

DISBUDDING

In practice

FACTSHEET 1

How to disbud (dehorn) efficiently, easily and painlessly

Why should you favour disbudding instead of dehorning?

Horned cattle are at risk of hurting other stock or humans. Dehorning is the removal of formed horn, it should never be a routine procedure and should be avoided if possible. Dehorning involves cutting or sawing horn and other sensitive tissues under local anaesthetic. It should only be undertaken by a vet, never by a stockperson and only if it is necessary for the herd's welfare. Dehorning of older animals should be avoided by disbudding them as calves. Disbudding is preferable to dehorning as it is less stressful to the animal. Disbudding is a common procedure used to make cattle management easier and safer.

Horn bud

Calves have horn forming tissue at birth, which if left will produce a horn. When the calf is born, this bud of tissue is free-floating in the skin and is not yet attached to the skull (Figure 1). Over time, this bud will weld itself to the skull creating a connection between the horn and the frontal sinus (Figure 2). This connection enables the horn to develop. The speed of this development can vary depending on animals and breed, but generally takes place during the first two months of life.

Optimal age

Calves should be disbudded as soon as the horn bud can be easily felt. The smaller the horn buds, the easier and quicker the procedure will be. Therefore, it is recommended to disbud between 2 to 4 weeks of age, or certainly, when calves are younger than 2 months.

Disbudding options

- Heated iron under local anaesthetic is the most effective and preferred option to disbud calves
- Caustic paste is not recommended and in some countries it is illegal. It can spread into the eyes or onto other calves causing painful burns. It should only ever be used in calves younger than 1 week.

Heated iron

Thermal disbudding blocks the blood vessels that irrigate the horn bud preventing its development. Cauterization is done using a metallic or ceramic iron, heated to a very high temperature (500 to 700°C). It normally causes little bleeding and therefore limits infectious risks. Some irons have interchangeable tips of varying dimensions to adapt the size of the horn bud. For young calves, tips with a 15 to 20 mm diameter are enough. A ceramic head dehorner must be reserved for animals younger than 3 weeks.

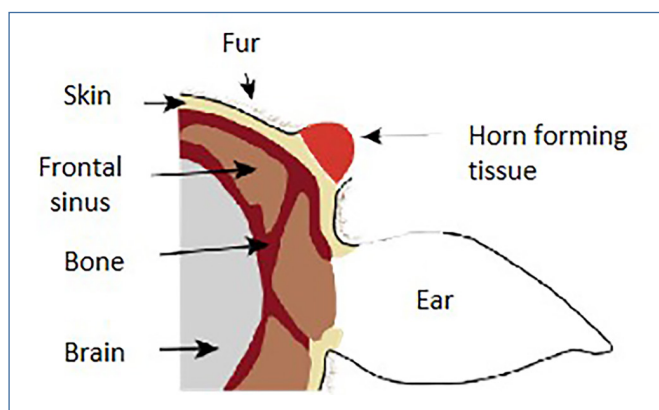


Figure 1: During the first weeks of life, the horn bud is free-floating under the skin layer.

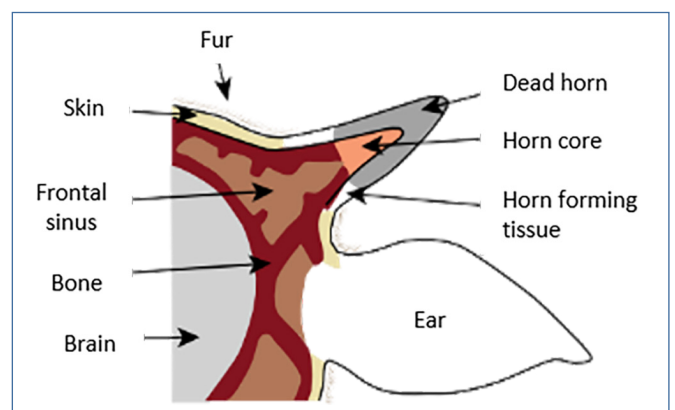


Figure 2: After 2 months of life, the developing horn communicates with the frontal sinuses



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How to manage the pain?

One option for restraint to alleviate stress due to handling is to ask your vet to administer a **sedative**. As a minimum, local **anaesthetic** should be used for disbudding, which numbs the horn bud for several hours. Using an **anti-inflammatory** as well will reduce inflammation which can persist for at least 9 hours

after disbudding. All cattle medication is available on prescription from the farm veterinarian. They must be written in the medicine record. Their conditions of use and effectiveness are available in the table below, but can vary between countries (done by a vet only in some countries).

