Behavioral response of feedlot cattle following tail docking

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Introduction

Tail injuries commonly occur in feedlot cattle that are housed in barns with slatted floors, facilities that are commonly found in the Great Lakes Region. These injuries put cattle at risk of developing secondary complications such as tail infections, ascending myelitis, and paresis. The practice of docking the tails of cattle upon entry into these feedlot facilities was initiated to prevent tail injuries. According to a recent survey, approximately two-thirds of Michigan feedlots dock the tails of cattle at entry. Tail docking raises potential welfare concerns because it is painful and removes an important method of fly avoidance. The purpose of this study was to describe the behavioral response of cattle following tail docking.

Materials and Methods

Thirty-six beef crossbred heifers (approx. weight, 715 lb [325 kg]) were housed in a bedded pack feedlot at the Michigan State University Beef Cattle Research Center. Heifers were blocked by weight into 12 pens, each containing 3 heifers. Pens were randomly assigned to 1 of 2 treatments (docked or control). On day 0, all heifers were administered an epidural following surgical preparation of the sacrococcygeal area. For the heifers assigned to the docked treatment, the distal portion of the tail was removed at approximately 10-12 inches (25-30 cm) distal to the tail head by the use of pruning shears. An elastrator band was applied 0.4 inch (1 cm) above the amputation site to provide hemostasis, and the tail tip was sprayed with a permethrin-based fly spray. Following completion of the tail docking procedure, heifers in both treatment groups were administered 0.45 mg/lb (1 mg/kg) of flunixin meglumine IV via jugular venipuncture.

In each pen, 2 heifers were randomly assigned to have an IceQube pedometer (IceRobotics Ltd., Roslin, Scotland, UK) applied to the right-hind limb between the hock and fetlock. Cattle were allowed to acclimate to the pedometer for 5 days. Daily step counts, motion index, standing time, lying time, and lying bouts were recorded every 15 minutes for 14 days. Additionally, the duration of each lying bout was recorded for 14 days. Comparisons between treatments were performed by use of a mixed general linear model (Proc Glimmix) accounting for repeated measures by day.

Heifer behavior was observed from 0800-1700 hours on days 1, 2, and 3. Direct observations were made via scan sampling every 15 minutes; each heifer was observed for approximately 60 seconds.

Results

Compared with control heifers, docked heifers had a significantly higher daily motion index ($P < 0.05$) on all days except days 2 and 13; higher step counts ($P < 0.05$) on all days except day 2; longer standing time ($P < 0.01$) on days 1, 2, and 3; more lying bouts ($P < 0.01$) on days 1 and 2; and shorter lying-bout duration ($P < 0.01$) on days 1 and 2. Control heifers had significantly ($P < 0.01$) longer total lying time, compared with that for docked heifers on days 1, 2, and 3.

On average, control heifers wagged their tails 20.9% (95% confidence interval, 18.9% to 22.2%) more frequently than did docked heifers, whereas docked heifers stomped their rear feet 23.1% (95% confidence interval, 19.7% to 26.3%) more frequently than did control heifers on days 1, 2, and 3. On days 2 and 3, the frequency of tail wags for control heifers was nearly equal to that for docked heifers. The frequency of rear-foot stomps was less for control heifers than that for docked heifers on all days. Docked heifers had more tail twitch and head-to-tail behaviors than did control heifers on day 1.

Significance

The heifers with docked tails had increased overall activity and fly avoidance behaviors than did control heifers, which suggested the heifers were uncomfortable following the tail docking procedure. This may be related to pain associated with the procedure or compensatory activity to avoid flies. Unlike this study, most tail docking in the field is performed without anesthetic or analgesia. Therefore, the magnitude of the difference in behavioral responses observed between the docked and control heifers of this study is likely less than that which would have been observed had the docking procedure been performed without administration of an epidural or flunixin meglumine, as is done commonly in the field. If tail docking is to be performed, cattle should be administered adequate anesthesia and analgesia and attention to fly control is essential. Furthermore, alternative strategies to reduce tail lesions in cattle without docked tails that are housed in facilities with slatted floors should be explored.