A survey of commercial slaughterhouses: preliminary data on the prevalence of pre-slaughter defects in market cows

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Introduction

Beef and dairy cull cow health and welfare are important to ensuring safe, quality food. This survey serves as a global benchmark for assessing cull cow health and welfare at the time of slaughter. The objectives of the survey were to: 1) describe the distribution of 10 pre-determined health and/or welfare conditions, and 2) describe the distribution of the conditions within and among different areas of the world.

Materials and Methods

A total of 4,211 lots of market cows (n=76,886 hd) from 8 states, 13 countries, and 3 areas of the world (Europe, Brazil, and the United States) were included in the study. The survey was conducted in the months of July, August, and September of 2014. Individual animals were assessed in lairage pens at commercial beef slaughter facilities for the 10 pre-determined health and/or welfare conditions by trained evaluators located at each slaughter facility.

Results

Of all animals evaluated, at least 1 condition was observed in 2.98% of animals. The 3 most commonly observed conditions were low body condition score (45.6% of conditions observed), poor udder condition (20.3% of conditions observed), and severely lame animals (16.3% of conditions observed). Most conditions were more prevalent in facilities in the United States. The classes of cattle in which the most conditions were reported were "Dairy" and "Mixed Beef and Dairy", accounting for 69.6% of all conditions observed.

Significance

Beef and dairy cull-cow health and well-being are important issues when considering animal welfare and food safety. This survey provides a point of reference for assessing cull cow health and welfare at commercial slaughter facilities, and provides a foundation which future surveys can be based upon.

Calving distributions of individual bulls in multiple-sire pastures

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Introduction

Reproductive performance and the number of calves produced by individual bulls within multiple-sire pastures has been shown to be highly variable. The objective of this project was to quantify patterns in the number of calves sired in multiple-sire pastures.

Materials and Methods

Five multiple-sire pastures were analyzed from the US Meat Animal Research Center database from the spring 2010 calf crop. Parentage was tested for all calves via genotyping. Calving intervals were analyzed in 21-day periods and bulls were ranked based on number of calves born in the entire

calving season/pasture with 1=bull with greatest number of calves, 3=bull with least number of calves, and 2=all other bulls.

Results

A total of 681 calves were born from 34 bulls 3 years of age. Average pregnancy risk was 93%. A calving interval by bull rank interaction was present for percentage of calves/cow-exposed. Generally, the percentage of calves/cows exposed decreased as 21-day periods increased. Bulls ranked

1 sired 17% of the calves/cow exposed in the first 21-day period whereas bulls ranked 3 sired only 1% of the calves/cow exposed in the same interval.

Significance

The data shown demonstrates the differences in number of progeny by bull in multiple-sire pastures. Ranking bulls by number of calves sired/cow-exposed for the entire calving season is associated with number of calves sired by individual bulls in each 21-day period of the calving season.

Evaluation and validation of a paralumbar fossa trans-abdominal rumen fluid sampling technique

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Introduction

Evaluation of rumen fluid for pH and rumen microbes (in particular, rumen protozoa) is helpful for both diagnostic and treatment purposes. Evaluating the pH of the rumen fluid is used to confirm acute ruminal acidosis as well as sub-acute ruminal acidosis. Evaluation of the ruminal protozoa helps to confirm the necessity of ruminal transfaunation. Protozoa will be dead or dying if the ruminant has been ill and off-feed for some time (usually>4 days). Passage of an oro-ruminal tube is 1 method for obtaining a rumen fluid sample. However, this method may yield rumen fluid that is mixed with saliva and may falsely elevate rumen pH. The tube method also requires more time and effort. A simple means of obtaining rumen fluid is trans-abdominal ruminal aspiration. This method has been used for over 20 years by the primary investigator (Roberson), but has never been evaluated in regards to safety and efficiency. The purpose of this study was to document the methodology, determine the actual time of obtaining the sample, and evaluate any negative consequences of the procedure. Secondary aims were to determine pH and number of protozoa/40x field.

Materials and Methods

The technique was evaluated on all 58 adult cattle from the Ross University School of Veterinary Medicine teaching herd. There was no skin preparation. Cattle were restrained in a chute, and ultrasonographic picture of the paralumbar fossa was taken for each animal in order to document body wall thickness. Tail jack restraint was applied prior to insertion of the needle. A 1.5 inch 16 gauge needle attached to a 12 mL syringe was directed toward the right elbow in the lower "V" of the left paralumbar fossa. The needle was inserted to its full length while suction was applied with the syringe. The needle was then withdrawn. One to 2 drops of rumen fluid was considered a successful tap. Rumen protozoa were evaluated in 3 separate fields and pH paper was used to evaluate pH. If the first attempt was not successful, 1 additional attempt was performed. A stopwatch was used to time from insertion to extraction. After collection, the animal was released back into the herd. Cattle were evaluated within 1 hour of the procedure looking for any evidence of pain or swelling. Cattle were evaluated/ultrasounded 1 day, 4 days, and 2 weeks later for pain, swelling and any evidence of illness. Simple descriptive statistics were used for pH and rumen protozoa numbers. A logistic regression model was fit to the data to determine if body wall thickness was predictive of rumen tap at day 0.

Results

Rumen fluid was successfully collected and evaluated from 45 of 58 head (78%). The primary reason for failure was when the body wall was too thick for a 1.5 inch needle. Body wall thickness was a statistically significant (P value=0.0002) predictor of a successful rumen tap. The odds of a successful tap was >90% when the body wall thickness was <20 mm, 62% successful when 35 mm thick, and only 36% successful when the body wall was ≥40 mm. The average pH was 7.9.