University of Prince Edward Island

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Summary of Dissertation

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Morgan MacInnis

Department of Health Management

Supervisory Committee

Dr. Shawn McKenna (Chair)
Dr. Bronwyn Crane (supervisor)
Dr. Katy Proudfoot (co-supervisor)
Dr. Cathy Ryan

Examination Committee

Dr. Daniel Hurnik (Chair)
Dr. Bronwyn Crane (Supervisor)
Dr. Cathy Ryan
Dr. Thomas Ede
Dr. Thomas Olney

Assessing pain during electroejaculation in beef bulls: Implications for refinement

Breeding soundness examinations (BSEs) are an important part of beef cattle production, enabling producers to assess bulls' reproductive potential before breeding. Electroejaculation (EE) is commonly used to collect semen during BSEs, but it raises animal welfare concerns regarding possible pain infliction caused by electrical stimulation. Further research is needed to clarify the welfare implications of EE in beef bulls and identify ways to refine current practices. This study aimed to determine how EE preceded by rectal massage (RM), an alternative or preparatory procedure, affects facial grimace scores and chute and exit scores in yearling beef bulls. Facial images and behavioural observations were collected from 80 yearling virgin beef bulls undergoing routine BSEs. Facial expressions were assessed at three time points: before the BSE, during RM, and—depending on whether RM was successful—either after successful RM or during EE if RM was unsuccessful. Six facial action units were assessed: ear position, orbital tightening, tension above the eye, nostril dilation, chewing muscle tension, and mouth opening. Behavioural responses were evaluated using standardized chute and exit scoring systems and recorded before, during, and after the day of BSE procedures. Facial grimacing increased following EE compared with baseline and RM, suggesting that EE elicited facial responses consistent with pain. Bulls undergoing both RM and EE also showed increased behavioural reactivity on the day of the BSE, with exit scores remaining elevated after the BSE day; no significant changes were observed in bulls undergoing RM alone. Overall, these findings indicate potential welfare concerns associated with EE in yearling beef bulls and demonstrate the value of facial expression and behavioural assessments in evaluating procedural welfare. These findings may help inform future research and practical refinements to improve welfare during EE and reproductive examinations.

Biographical Data

Born in Glace Bay, Nova Scotia