



Veterinary Research  
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University of Missouri

# The role of lidocaine and meloxicam in pain management for bull castrations.

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## Background

- Bull castrations have been shown to cause lower average daily gain and decreased overall production
- Pain management, including local anesthetics and nonsteroidal anti-inflammatory drugs may improve performance, decrease morbidity and minimize pain related behaviors

## Objective and Hypothesis

### Objective

- The objective of our study was to assess feed intake and movement behavior of bulls following castration and administration of meloxicam, lidocaine, or a combination of both meloxicam and lidocaine

### Hypothesis

- We hypothesized that using a combination of lidocaine and meloxicam will result in optimal pain management as evidenced by increased feed intake and decreased pain-related movement behavior.

## Materials and Methods

### Materials

- Bulls were sale barn derived with an average initial body weight of 578 lbs.
- There were 77 bulls total and two phases of the same method was done at separate time periods.
- Four treatments were used and each bull was randomly assigned a treatment:

#### Treatment 1: Control (n=20)

Bulls were only castrated and no drugs were administered.

#### Treatment 3: Meloxicam (n=19)

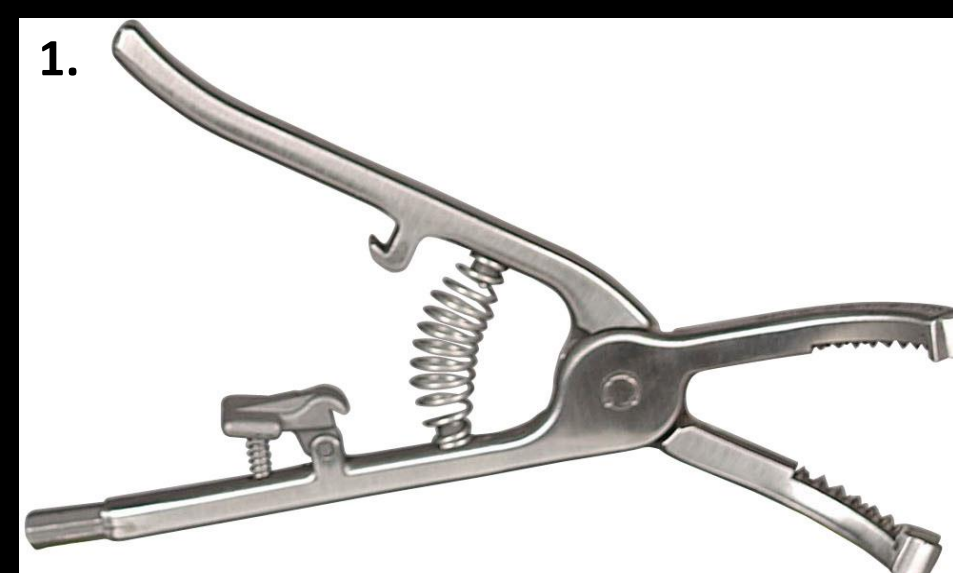
9 mg/ml oral solution was created using meloxicam tablets, water and 1.5% carboxymethylcellulose measured by weight was added to keep the product in suspension. Castration then followed immediately after drug administration.

#### Treatment 2: Lidocaine (n=19)

15cc lidocaine used total. 5ml was injected into each vaginal tunic of both testicles. 5 ml was injected into the base of the scrotum. Castration then followed immediately after drug administration.

#### Treatment 4: Combination (n=19)

Both of the above methods were combined and applied. Castration then followed immediately after drug administration.



