**Welfare Concerns**

**Welfare Significance**

1. Physical castration causes pain and side effects.
2. Young calves recover quicker and have fewer complications than older calves.
3. Acute pain caused by Burdizzo methods is less than that caused by surgical, rubber-ring or latex-band castration.
4. There is no evidence to show young calves experience less pain than older calves.
5. Local anaesthesia eliminates acute pain caused by rubber-ring or latex-band castration.
6. Local anaesthesia combined with a systemic analgesic, such as the non-steroidal anti-inflammatory drug ketoprofen, eliminates pain caused by Burdizzo or surgical castration.
7. Ketoprofen alone may not eliminate pain-induced behaviour seen during the castration process.
8. Castration of older males without anaesthesia is deemed inhumane and unethical.
9. Use of pain relief is an additional cost for producers. Pain relief may be limited by the availability of drugs for farmers to use and the scarcity of veterinarians in farm animal practice.
10. In Ontario, auxiliaries employed by veterinarians may administer local nerve blocks and castrate cattle less than two months of age while under immediate, direct or indirect supervision of a veterinarian. They may castrate cattle greater than two months of age when under immediate or direct supervision.

**Welfare Concerns with respect to the respective Castration Methods:**

* With respect to the **Elastic Band Castration:**

Pain:

* local anaesthesia virtually eliminates the acute pain caused by rubber-ring or latex-band castration
* acute pain caused by banding is greater than that caused by Burdizzo clamps

Advantages and Disadvantages:

* bloodless, easy to perform
* large lesions may form above the band site and persist for long times, making latex bands inappropriate for yearling cattle
* wounds heal more slowly than those from surgical castration
* newest versions of banders for older calves adjust the latex bands to correct tension
* potential for missed testicles
* band may break or band may not disrupt all circulation to the testicles
* preferred for castrating at a wet, muddy feedlot
* infections, including tetanus and blackleg, may warrant vaccination prior to banding
* public concern about pain and animal welfare associated with banding older calves
* lower weight gains following latex-band castration compared to surgical castration
* EZE and Callicrate methods without anaesthesia for older bulls deemed inhumane and unethical
* With respect to the **Burdizzo Clamps for Castration:**

Pain:

* local anaesthesia plus a non-steroidal anti-inflammatory drug are needed to eliminate acute pain caused by Burdizzo castration
* acute pain caused by Burdizzo clamps is less than that caused by surgical, rubber-ring or latex-band castration

Advantages and Disadvantages:

* bloodless
* slow to perform and requires expertise
* unreliable when done incorrectly, leads to stags
* equipment becomes ineffective after long-term use and must be replaced
* less reduction in weight gain after castration compared to surgical or latex-band
* With respect to the **Surgical Castration:**

Pain:

* local anaesthesia plus a non-steroidal anti-inflammatory drug eliminate acute pain caused by surgical castration
* acute pain caused by surgical castration is greater than that caused by Burdizzo clamps

Advantages and Disadvantages:

* not bloodless, bleeding is a risk
* sure castration because the testicles are removed
* more time to perform than banding
* risk of infections because of open wounds
* not recommended for castrating bull calves at a feedlot with wet, muddy conditions
* greater reduction in weight gain after castration compared to Burdizzo
* surgical wounds heal more quickly than those from rubber ring
* risk of injury to the surgeon