

# Veterinary medicine researcher helps discover novel fatigue syndrome in feedlot cattle

August 5 2015, by Joe Montgomery

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Researchers at Kansas State University's College of Veterinary Medicine, in collaboration with colleagues at Iowa State University and Texas Tech University, have discovered a novel fatigue syndrome affecting feedlot cattle. The syndrome is similar to one affecting the swine industry.

The researchers' landmark paper, "Description of a novel fatigue syndrome of finished feedlot cattle following transportation," appeared as a special report in the July 15 issue of the *Journal of the American Veterinary Medical Association*.

Co-authors are Dan Thomson, Jones professor of production medicine in the College of Veterinary Medicine and director of the Beef Cattle Institute at Kansas State University; Jamie Henningson, a diagnostic pathologist, and Bhupinder Bawa, a former pathology resident, both with the Kansas State Veterinary Diagnostic Laboratory; Guy Loneragan, professor of food safety and public health at Texas Tech University; and Steve Ensley, a veterinary clinician and toxicologist at Iowa State University.

"This syndrome has been identified in the swine industry and had not been identified in cattle until our work that started in 2013," Thomson said. "Our landmark paper places an emphasis on cattle stress at the end of the feeding period with items such as heat load, animal size, cattle

handling at shipping, time of day of shipping, animal transportation and other issues that could be causing stress of large cattle during the summer time."

The study was spurred by observations made during summer 2013. Abattoirs throughout the United States reported concerns about slow and difficult-to-move cattle and other [mobility problems](#) that developed soon after arrival at the facilities. Affected cattle had various clinical signs, including rapid breathing with an abdominal component to respiration, lameness and reluctance to move. Many of the cattle affected with mobility problems had clinical signs similar to those of pigs with fatigued pig syndrome, a multifactorial condition in which affected pigs become nonambulatory without obvious injury, trauma or disease, and refuse to walk.

"I think this paper is the first publication of the interaction between beta-agonists and lameness issues in cattle," Ensley said. "The beta-agonists are widely used in cattle and pig feeding and there is very little information about adverse effects. More work needs to be done, but this is a great start."

Beta-agonists are supplements fed to cattle.

Part of the pathophysiology points to a metabolic overload of sorts that result in or from respiratory insufficiency and muscle damage, Loneragan said.

"While we don't know the cause, it appears to be multifactorial in nature, but warrants further investigation," Loneragan said. "It is important to be able to share case reports like the ones described. While it is not always as thorough as a case report of hospitalized animals, these field-based observations are nevertheless of value and under Dr. Thomson's leadership, we were able to dig relatively deeply into these events and

provide a report to share with our profession."

Also described in the manuscript is a problematic condition—possibly an extreme endpoint of the fatigued cattle syndrome – where animals sloughed one or more hooves.

"Based on microscopic examination, this appears to be a distinct condition and is likely not laminitis resulting from dietary disturbances," Loneragan said. "It is clear this results in intense pain for the animals. The abattoir companies have decided that events like these are unacceptable, and I applaud their dedication and commitment to protecting the welfare of the animals they depend on for their business and we depend on for food."

The study concludes it would be imperative for the beef industry and affiliated veterinarians to learn quickly as much as possible about fatigue cattle syndrome so measures can be implemented to prevent the condition, or at least minimize its impact on [cattle](#) welfare.

**More information:** "Description of a novel fatigue syndrome of finished feedlot cattle following transportation." *J Am Vet Med Assoc.* 2015 Jul 1;247(1):66-72. [DOI: 10.2460/javma.247.1.66](https://doi.org/10.2460/javma.247.1.66)

Provided by Kansas State University

Citation: Veterinary medicine researcher helps discover novel fatigue syndrome in feedlot cattle (2015, August 5) retrieved 25 April 2024 from <https://phys.org/news/2015-08-veterinary-medicine-fatigue-syndrome-feedlot.html>

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