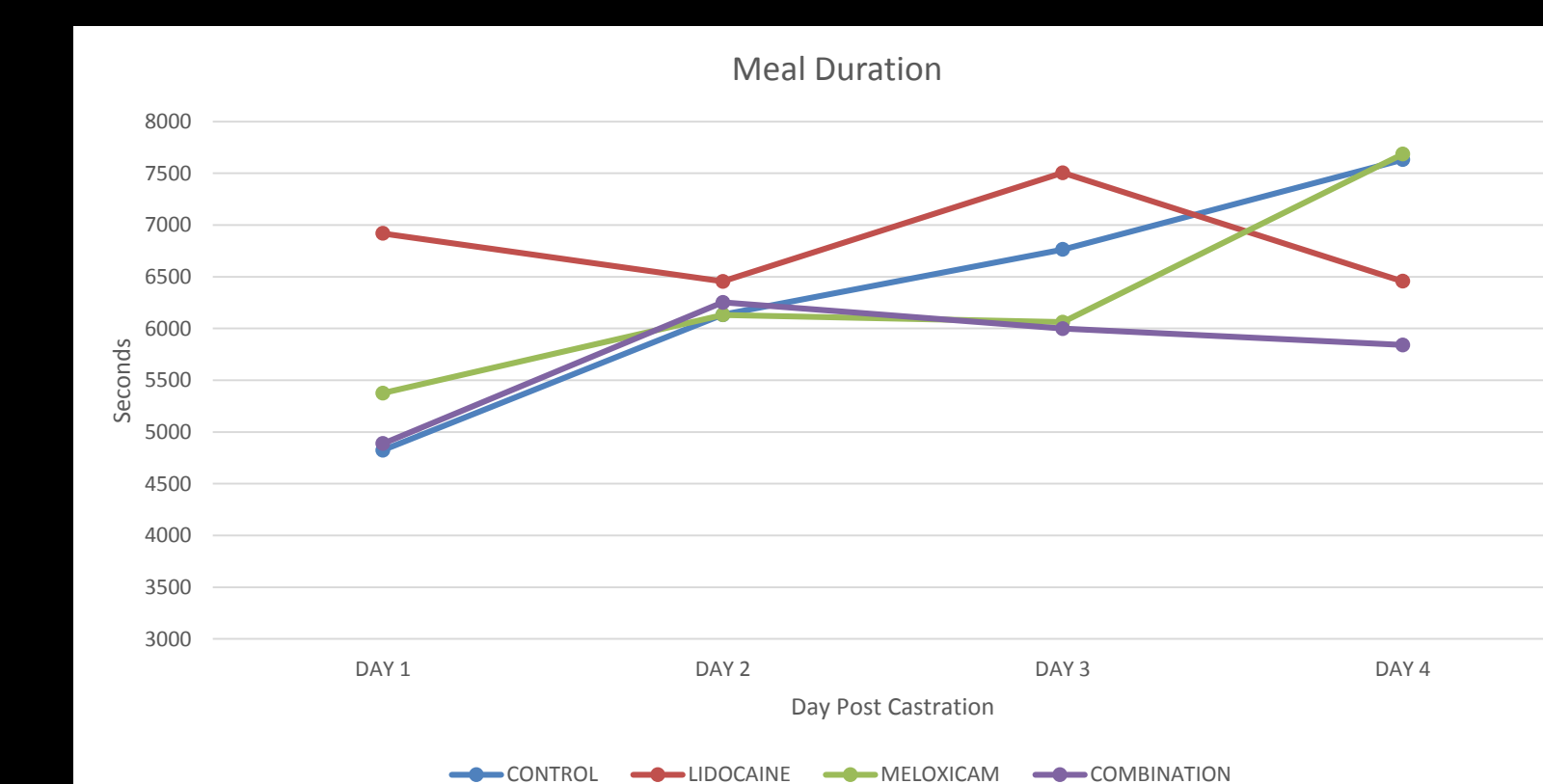
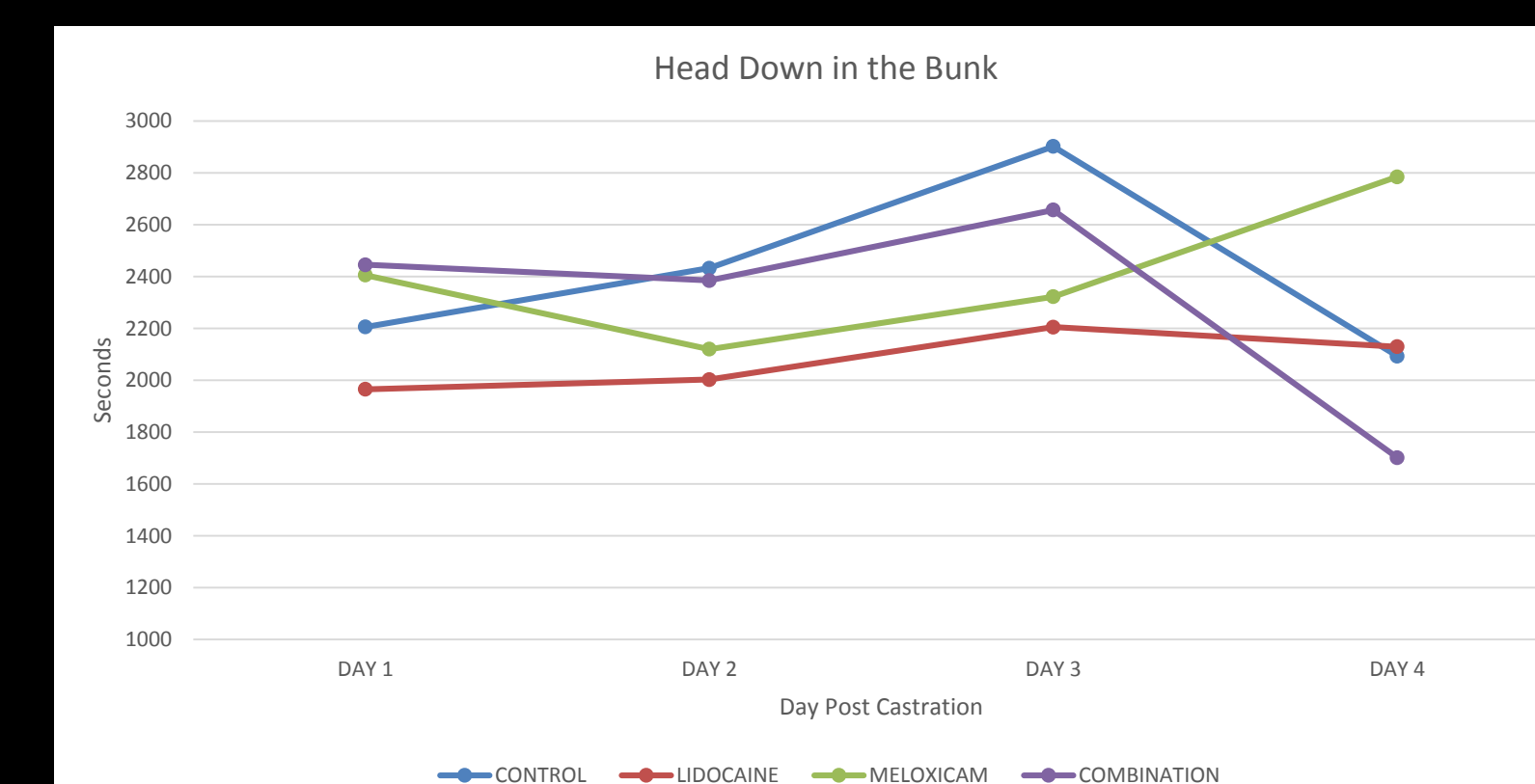
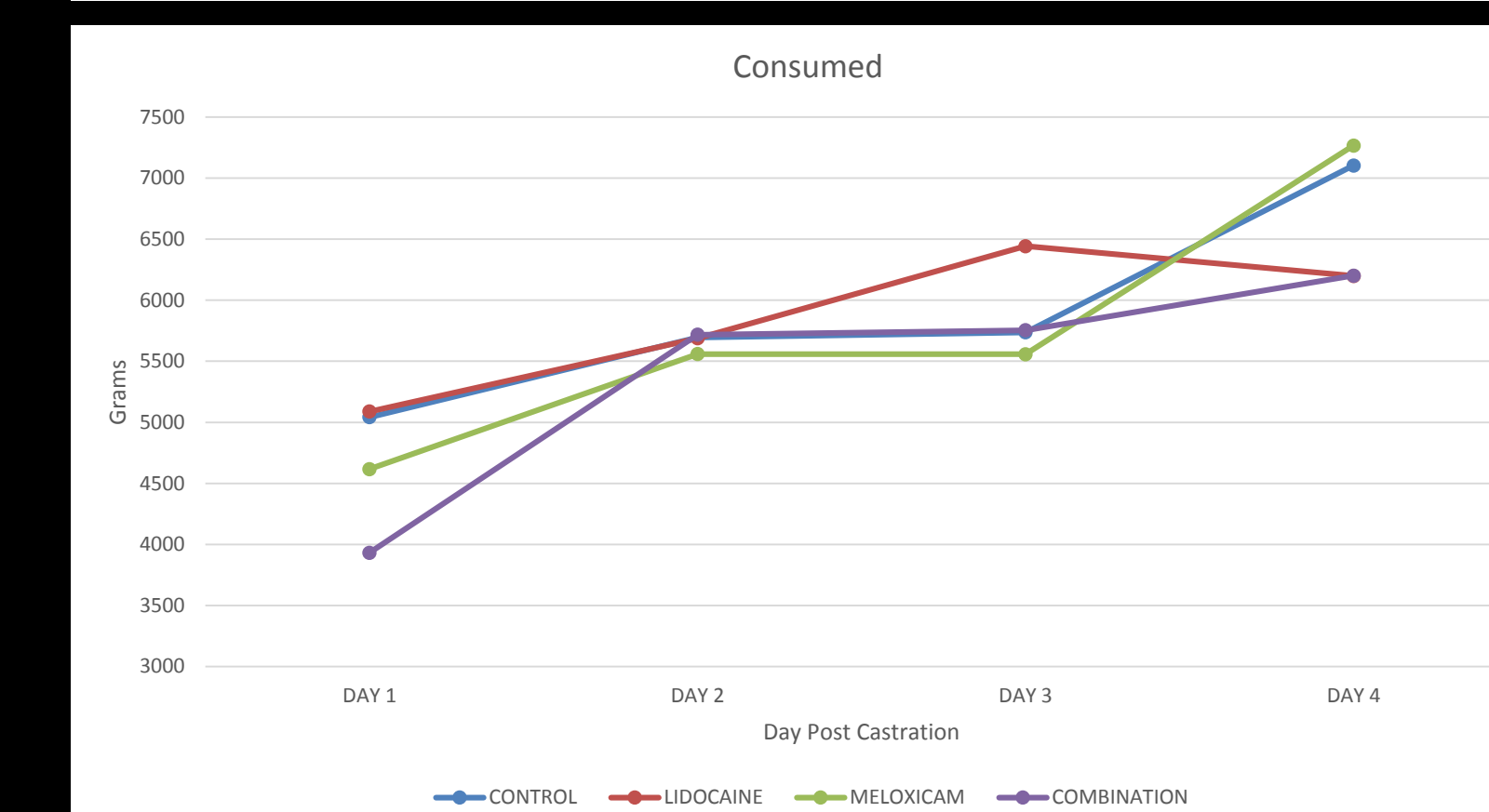
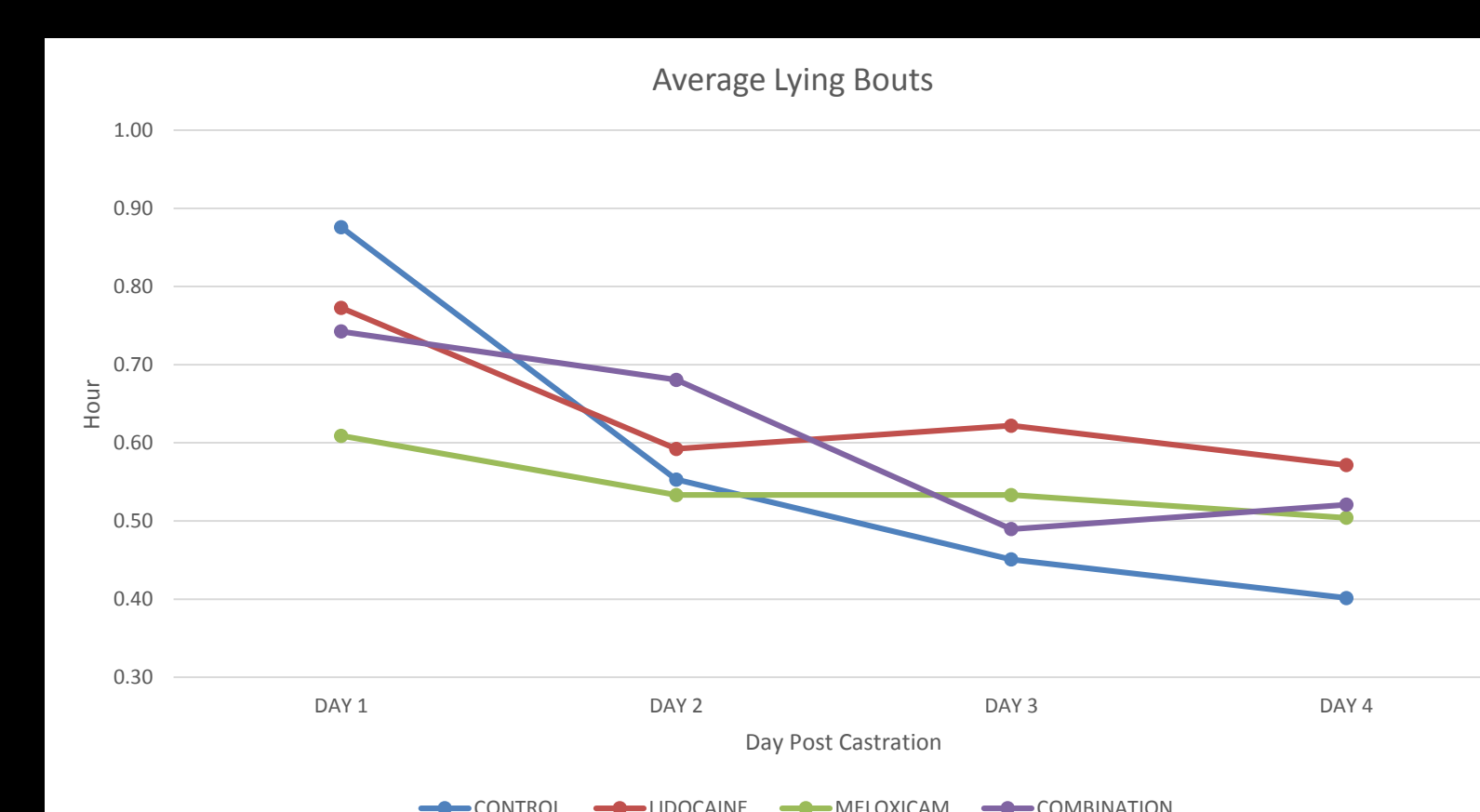
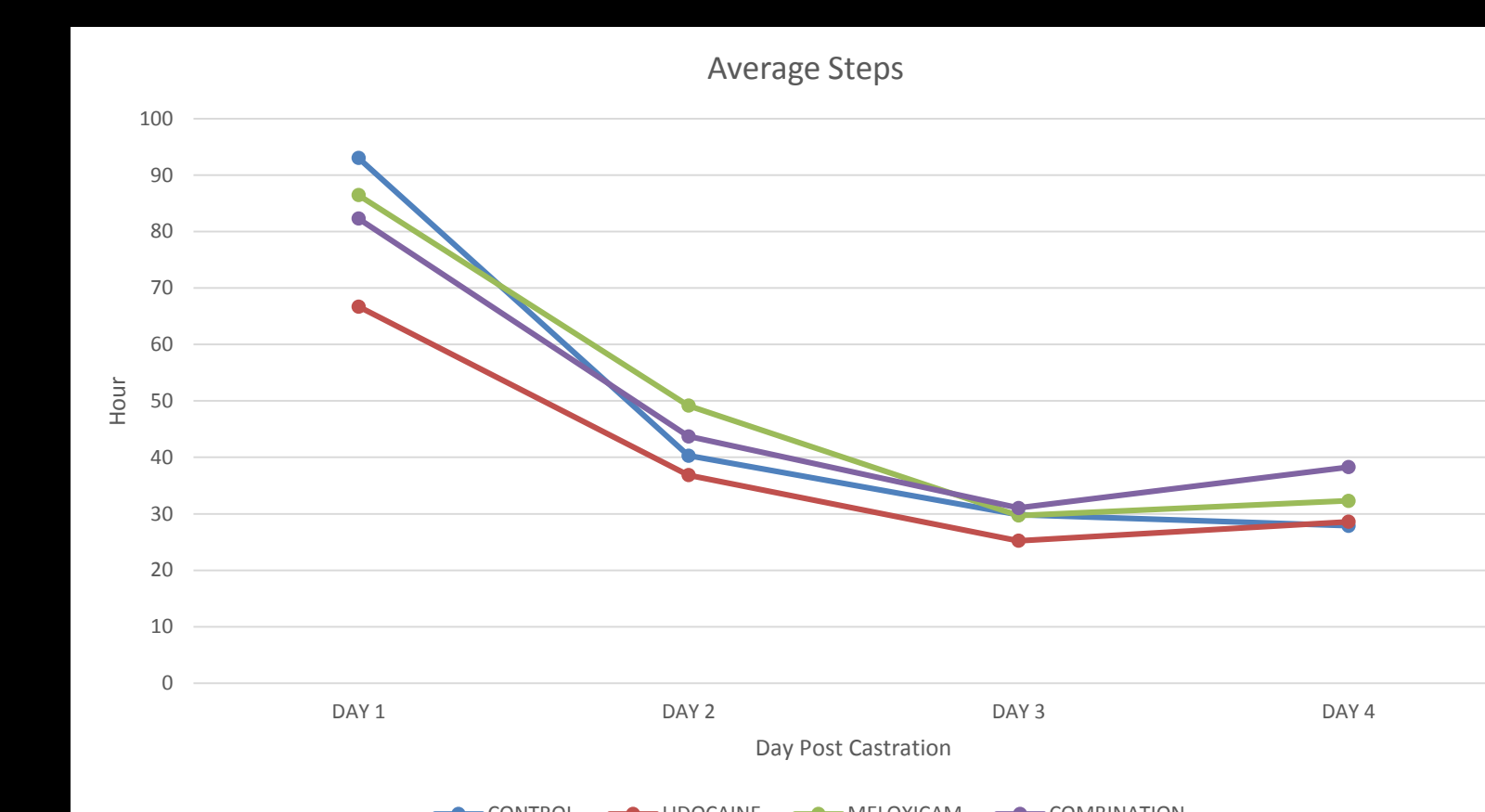
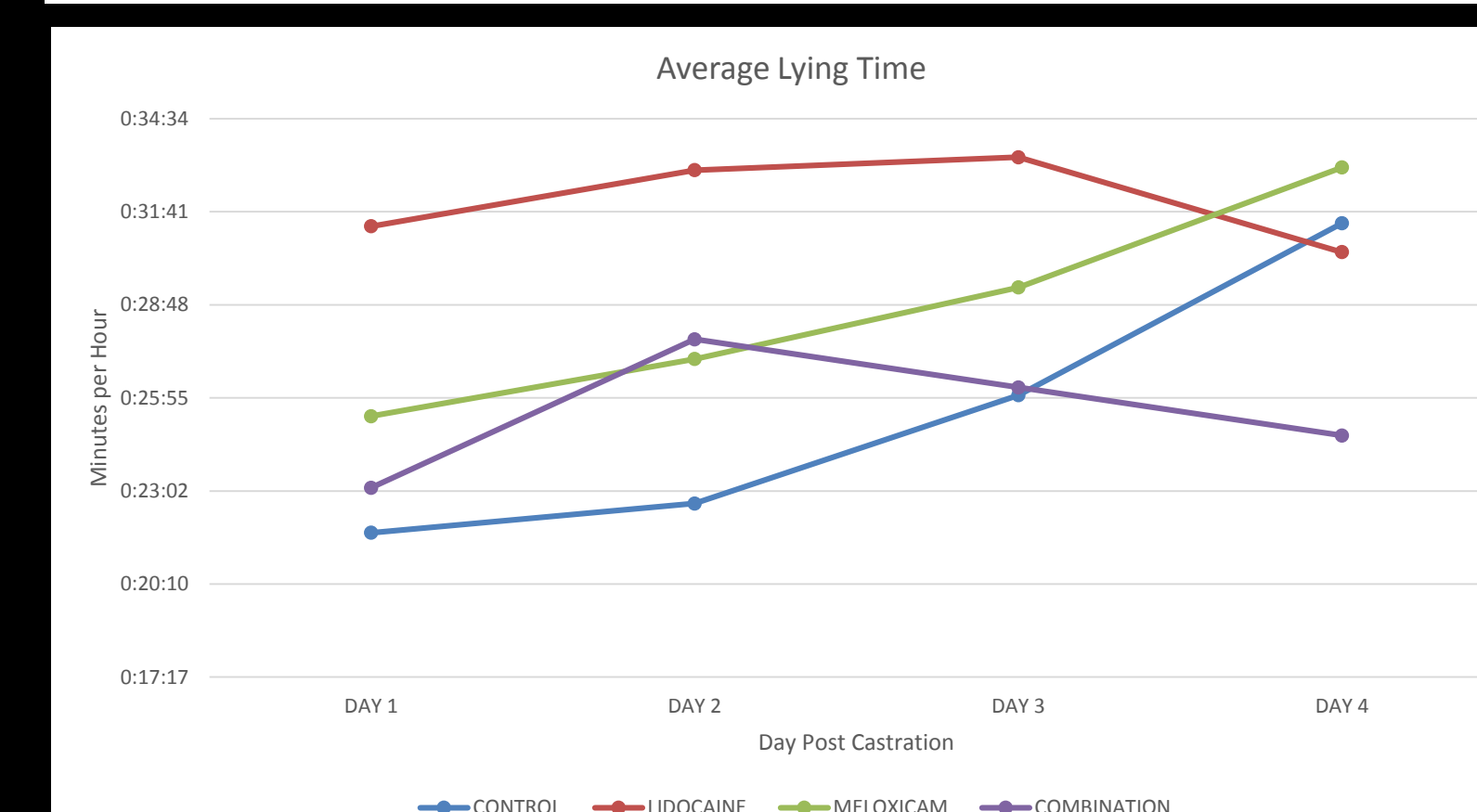
