Dairy Australia

Guide to cautery disbudding of calves

Hot iron disbudding destroys the horn producing cells within the skin by the short-term application of intense heat.

The technique results in minimal pain as the heat destroys the sensory nerves in the process. Side effects, such as bleeding, infection and fly strike are rare.1

Australian Dairy Farmers industry policy indicates all calves should be disbudded prior to two months of age while being provided pain relief. The ideal age is 4–6 weeks.

This fact sheet describes how to successfully use thermal cautery (hot iron) units to disbud dairy calves. The tip of the cautery iron must be large enough to entirely cover the horn bud of the calf. Test the tip size on the largest calf in the group before turning the burner on. Aim to disbud your calves as soon as practicable and before two months of age, as this can prevent the problem of calves with oversized buds and minimises the size of the burn area.

Thermal cautery equipment needs time to reach operating temperature. This may only take a few minutes with a gas burner but can be up to 15 minutes for electrical units — especially on cold and windy days. It is important that the burner tip is allowed to return to operating temperature between uses.

Thermal cautery units present a fire risk and a risk of personal injury during operation. The hot iron must be secured whilst heating up and between calves to ensure safe operation. Place the hot iron into a dedicated stand or suspend from the calf crush between uses. Keep a bucket of water nearby in case of accidental fire.

Effective calf restraint is essential for safe, fast and effective operation. Adequate restraint provides better calf and operator safety, reduces animal stress and speeds workflow. The ideal restraint is a custom-built calf crush with inbuilt head restraint. This minimises movement of the calf's head during the procedure, reducing the risk of burn injuries to the calf and operator. It also allows the operator to work in a more comfortable standing position, as well as reducing fire risk. There is also the option to sedate calves under veterinary administration. Sedation allows for a much safer and efficient process with improved animal welfare outcomes.

1 Petrie N, Mellor DJ, Stafford, KJ, Bruce RA and Ward RN (1996). Cortisol responses of calves to two methods of disbudding used with or without local anaesthesia. New Zealand Veterinary Journal 44: 9-14.

Thermal cautery (or hot iron) disbudding destroys the horn-producing cells at the base of the horn and prevents further growth

It is less painful than dehorning as it destroys the sensory nerves in the process

The procedure is bloodless and presents minimal risk of wound infection, haemorrhage or flystrike

Cautery is best used in calves up to 6 weeks of age, but can be used up to 8 weeks

Cautery should only be carried out by suitably trained personnel

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The procedure should only be undertaken by or under the guidance of an experienced operator.

Disbudding will cause pain and discomfort to the calf. Local anaesthetics can be used to block the pain at the time of the procedure and for a few hours afterwards but are only available from or under the supervision of a veterinarian.

Ongoing pain relief for up to three days can be provided by the injection of anti-inflammatory drugs and are only available by prescription from your veterinarian. Studies have shown that calves treated with local anaesthetics and anti-inflammatory drugs recovered better and had improved growth rates following disbudding than those without.[1] [2]

Some veterinarians will also initially sedate the calves, which further minimises stress on calves and operators from handling. Spray-on gel solutions are available 'over the counter' through rural suppliers and veterinarians without prescription. They minimise pain, bleeding and infection following disbudding and are recommended if local anaesthetic nerve blocks and anti-inflammatory drugs cannot be used instead.

How to use a thermal cautery (hot iron) unit to disbud calves:

1 Clip the hair around the area of the horn bud with pet grooming shears. While not necessary, it helps to identify if the animal is polled, prevents excessive smoke and improves ease and accuracy when disbudding.

2 Ensure the disbudding iron tip is hot enough for the procedure.

3 Place the calf into the calf crush or appropriate disbudding restraint and restrain the head.

4 Place the iron tip onto the horn bud when the calf has settled. Ensure the leading edge of the iron tip makes firm contact with the skin around the base of the bud.

- You may carefully rotate the iron to ensure effective cautery of the skin around the whole circumference of the bud. This may be necessary in calves with protuberant buds. Prior to disbudding, if the horn bud protrudes too far to allow for adequate contact of the iron, secateurs can be used to snip the tip of the bud off before burning.
- Removal of the actual bud using a scooping manoeuvre is not essential but can be useful in ensuring adequate cauterisation of the site. Destruction of the horn-producing cells around the bud is the objective.
- The process should be completed in six to eight seconds per side. Excess pressure and/or excess application time can result in damage to deeper tissues (including the brain).

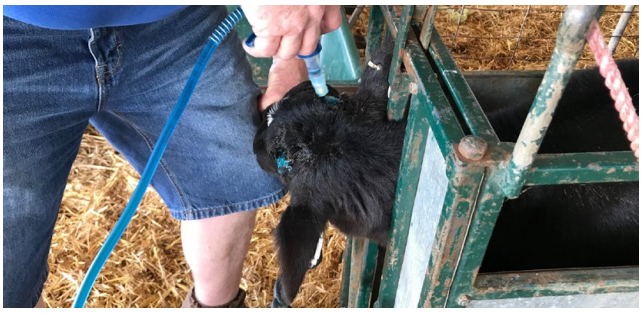
5 Confirm that there has been effective cautery around the base of the horns. There should be no bleeding and a copper-coloured burnt margin in the skin should completely circle the bud. If you see residual white skin or pink underlying tissue you will need to re-apply the burner to ensure all corium has been destroyed.

Place the burner on the bud at right angles to the horn bud, covering its entire circumference.

Successful cautery disbudding. Note the copper-coloured burnt margin around the horn bud

6 Check the calf for distress or bleeding before releasing from the crush. Apply a gauze pad with pressure if bleeding is present.

7 Apply spray-on gel solution to the wound immediately after disbudding to help control pain, bleeding and infection. If not available, apply an antiseptic spray to the wound to minimise risk of infection and repel flies around the wound.



Apply gel topical pain relief products immediately after cautery disbudding. Photo credit – Linda Hansen

8 Observe the calves for distress or discomfort in the hours following disbudding.

1 Petrie N, Mellor DJ, Stafford, KJ, Bruce RA and Ward RN (1996). Cortisol responses of calves to two methods of disbudding used with or without local anaesthesia. New Zealand Veterinary Journal 44: 9-14.

2 Stafford, KJ, Mellor DJ (2011). Addressing the pain associated with disbudding and dehorning in cattle. Applied Animal Behaviour Science 135:226– 231

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