

Dehorning and castration of calves under 6 months of age

Introduction

Dehorning and castration are essential management practices in the Northern Territory cattle industry. The [Australian Animal Welfare Standards and Guidelines](#) (2016) provide information around nationally acceptable standards for performing these activities. Horns are almost always removed as part of calf or weaner processing, because under the [Australian Standard for the Export of Livestock](#) (2020), cattle must have blunt horns that are no longer than 12cm at the time of export.

The welfare guidelines state that surgical castration and dehorning, without providing pain relief, can only be carried out on animals up to 6 months of age. Any person who is castrating or dehorning cattle must have knowledge, experience and skill to perform the operations quickly and cleanly, or be under the direct supervision and guidance of an experienced operator. They must use appropriate tools and approved methods at all times.

Castration and dehorning of weaners should take place as the last act in the weaning process before moving them to weaner paddocks. The weaning process typically involves holding and working the weaner mob in a yard, and later in a holding paddock, to improve quiet handling. By leaving castration and dehorning until just before moving the animals to the weaner paddock, the risk of infection to open wounds is minimised.

Why should cattle be dehorned?

Dehorning cattle is one requirement of the Australian Standards for the Export of Livestock. The standards aim to manage risks to livestock health and welfare through the export supply chain. The standards demand that:

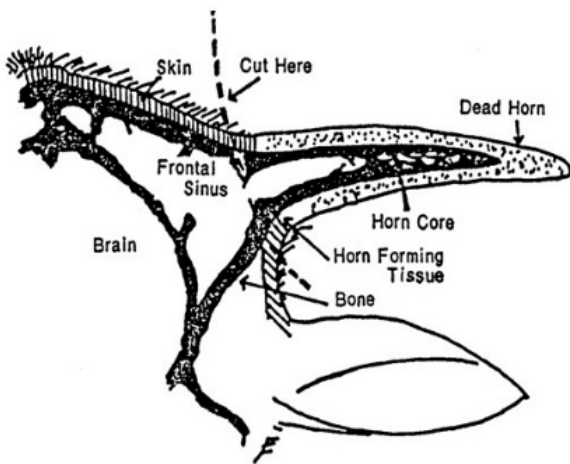
- (a) *“the solid non-vascular tip has been removed to a diameter of 3cm (or less if the horn vasculature does not allow) and horns have a blunt horn end; and*
- (b) *horns are no longer than 12cm in length at the time of export, unless otherwise provided in a long-horned livestock management plan approved in writing by the department.”*

The regulation has benefits including reduced carcass bruising, easier and safer handling in yards or crushes, and reduced dominance of individual bulls.

How does a horn grow?

The horn bud starts to form during the first 2 months of life. During this time, it is free-floating in the skin layer above the skull. After about 2 months, the horn bud attaches to the skull and the horn starts to grow from the horn forming tissue in the horn bud (Figure 1). Where possible, dehorn calves before attachment of the horn bud to the skull occurs to reduce trauma associated with the dehorning operation. This goal is often hard to achieve in the extensive pastoral industry.

Figure 1: Simplified drawing of horn growth and the ideal dehorning angle



When is the best time to dehorn cattle?

Cattle should be dehorned before they are 6 months old, and, ideally, before they are 3 months old. Cool and dry conditions are best, as wet weather significantly increases the risk of infection and healing time.

What are the main issues regarding dehorning of cattle?

Whatever the dehorning method used, it is essential to remove the whole horn bud. There are several important considerations.

- Remove a ring of skin at least 1cm in diameter from around the horn base (Figure 2).
- Good hygiene is essential, and dressing the wound with a preparation that includes disinfectant, fly repellent and pain relief, will help if the calf is weaned.
- Take care when handling animal medications, as some can be harmful to humans.
- Dressing the wound is unnecessary for unweaned calves because the cow will lick it off.
- Bacteria are a constant part of the stockyard environment and yard dust is a major source of contamination. A 5% solution of hypochlorite (Nappy San®, Eusol® or Milton®) is an effective disinfectant for cleaning dehorning instruments, as is Hibitane® or even Pinocleen®.
- Disinfectant solutions are inactivated if organic material, such as dirt and blood, are present. Therefore, it is important to change the solution regularly to maintain efficacy. A piece of foam rubber placed at the bottom of the bucket helps to protect exposed blades and sharp-edged instruments from being blunted.

