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NSW DEPARTMENT OF
PRIMARY INDUSTRIES

Castrating calves

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J Irwin, Livestock Officer

Yanco Agricultural Institute

Castration is the removal of the testicles in male calves. Castration is one of the husbandry practices carried out at calf marking. The *Model Code of Practice for the Welfare of Animals: Cattle* states:

Castration by knife or burdizzo without local or general analgesics/anaesthetics should be confined to calves at their first muster and preferably under the age of 6 months. Only under exceptional circumstances (e.g. range management of older, previously unmustered bulls) should castration of older bulls occur and preferably by a veterinarian.

Note that, in NSW, it is illegal to castrate calves over the age of 6 months, unless under veterinary supervision.

The code assumes the use of pain minimisation by local anaesthesia or analgesia in animals older than 6 months of age.

If bulls are regarded as feral, it is unacceptable to castrate them, as they usually die. Feral bulls should be tracked to sale as soon as possible.

WHY CASTRATE?

Castration is an animal husbandry practice carried out on young cattle. A question often asked is 'Do we really need to castrate bull calves?'

There are a number of factors to consider (Table 1). In beef cattle, growth rates and average daily gains are higher in bulls than in steers. The feed efficiency of bulls is higher, and they have leaner carcasses. Their dressing percentages are also higher, and they have a greater red meat yield.

However, there are also disadvantages. Bulls are more aggressive and are therefore more destructive of equipment (gates and fences). They are more likely to injure each other through fighting, and therefore cause more carcass bruising than steers. This occurs not only on the farm but also in transit, at saleyards, and in lairage at abattoirs.

Bulls are also more likely to injure handlers, because they are more difficult to handle than steers. This carries occupational health, safety and legal issues for employers.

Table 1. Advantages and disadvantages of running bulls as compared with steers

| Advantages of bulls compared with steers | Disadvantages |
|------------------------------------------|-------------------------------------------------------------------------------------------------|
| 10%–20% increased daily weight gain | More aggressive danger to handlers. Harder on fences and gates. More time and cost for repairs. |
| 13% higher feed efficiency | Increased dark cutting (up to 73% if mixed before slaughter). |
| 2% higher dressing percentage | Hides are harder to remove. |
| 35% leaner carcasses | Meat less palatable – shorter shelf life. |



JOHN IRWIN

Calf in the correct position in the calf crush for application of elastrator ring



JOHN IRWIN

Applying the elastrator ring

In terms of carcase characteristics there is an increase in dark cutting in bulls, particularly if bulls are regrouped before slaughter. Dark cutting can result from bulls fighting if the conflict is prolonged enough to deplete their muscle glycogen stores. This physiological change in the muscle has a negative effect on meat quality, particularly in terms of shelf life, colour and eating quality. Dark cutting meat is less appealing to the eye and is regarded as being less palatable (dark, tough, and dry). In consumer taste tests, bull meat is consistently rated as less palatable when compared with meat cut from steer carcasses. The hides of bulls also tend to be more difficult to remove.

WHEN SHOULD YOU CASTRATE?

Generally speaking, the younger castration is carried out the less stress is imposed. Also, the period of production loss is shorter in younger animals. Smaller calves are easier to handle, and there is a greater number of castration options available for young animals. Research has shown that younger animals recover more quickly and resume suckling earlier than animals castrated when older.

CASTRATION METHODS AVAILABLE

Elastrator rings (rings)

All available evidence suggests that, from an animal welfare and production point of view, elastrator rings are best applied using a special applicator. The ring is applied above the testicles. The ring is best applied as close as possible to the testicles, as this results in better blood-vessel constriction, and more of the scrotum (cod) is left. This site can later be used to determine

fat cover as the animal finishes. The ring cuts the blood supply, and eventually the testicle withers and falls off. As the testicles become larger, the rings become more difficult to apply and may not always cut off the blood supply effectively.

Application of the elastrator rings is quite simple.

Step 1 Using the special applicator, the ring is stretched and placed over the scrotum.

Step 2 The testicles are pushed into the scrotum below the elastrator ring.

Step 3 The elastrator ring is released and the applicator removed.

Step 4 Check to see that both testicles are present below the elastrator ring.

Elastrator rings work by cutting the blood supply to the testicles. After several weeks the testicles and scrotum degenerate and separate from the body. Failure of this method can occur if the elastrator ring breaks or is not applied properly.

If a set, compact calving is not achieved, then several yardings will be required to treat all calves and to comply with the recommended 2-week age limit for the use of elastrator rings.

Surgical removal (knife)

Surgical removal is the most common method of castration. An experienced operator can complete castration using this method quickly and effectively, with a minimum of stress to the calf and operator.

This method of castration leaves an open wound and therefore requires wound healing.

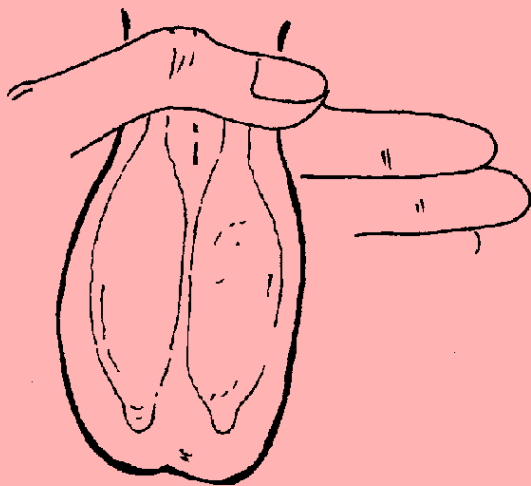
Step 1 The testicles are pushed into the bottom of the scrotum.

