

Buller Steer Syndrome

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Take Home Message

The buller steer syndrome is a behavioural problem among feedlot steers and is characterized by the repeated mounting of a steer (referred to as the buller) by a group of steers (known as the riders) who persistently follow and perform the mounting behaviour. As a recipient of the excessive riding, the buller steer becomes exhausted, often shows loss of hair, swelling and trauma on the rump and tail head and in extreme cases can suffer broken bones or may even die from injuries. Proper management of cases requires prompt isolation and removal of the buller to a separate hospital or sick pen where bulling usually subsides.

Introduction

The buller steer syndrome consistently ranks as one of the top three health problems (along with respiratory disease and foot rot) in the feedlot industry (1). The estimated cost of the buller to the feedlot was set at \$23.68 US per buller in 1972 based on economic losses experienced by Kansas feedlot operators (2). This included cost of labour to remove bullers from pens, weight loss, injuries, occasional deaths, and the extra facilities to handle bullers. No recent economic figures have been reported, but a recent epidemiological investigation found that bullers were 2.5 times more likely to be reclassified as 'sick' and 3.2 time more at risk to die than non-buller steers (3), suggesting additional costs of the buller syndrome. In addition, no one has calculated the additional costs which may be associated with the set back suffered by the rider steers who perform the repeated mounts.

The annual incidence of bullers steers within the feedlot industry is reported to fall between 2 and 4% (2, 4, 5). Analysis on 78,445 animal health records, over a 3 year period from a single western Canadian feedlot, showed that the incidence per pen is quite variable (range per pen 0.0% to 11.2%) (3). The variation seems extreme, considering that all cattle were implanted, processed and handled similarly and were housed in pens that were similar in size, shape, and stocking density.

Several causative factors have been implicated by feedlot operators as contributing to the incidence of bullers. Suggested factors include the use of anabolic agents, improper implantation, reimplantation or double dosing, changes in weather and seasonal factors, excessive mud or dusty pen conditions, entry weights, disease, group size, improper or late castration, feeding management, transportation, handling, mixing, dipping and aggressive social dominance behaviour. Of these factors, entry weights, weather and seasonal factors have not withstood scientific scrutiny (5) and the perceived seasonal effects are more likely related to the increase in bullers observed immediately after feedlot entry, which tends to be seasonal (3).

There is evidence that the use of anabolic agents contribute to the development of bullers (5). Historically, the incidence of bullers steers was low (1.5%) back in 1968 - 1970, when the anabolic agent used as a growth promotant was diethylstilbestrol (DES) at 10 mg in the feed. In 1971, the level of DES increased to 20 mg in the feed and so did the incidence of buller steers (2.09%). A further jump was noted with the use of anabolic hormone implants (2.80% in 1972 to 3.67% in 1974) (4). However, the strong historical evidence against implants, as a major contributing factor, is confounded by the fact that during the same time in which the feedlots were being monitored, they nearly doubled the number of cattle they had on feed. The number of animals per pen was also increasing as the incidence of bullers was rising.

The number of bullers tend to increase as the number of animals in the pen increases, such that the greater the numbers in the pen the higher the incidence of bullers (5). In one study which tracked the incidence of bullers in pens of steers, ranging from 70 to 416 steer per pen, results revealed that for every 10 head increase per pen, the buller incidence increased .015% (2). The same data showed for every 9.3 m² increase in pen size the buller rate decreased by .05% (2), though other studies have not found a relationship to pen size or area per animal (5).

Some effort has been made to identify factors that make a buller attractive to rider steers. Higher levels of serum and urinary estrogen and testosterone have been detected in buller steers compared to their nonbuller pen mates (2, 5). It is possible the higher levels are not causative, but instead are elevated due to being ridden, since hormonal profiles return to normal after 3 days of isolation. Urine collected from buller

steers and applied to test steers will cause an increase in interest and mounting behaviour (2) so there is some odour or pheromones from bullers that make them attractive. Other features that seem to attract interest include the addition of unfamiliar animals, animals with hair coats coloured differently than pen mates and the visual stance of the buller steer.

The buller steer syndrome is perhaps partially related to the establishment of social hierarchies among unfamiliar animals and may develop through the normal mounting behaviour that accompanies aggressive behaviour. This theory helps explain the increase in bullers that occurs shortly after entry into the feedlot and the resurgence of bullers following regrouping. It also explains why the incidence is lower in pens that are made up of a single group as opposed to pens assembled from multiple groups. Implants may aggravate the problem by causing steers to become more aggressive and bull like in their behaviour (8). Mounting behaviour is normally thought of as a sexual behaviour, but riders rarely follow the sequence of normal sexual behaviour which includes the flehmen response (lip curl), penile erections and intromission. The mounting behaviour seen among feedlot steers is likely related to social behaviour, because in wild species of ungulates which are in the same taxonomic family as our domestic cattle, submissive behaviour is expressed by allowing the dominant animal to mount. One observational study found that bullers were actually more aggressive than riders and the authors postulated that bullers may not be readily submitting to dominant riders (6). The riders may repeat the mounting behaviour to impose social dominance and to overcome the challenge from the steer who eventually becomes a buller.

Though bullers passively allow mounting, they occasionally use head butts and aggressive maneuvers to avoid mounting and they often stand in a corner or close to a fence (8). It is possible that overhead physical features attached to the fence or corners could be added to the pen to reduce the incidence of bullers or at least reduce the injuries associated with excessive riding by preventing some of the mounting behaviour. One Western Canadian feedlot observed a lower incidence of bullers in pens equipped with such devices, while a Texas feedlot was unable to demonstrate a reduction using overhead barriers when compared to pens without the devices. The differences may be attributed to the fact the Canadian feedlot used the overhead devices as a preventative measure and had them in place prior to the development of a problem, while the Texas feedlot found overhead devices of

limited value when placed in pen where bullying had already begun. No detailed studies have been conducted to determine how many overhead devices per 100 steers would be needed or the proper location and spacing of the devices which would be necessary to prevent or reduce the incidence of bullers. One feedlot operator found the devices useful when placed near the feed bunk on a concrete apron or in the corners closest to the feed bunk.

Recommendations and Treatment

Other recommendations to help reduce bullers would include the formation of pens with as few groups as possible, reducing the number of animals per pen, and implanting on arrival (delaying implantation tends to increase the incidence (5)). Some feedlots in the United States limit the number of steers in a pen to no more than 240 head/pen as a strategy for minimizing the incidence of bullers. Frequent pen checks will not reduce bullers, but are necessary to aid in early identification and removal of buller steers.

The most effective treatment of bullers calls for prompt removal of the steer(s) being ridden and placement of the buller(s) into a separate hospital pen. Once removed from the home pen, bullers should have their temperatures checked for fever and the severity of their injuries should be assessed. Febrile animals should be treated with antimicrobials and handled in a manner similar to other fever cases. Swelling caused from hematomas or edema will usually regress and heal quicker if left untreated. The use of anti-inflammatories to control or reduce swelling should be based on advice from veterinarians. Severely injured animals should be euthanized or considered for salvage slaughter if arrangements can be made locally.

If large numbers of bullers are combined in a single pen the bullers may themselves begin riding other steers. Therefore it is important to limit the number of bullers within a single recovery pen. Several feedlot operators recommend limiting the number to less than 50 bullers per hospital pen to avoid bullying within the hospital pens. After rest and recovering bullers can be returned to the home pen, but relapses tend to occur in roughly one third of the cases. Therefore it is important to continue to monitor pens for bullers after reintroduction of recovered bullers sent back to the home pen.

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