Proper restraint of the calf is essential, whatever the method of dehorning used. Well-designed calf cradles are ideal. If dehorning 'scruffed' calves, contamination with yard dust is an increased risk.

Figure 2: Animal positioned in a well-designed calf cradle. A car tyre underneath elevates the animal off the ground and provides a cushioning effect. The cradle provides excellent operator safety.



Main methods of dehorning cattle in the Territory

There are 3 main methods of dehorning in the Territory.

Dehorning knives

A dehorning knife is ideal for young calves under 2 months of age where the horn bud has not attached to the skull. Hot irons are sometimes used to sear the tissue surrounding the floating horn bud, but are not commonly used in commercial enterprises. The knife commonly has a curved blade, allowing the operator greater control of the depth of the cut although any sharp knife can be used. It is best to remove the tip from the knife blade to reduce the risk of operator injury.

The cut should be started approximately 2cm from the base of the horn bud. It is essential to remove a complete ring of hair, to ensure that no horn-forming tissue remains to grow into a scur (deformed horn). It is critical that the dehorning knife is very sharp.

Figure 3: Use of a dehorning knife, showing the starting position of the knife against the base of the horn bud



Figure 4: The result of using a dehorning knife on a weaner



Scoop dehorners

There are a number of different types of scoop dehorners available. To operate, place the scoops over the horn bud and push the handles apart. This causes the edges of the blades to come together and scoop out the horn bud. This method is ideal for older calves where the horn bud has attached to the skull (2 to 6 months of age).

Scoop dehorners are risky because they can open the frontal sinus (Figure 1) creating a large hole. This creates an increased risk of infection. Keep scoop dehorners very sharp and, as with any method, remove all horn-forming tissue.

Figure 5: Scoop dehorner



Cup dehorners

Cup dehorners are suitable for older calves or weaners up to 18 months of age. A drawback with this design is that the front of the dehorners may 'ride up' the horn, resulting in partial removal of the horn bud and increased likelihood of a scur forming. This can be avoided by a second person pushing down on the front of the dehorners or by taking several 'cuts'.

Cup dehorners have the advantage of replaceable blades and edges protected from normal wear and tear. However, they have several recesses that can harbour dirt and dust. Pay careful attention to instrument hygiene if using a cup dehorner.

Figure 6: Cup dehorner



Castrating calves

General considerations

Castrate calves as young as possible. Hygiene is of critical importance with any method. To reduce post-operative infection, minimise the length of time that recently castrated calves spend in the yards. Ideally, let calves out of the yards at every work break, or allow to 'mother up' in a large, cool yard.

Avoid trucking recently castrated calves wherever possible. Given that yard dust is a major source of wound contamination, wetting the yard (but not the calves) with water, prior to processing, will help reduce this source of infection.

Regular vaccination of breeders of the herd for clostridial diseases (5-in-1 or 7-in-1) will allow immunity to be passed on to their progeny through colostrum. However, if the calves are vaccinated directly, this must take place at least 2 weeks before castration or dehorning for full immunity to be gained.

Surgical castration

1. The operator must wash their hands with soapy water followed by application of disinfectant before starting. Repeat the process whenever hands are dirty to avoid wound contamination, and ideally between each animal.
2. Check that 2 testes are present in the scrotum before proceeding. If only one has descended and is removed, the descent of the remaining one may be hindered. An animal with an undescended testis is called a cryptorchid. Waiting for 2 to 3 months before proceeding with castration is advised.

3. In a normal bull calf with 2 descended testes, trap one testis against the base of the scrotum by squeezing it from above and holding firmly.



4. Using a scalpel blade (number 21 or 23 blades are ideal), make a bold incision over the trapped testis, cutting AWAY from the operators hand.



5. The incision should be as close as possible to the lowest-hanging point on the scrotum, to maximise wound drainage. In very small calves (up to a month old), the apex of the scrotum can be cut off to provide access to the testes and improve drainage.
6. Ensure that the incision in the skin and the fibrous capsule around the testis is long enough to allow the testis to be squeezed out through the incision.