- Step 2** An incision is made from the **base** of the scrotum up the side (approximately 2.5 cm). The opening must be large enough to ensure good drainage.
- Step 3** The testicle is pushed through the opening and the connective tissue is removed from around the testicle.
- Step 4** The exposed spermatic cord is then severed with a scraping motion (allowing quicker blood clotting and therefore reducing blood loss) high above the testicle.
- Step 5** The operation is repeated for the other testicle.

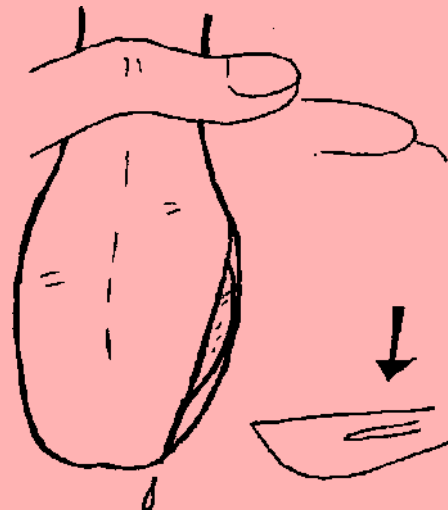
An alternative to this is:

- Step 1** The base of the scrotum is grasped between the thumb and forefinger of one hand, and the bottom quarter of the scrotum is removed using a sharp knife or scalpel blade.
- Step 2** The testicles are exposed and freed of their connective tissue.
- Step 3** The exposed spermatic cord is severed (with a scraping motion) high above the testicle. If emasculators are to be used, the cutting blade must be closest to the testicle being removed.
- Step 4** The operation is repeated on the other side.

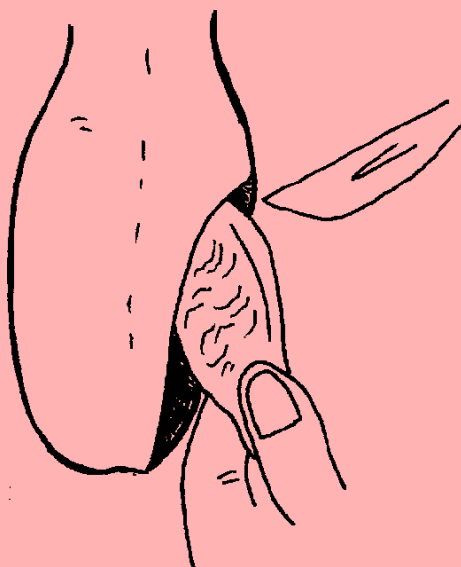
STEPS 1 TO 4 (SEE TEXT) IN A STANDARD SURGICAL CASTRATION



Step 1



Step 2



Step 3



Step 4

The main advantage is the speed with which the operation can be carried out and the certainty of getting both testicles. The younger calves are done, the less stress this places on both the calf and the operator. Calves of all ages up to 6 months can be castrated by this method. Failure and complications are minimal if this procedure is done correctly.

Disposable scalpel blade number 10 (with scalpel handle no. 3) or 22 (with scalpel handle no. 4) or a veterinary pocket knife can be used for castration. Disposable blades should be changed regularly, and pocket knives should be kept sharp with a sharpening stone.

Burdizzo bloodless castrators

Burdizzo bloodless castrators are a very large set of blunt-jawed pincers. They are made of high quality steel and are precision-built for the purpose. The principle behind this method of castration is the crushing of the spermatic cords and associated blood vessels within the scrotum. The scrotum remains intact. Burdizzo bloodless castrators are slow and difficult to use in the hands of an inexperienced operator. Failure can often occur if they are not used correctly.

Calves can be restrained in a crush or done standing.

- Step 1** Locate the testicle and spermatic cord.
- Step 2** Apply the burdizzo to the spermatic cord high above the testicle.
- Step 3** Close the handles and hold for a few seconds.
- Step 4** Repeat this procedure for the second testicle.

The major advantage of this method over surgical castration is that there is no open wound to become infected. The major disadvantage is the high level of operator skill required to complete the job successfully. Animals must be adequately restrained to allow careful, accurate and slow application of the burdizzo. Burdizzos come in different sizes: 23 cm (9"), 35.5 cm (14"), 40.5 cm (16"), and 48 cm (19").

RESTRAINT

For speed, ease and minimal stress on animals, good restraint is essential. There are numerous types of calf-marking cradles available on the market. Other operations such as vaccination, dehorning and ear marking are often done at the same time as castration.

HYGIENE AND CARE OF EQUIPMENT

Good hygiene is essential to minimising the chance of infection, especially with surgical castration. Knives and other cutting equipment should be disinfected in a bucket of antiseptic solution between calves.

If scalpel blades are being used for castration they should be changed regularly. Knives should be sharpened so that they cut effectively. Ideally, the person doing the job of castration, particularly surgical castration, should do that job alone so that there is reduced risk of infection. If you need to do other jobs such as pushing up, wash your hands before castrating.

POST-CASTRATION CARE

Return calves to their mothers as quickly as possible after the procedure. Move them to a clean paddock and monitor them regularly to ensure that there are no complications.

If flies are a potential problem, spray the incision with an antibacterial fly powder or spray before you release the calf.

Some swelling will occur initially, but this generally subsides within a week to 10 days.

Do not leave calves in yards for an extended period after castration; this can lead to an increased risk of infection.

A muster and initial vaccination 1 month before marking and a booster vaccination with 5- or 7-in-1 vaccine at marking will give maximum protection against colostridial diseases, and in particular tetanus.

FURTHER INFORMATION

For further information contact your local NSW DPI livestock officer or your Rural Lands Protection Board district veterinarian.

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing (1 December 2004). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of the New South Wales Department of Primary Industries or the user's independent adviser.