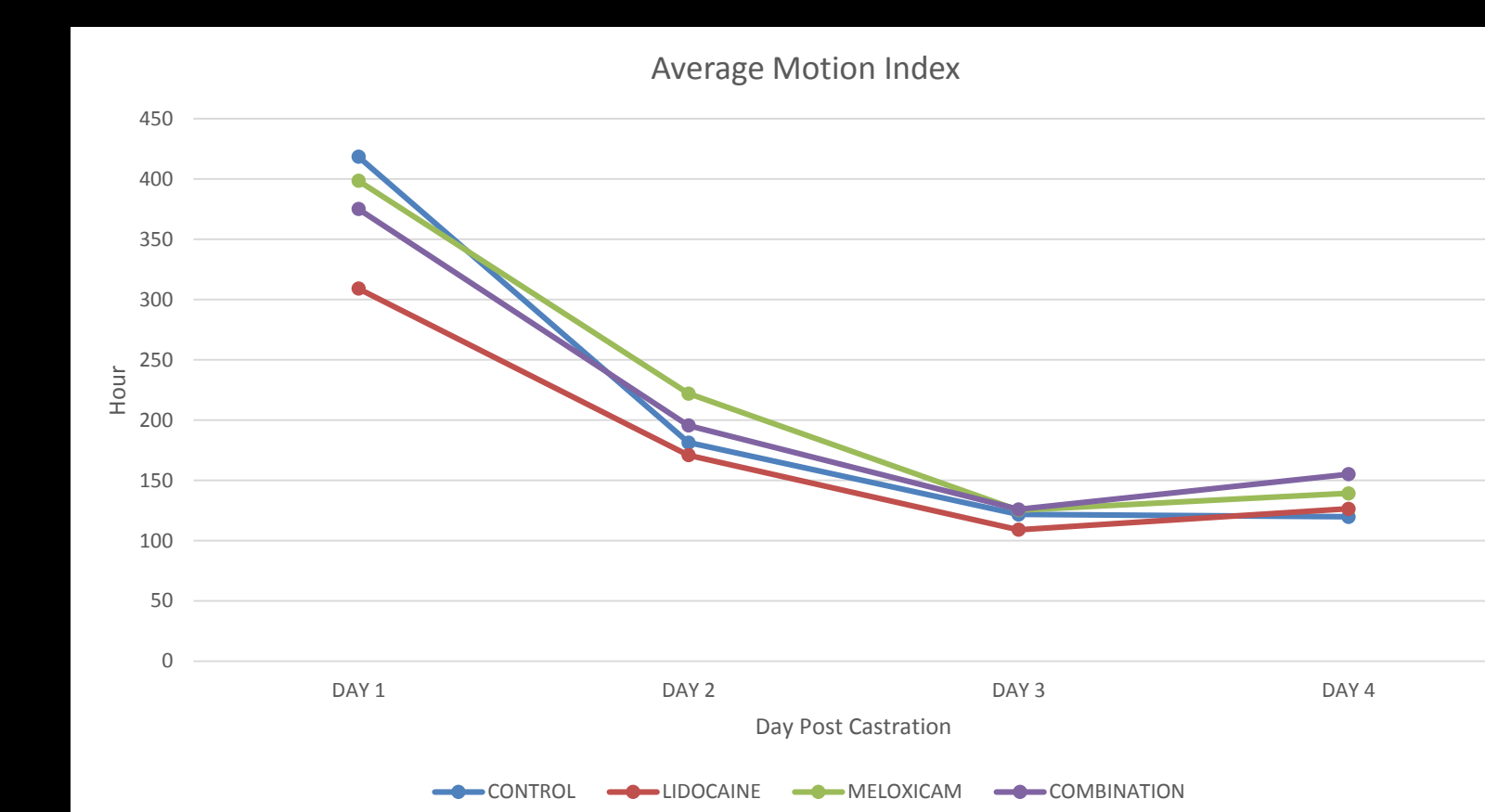
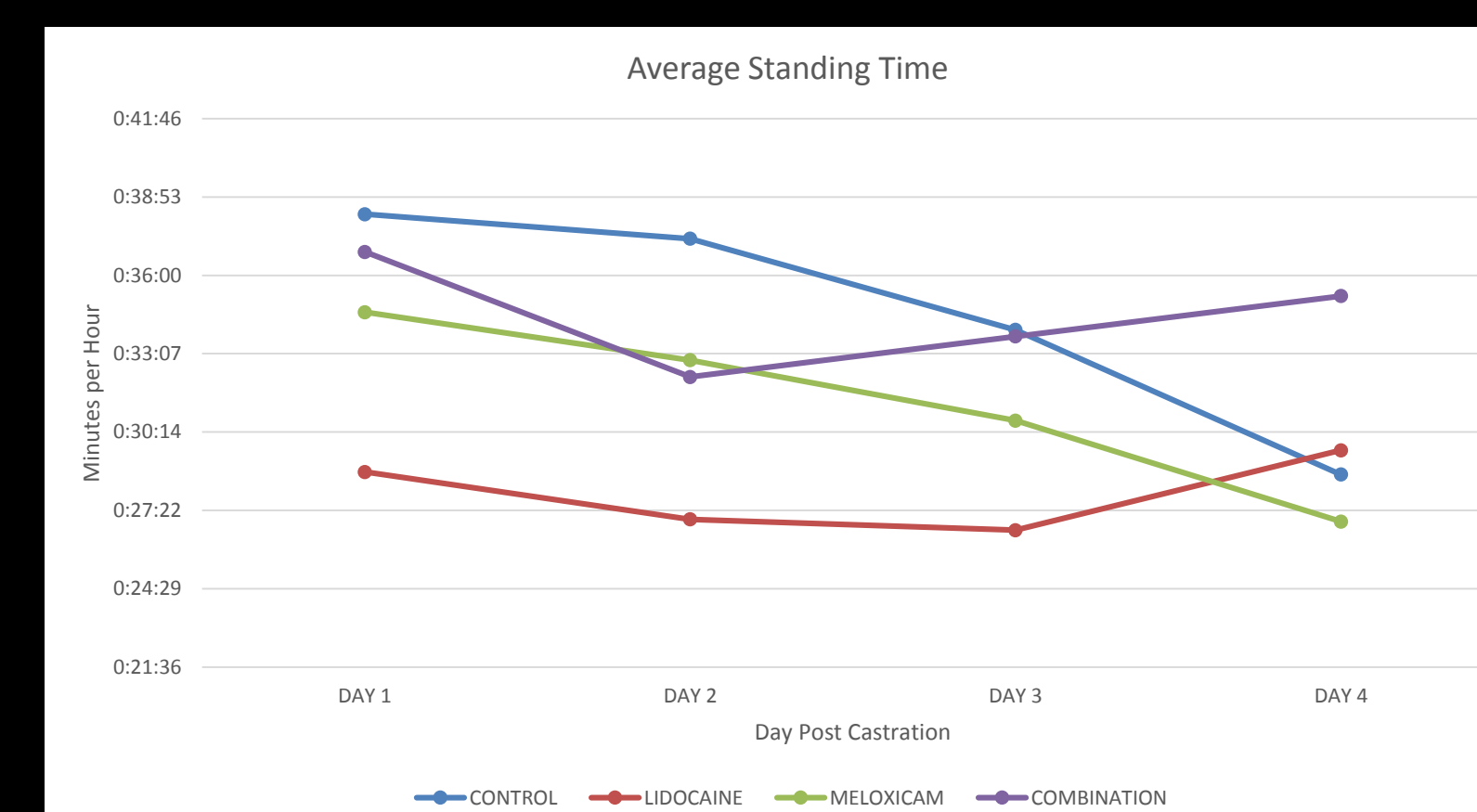
1. Henderson Tool: [https://www.valleyvet.com/group\\_images/20075\\_A.jpg](https://www.valleyvet.com/group_images/20075_A.jpg)  
2. Newberry Knife: <https://www.enasco.com/prod/images/products/A6/VC1262971.jpg>



## Measurements

- Accelerometers were placed on the rear limb of bulls after castration to measure movement
- The sensors measured motion index, standing, lying bouts, and steps taken.
- Measurements were also taken using the GrowSafe®, a system designed to track feeding behavior.
- The sensors measured, feed consumed, time with head down in the bunk, and meal duration.
- Bulls were monitored for 70 days total, however only the first four days were analyzed.

## Results



## Discussion

### Treatment Results

- No significant differences between any treatments
- Numerical trends were noticed in that meal duration had a tendency to be longer for cattle receiving lidocaine only.

### Interpretation

- Our hypothesis was not proven true. There was no significance between treatments, and Treatment 4 was not proven to better increase feed or decrease movement.
- Since the study was performed with field-based conditions, the administered drugs were not given enough time to go into effect and results are potentially inconclusive.

## Acknowledgements

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