7. Use the scalpel to cut the fibrous tissue that secures the epididymis to the vaginal tunic, or tear the testis and epididymis from the vaginal tunic using fingers, so that the testis and all of the epididymis are removed.



8. Pull the testis firmly away from the calf, and remove in a single, tearing action. Alternatively, the as the testis is pulled out, cut the cord with the scalpel, as close to the scrotum as possible.



9. Remove any other obvious loose tissue so avoid infection and promote healing.
10. Repeat the procedure on the other testis.
11. Apply disinfectant to the wound and provide pain relief.
12. Keep scalpels in disinfectant solution between uses and change regularly.

Rubber ring (elastator) castration

This method is only recommended for calves under 6 weeks of age. Rings increase the risk of tetanus and other infections if used in older calves. If the breeder herd is not vaccinated for clostridial diseases, calves should be vaccinated several weeks prior to castration with rubber rings. Rings must be tight enough to shut off blood flow to both arteries and veins. If the arterial blood flow is not stopped, the scrotum will swell.

How to use elastrator rings

1. Check that both testes are present in the scrotum.
2. Squeeze testes against the base of the scrotum.
3. With the 'legs' of the applicator facing the belly of the calf, squeeze the handles to stretch the ring so that it can be placed over the scrotum.
4. Place the stretched ring over the scrotum. Release the handles when both testes are trapped between the ring and the base of the scrotum.
5. Remove the applicator by slipping the legs from under the ring.

Figure 7: Scrotum and testes, showing the ideal position for an elastrator ring

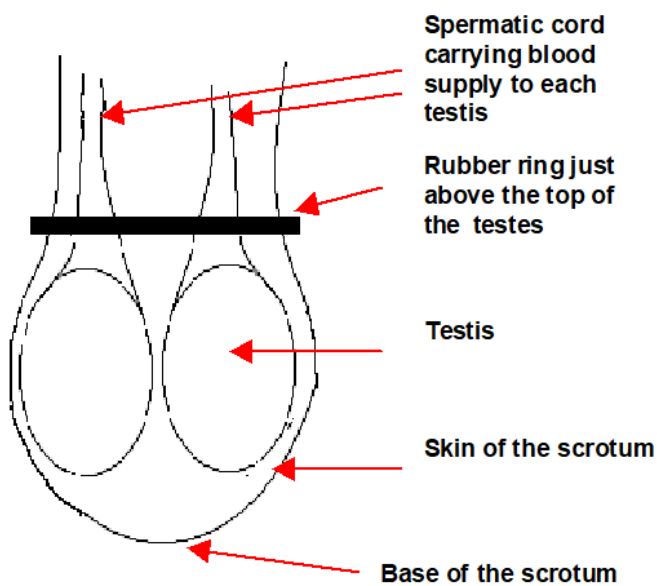
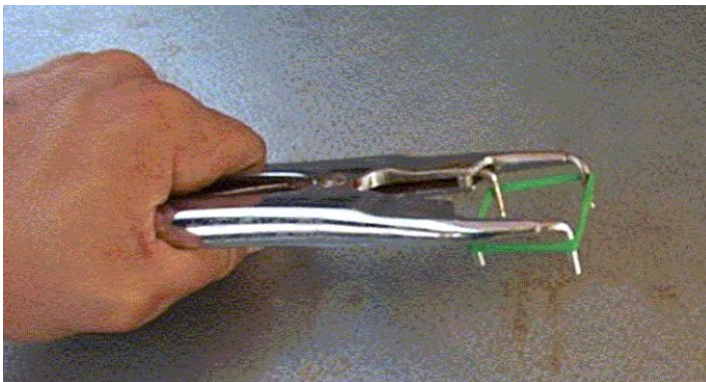


Figure 8: Elastrator applicator with a stretched out ring



Best practice

- Use sharp, clean instruments for castration.
- Use disinfectants on operator hands, equipment and wounds. Change disinfectant solution regularly.
- Reduce dust in yards to minimise contamination.
- Remove processed animals from yards as soon as possible.
- Process animals as calves rather than weaners where possible.
- Dehorn and castration weaners as the very last act in the weaning process.