Iowa Beef Industry Council Checkoff Research Program
Final Report Review

Project Title: Investigating the incidence, etiologies, and risk factors for lameness in Iowa feedlot cattle

Investigators: Dr. Terry Engelken
Dr. Vicki Cooper
Dr. Grant Dewell

Primary Institution: Iowa State University

Award Amount: $50,604

Reviewer: Dr. James Russell

Date: February 22, 2022

Project Objectives (as listed in proposal):

- Survey feedlot operators and veterinarians to determine the incidence, severity, and causes of lameness in Iowa feed yards.
- Biopsy heal bulb lesions in lame cattle and utilize 16S metagenomic techniques to classify the bacterial profiles of these lesions to better define the role of "Hairy Heel Warts" in lameness.
- Examine the feet of incoming cattle at feed yard arrival to obtain baseline information as to the incidence of foot lesions as a risk factor for the development of pen lameness.
- Utilize the information obtained via objectives 1-3 to construct an educational program for producers and their veterinarians in order to disseminate mitigation strategies to decrease feedlot lameness.

Final Report Summary

Nontechnical Summary:

Title: Investigating the incidence, eti0logies, and risk factors for lameness in Iowa feedlot cattle

Lead Project Director:

Terry J. Engelken, DVM MS, College of Veterinary Medicine, Iowa State University, 2438 Lloyd Vet Med Center, 1809 South Riverside Drive, Ames, IA 50011 Phone: 515-294-2192 Email: engelken@iastate.edu

Nontechnical summary not included in the final report.

Impacts (From Reviewer):

- Lameness associated with Hairy Heel Warts may be a significant problem in feedlot cattle in different regions of the state.
- Results of this project implicate approaches and bacteria that may be targeted in the develop of practices and medicines to mitigate lameness in feedlot cattle.

Conclusions (from Final Report):

- There may be significant decreases in average daily gain and total bodyweight gains between calves with digital dermatitis lesions compare to normal cattle.
- Surveys of feedlot producers and veterinary practitioners concerning the causes of and attitudes toward the incidence of feedlot lameness were fairly consistent.
    - There was significant variation in the importance of factors affecting feedlot lameness in different regions of the state.
- Metagenomic analysis of different stages of digital dermatitis lesions indicate that are significant bacterial population changes as these lesions progress from early to chronic.
    - These changes are similar to what has been reported in dairy cattle in Iowa.

Technology transfer:

Graduate student theses or dissertations:

None reported

Refereed journal publications:

One manuscript planned (Described in 2020 progress report)

Reviewed abstracts:

None reported

Extension/Outreach publications:

None reported

Scientific presentations:

None reported

Extension/Outreach presentations:

Engelken, T.J. Digital Dermatitis: Old Disease-New Research. Feedlot Forum. Sioux City, IA June 29, 2021 (Approximate attendance: Not reported).

Engelken, T.J. Digital Dermatitis Update. Producer Meeting. Nevada, IA July 21, 2021 (Approximate attendance: Not reported).

Engelken, T.J. Digital Dermatitis: Old Disease-New Research. Feedlot Short course. Ames, IA August 2, 2021 (Approximate attendance: Not reported).

Podcasts:

Engelken, T.J. Digital Dermatitis. ICA Podcast. November29, 2021.

Other:

None reported

Personnel Support:

Faculty:

Not reported

Extension specialists:

Not reported

Associate scientists:

Not reported

Post-doctoral associates:

Not reported

Technicians:

Not reported

Farm labor:

Not reported

Graduate student:

Not reported

Undergraduate student:

Not reported (although budgeted)

Other:

Not reported