similar effects.

Objective/Hypothesis

- We hypothesize that eprinomectin will effectively reduce the symptoms associated with fescue toxicosis.
- The purpose of this study is to determine if eprinomectin is effective at reducing the symptoms associated with fescue toxicosis.

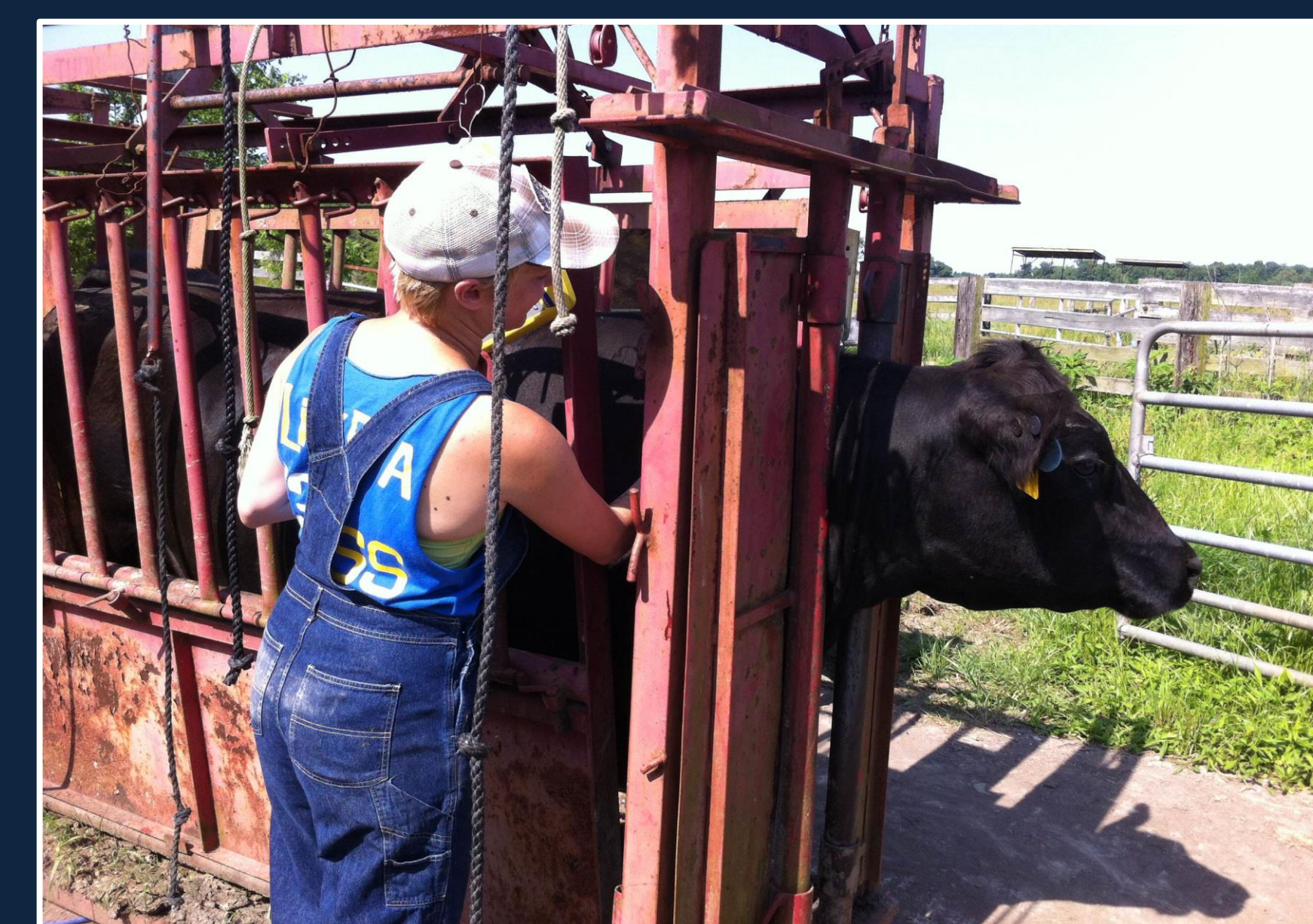
Materials and Methods

- 200 Angus x Simmental heifers at the Dixon Springs Agricultural Center (DSAC) were divided into two random groups containing 100 heifers per group.
- One group was injected with LongRange (1cc/110lb BW) and the second group was injected with hypertonic saline (1cc/110lb BW).
- Both groups were put on Endophyte-Infected tall fescue pasture (with 6lb/day per head supplementation of corn gluten feed and soybean hulls) for 16 weeks from May 28th to September 9th.
- Three times throughout the trial hair coat scores (HCS), body condition scores (BCS), full body weights, fecal parasite load, and respiration rates are measured.
- Hair coat scores are assigned on a 1-5 scale with one being very short/slick and 5 being very thick/hairy.
- Body condition scores are assigned on a 1-9 scale with 1 being severely emaciated and 9 being severely overweight.
- Fecal parasite load is measured using a Modified Wisconsin Technique where 3g feces is mixed with 15mL FecaMed (NaNO₃ with specific gravity 1.25-1.30).
- Respiration rates are measured by observing the number of breaths per 15 seconds and multiplying by four to get breaths per minute.
- Blood samples are collected for analysis of prolactin concentration at weeks 0,1,2,4,8,12,16.
- Forage samples from the fescue pasture and feed samples are collected once every two weeks and ground for proximate analysis.
- Fescue stem samples are collected three times throughout the study for analysis of %endophyte infection.

Results

	LongRange	Control
Beginning Average BW (5.28.15)	266 kg	263 kg
Average BW (7.24.15)	279 kg	274 kg
Average BW Change (5.28-7.24)	12 kg	11 kg
Beginning Average HCS (5.28.15)	2.35	2.36
Average HCS (7.24.15)	1.47	1.58
Average HCS Change (5.28-7.24)	-.88	-.78
Beginning Average BCS (5.28.15)	5.76	5.75
Average BCS (7.24.15)	5.72	5.66
Average BCS Change (5.28-7.24)	-.04	-.09
Average RR (5.30.15)	37.4	38.5
Average RR (7.24.15)	35.8	37.6

- As of 7.24.15 this study is at the halfway point
- Fecal samples collected 5.28.15 suggests that any differences in performance of the heifers on this study are not due to parasite load.
- Analyses of fescue stems for %endophyte infection completed 6.12.15 reported that the stems were 90% endophyte infected with an ergot alkaloid content of 1917 ppb.
- Heifers treated with LongRange had greater (P = 0.04) BW at the midpoint (July 24) than the control heifers.



Discussion

This study is only at the halfway point and will continue into September. Forage and feed samples will be brought to campus for proximate analysis. Up to this point the study is showing a slight advantage to administering eprinomectin to treat fescue toxicosis symptoms. Possible sources of error would be the large amount of legumes in the fescue pasture as well as the feed supplement the heifers received throughout the trial. As the study progresses we will better see the effects of eprinomectin on the heifers grazing infected fescue. Regardless of the study outcome, more research is needed to test eprinomectin's effectiveness at managing fescue toxicosis symptoms.



Student Biography

I am a Junior in the department of Animal Sciences, with a concentration in the study of Science, Pre-Veterinary, and Medical sciences and minoring in Leadership Studies. After I complete my undergraduate degree I plan to continue on to apply to veterinary school. Having never lived or worked in a farm setting, this summer internship has proven extremely rewarding. Working with the entire staff at DSAC, including Frank Ireland, as well as communicating to campus via Dr. Daniel Shike I have been given the unique opportunity to experience the production and research sides of Animal Sciences.

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