RESEARCH FACTS

UNIVERSITY OF SASKATCHEWAN
Livestock and Forage Centre of Excellence
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IN PROGRESS

Investigating the role of flooring in the development of Toe Tip Necrosis Syndrome

PROJECT TITLE

Investigating the role of flooring in the development of Toe Tip Necrosis Syndrome (TTNS)

In progress:

Results expected in December 2022

RESEARCHERS

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Background:

The development of toe tip necrosis syndrome (TTNS) in feedlot cattle is assumed to begin with excessive wear along the apex of the toe, resulting in a weakening of the white line. Loading forces associated with walking results in separation of the white line, allowing for bacteria to penetrate the hoof capsule and infect the sensitive underlying tissues. Once the infection reaches the 3rd phalangeal bone ('coffin bone'), then treatment is often unsuccessful and many of these lame animals must be euthanized.

The Saskatchewan Agricultural Development Fund (ADF) and the Beef Cattle Research Council (BCRC) have supported research into describing the epidemiology of the disease and understanding the role of specific risk factors such as temperament, flooring surfaces, and nutrition. It is believed that the abrasiveness of the flooring is a primary risk factor for developign the disease. Therefore, this project is designed to characterize flooring surfaces that are correlated with TTNS, and to assist in designing flooring that will prevent the disease.

Objectives:

This project has three main objectives: 1) compare the flooring of feedlots having a high incidence of TTNS to that of feedlots with a low incidence of the disease, 2) assess the effects of the flooring on the integrity of the bovine foot, specifically the white line region, and 3) assess the effects of different flooring on the claws of live feedlot cattle in a typical feedlot environment.

What They Will Do:

We have already begun to assemble a library of floorings that cattle are exposed to. This involves taking pictures of the floorings located in chutes, alleys, pens, headgates, loading ramps, and transport trailers. Using specialized software, we can render these pictures into a 3-D image and analyze them for 'abrasiveness'. These data and feedlot health records will be used to identify floorings associated with TTNS and those that appear to control the disease. Cadver feet will then be tested on these floorings to effect of the flooring on hoof wear. The final stage will involve exposing live cattle to the flooring, to once again assess the effects on the hoof.

Implications:

The aim is to identify floorings that provide sufficient traction in all seasons and under most environmental conditions, while at the same time avoiding excessive wear on the hooves of the cattle. If successful, then it is quite possible that TTNS could be controlled with the installation of 'low-risk' flooring in high risk traffic areas. This would alleviate a tremendous amount of pain and suffering associated with this disease.