Castration in Beef Cattle
How to Prevent Pain and Stress

Background

Castration is a common, and often necessary, management practice in the beef industry. Aggressive behaviour and poorer meat quality (tougher, darker coloured meat) of intact males are some of the reasons for performing castration. Current methods of castration include the use of:

- Rubber Ring (Elastrator) or Band
- Burdizzo (Clamp)
- Surgical (Knife)

When performed without anesthesia or analgesia, all methods of castration have consistently been shown to be acutely painful and stressful[1, 2, 3, 4].

In North America, bulls are castrated at anywhere between 1 day of age to well past weaning age or sexual maturity, normally without any pain control.

In many European nations and in New Zealand, castration techniques are regulated. Animal pain and stress are reduced through the use of anesthetics (for short term pain control during the procedure) and analgesics (for longer term pain control after the procedure).

Techniques and Welfare Concerns

Each method of castration has benefits and drawbacks that should be considered when selecting a method. A veterinarian should be involved in selecting a method and will be an excellent source of advice for how to incorporate these procedures into regular management practices.

- Surgical (knife) castration
  - ☑ Shortest healing time of any method[4]
  - ☒ Acutely painful without pain control[1, 2, 3]; short-term risk of infection after procedure
- Rubber ring / rubber band castration
  - ☑ Less painful than surgery during the procedure
  - ☒ Long healing time with a possibility of severe swelling, infection, and chronic pain[4]
- Clamp (burdizzo) castration
  - ☑ Less painful than surgery at the time of the procedure
  - ☒ Long healing time as with band/ring methods; successful castration not always achieved[5]

Pain Control

- **During Castration**: Injecting a local anesthetic, such as lidocaine, numbs the area and prevents the animal from feeling the procedure as it occurs.

- **After castration**: Administering a post-procedure analgesic, such as meloxicam, relieves the pain that endures for several hours after the procedure has been completed.

SPCA Certified Requirements

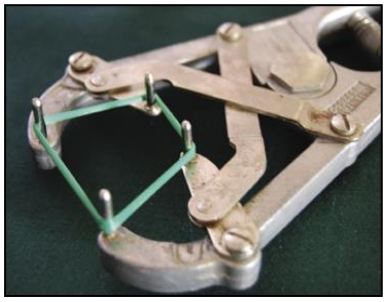
Preventing Pain and Stress:

- SPCA Certified Standards require use of at least one means of pain control during castration for all cattle of any age. Producers are strongly encouraged to provide both types of pain control.

- When castration is performed between 7 and 21 days of age, an appropriate type of pain control must be administered for the method of castration used:

    - **Rubber ring/band**: Administer an anti-inflammatory analgesic and/or inject a local anesthetic where the ring/band will be applied a few minutes before the procedure
    - **Clamp (burdizzo)**: Administer an anti-inflammatory analgesic and/or inject a local anesthetic where the clamp will be applied a few minutes before the procedure
    - **Surgical (knife)**: Use both a local anesthetic and an analgesic

- If mature bull calves (21 days or older) are castrated, both a local anesthetic and a post-operative analgesic must be used, and only after getting approval from a veterinarian.



Reducing Healing Time

When choosing a castration method, healing time is an important factor to consider. Animals castrated using a ring, band or burdizzo may take much longer (by 1-2 months) to heal completely than those castrated with a knife. Producers should take into account the short-term pain caused by the procedure and the overall healing time when selecting a method that is suitable for their herd and operation.

Age at Castration

No matter which method is used, the younger a calf is at castration, the more quickly the wound will heal. In contrast to common beliefs, research suggests there is little advantage in delaying castration in order to achieve higher weight gains. Cattle performance results how that castration-associated weight loss increases with the age at castration[1].

Certified Organic producers should note that the Organic Standard of Canada states castration shall be done at the youngest age possible (< 2 weeks), and that surgical procedures shall be conducted in a manner that minimizes pain, stress and suffering, with consideration to the use of anesthetics and sedatives.

[1] Livestock Production Science. 2005. Effects of age and method of castration on performance and stress response of beef male cattle: A review;.
[2] Journal of Animal Science. 2002. Effects of ketoprofen alone or in combination with local anesthesia during the castration of bull calves on plasma cortisol, immunological, and inflammatory responses
[3] Applied Animal Behaviour Science. 1995. Assessment of acute and chronic pain after different methods of castration of calves;
[4] Research in Veterinary Science. 2002. Effects of local anaesthesia or local anaesthesia plus a non-steroidal anti-inflammatory drug on the acute cortisol response of calves to five different methods of castration.
[5] Veterinary Record. 1996.Castration of calves: A study of methods used by farmers in the United Kingdom.

For more information:

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