	Sedative (15-20 min before disbudding) ^{<?>}	Local anaesthetic (10-15 min before disbudding)	Anti-inflammatory (15-20 min before disbudding)
Why?	Calms the calves and relaxes the muscles. Sedated calves are easier to disbud as there is no head shaking	Stops the painful nerve impulse by anaesthesia of the corneal nerve	Reduces inflammatory response and acts against post-disbudding pain
How to administer	Intramuscular injection in the neck	Subcutaneous injection in the corneal nerve area ^{<?>}	Subcutaneous injection
Active ingredient	Xylazine	Procaine	Meloxicam

Polled bulls

Using polled bulls, where available, will reduce the number of animals that need to be disbudded. Talk to your genetics supplier about using polled genetics across some or all of your herd.

Dehorning older animals

Dehorning of older animals should be avoided by disbudding them as young calves. However, if animals are purchased with horns or if a horn re-grows and dehorning is required, pain relief must be used. Ideally, a veterinary surgeon should do it and in some countries this is a legal requirement. If dehorning is deemed necessary, it should be done in spring or autumn to avoid flies or frosts. Following the procedure, the animal should be given appropriate pain relief. The wound should be protected from contamination by such things as grass seeds, hay or silage until the hole has scabbed over.

Is the area numb?

Test the area around the outside of the horn bud with a needle, if the anaesthetic is working the calf will not flinch. A drooping eyelid is a good indication as the nerve also supplies the muscle of the eyelid but be aware it is not a foolproof test.

Acknowledgements

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FACTSHEET 2

8 step guide to disbudding a calf

Disbudding calves is ideally done at 2-6 weeks of age using local anaesthesia to eliminate pain during the procedure and anti-inflammatories to reduce pain after. Making disbudding as painless as possible for all involved requires good training and an efficient protocol.

Step 1: Get organized

A dedicated disbudding toolbox will help to ensure the equipment is located together. This should include:

- A supply of new 10 ml syringes and 18 gauge needles
- Local anaesthetic and analgesic/anti-inflammatory drugs
- Disbudding iron and spares
- Fuel for the iron
- A wire brush

Step 2: Correct calf selection

Disbudding must be done before 2 months of age, but with a healthy calf, hot-iron disbudding is best performed at 2-6 weeks of age, before overgrowth of the horn bud.

Step 3: Appropriate restraint of the calf

The calf should not struggle through any part of the procedure. A stressed calf means a stressed worker. Restraint does not need to be complicated, calves can be disbudded while standing and restrained by a competent handler, however, this is a two person job. When larger numbers of calves are involved, handling equipment (e.g. headbail or crush) should be used to block the calf's head to operate more easily, more precisely, more efficiently and in a secure way.

Step 4: Effective anaesthesia

Using a local anaesthetic is a legal requirement of hot-iron disbudding. Effective anaesthesia can be done by blocking the corneal nerve which prevents the calf feeling the cautery process of disbudding. The best place to anaesthetize this nerve is half way between the base of the ear and the corner of the eye. Locate the bony ridge situation in this area and inject 2-5ml of local anaesthetic under the ridge. A small amount of blood after injection is a good indicator of accuracy,

as the nerve runs alongside the blood vessels. The local anaesthetic is effective within seven minutes of administration. It has a variable length of action, but is reliable for up to one hour. If you are uncertain whether it has worked you can repeat the nerve block after seven minutes. Always check that both horn buds are desensitized before applying the hot iron.



Anaesthetic of the horn bud: find the bony ridge halfway between the eye and the ear.

Step 5: Using the hot iron

Adapt the size of the cauterizing iron to the area that needs to be cauterized, so that the burn is not too large. Pulling the ear back displaces the corneal artery, preventing the risk of bleeding. When the iron is hot, apply it to the corneal process, perpendicular to the skull and rotate 45° in both directions to create an even cauterization ring.

Make sure to:

- Never apply strong pressure, except with a Buddex-type system
- Never tilt the iron, because this increases the risk of bleeding
- Never pull out the corneal process after disbudding. This will fall out on its own a few days after disbudding.

The entire process to remove both buds should take no longer than 45 seconds. Slow disbudding is most commonly due to an iron that is not reaching a high enough temperature.



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Disbudding using a hot iron

Step 6: Pain relief

Behavioural monitoring of calves has shown the process to be markedly uncomfortable over the following hours and days. The economic impact of the associated reduced feed intake and hence growth rate is well documented. Use of non-steroidal anti-inflammatory drugs helps to reduce the pain associated with disbudding. This helps maintain feed intake making it cost-beneficial tool that also counters some of the stress.



Administering pain relief

Step 7: Preventing infection

Use an antiseptic spray to limit infections and help cool down the cauterized tissues. To improve its cooling effect, the spray can be kept in the refrigerator a few hours before intervention.



Applying disinfectant spray

Step 8: Monitor disbudded animals

In the days after the intervention, monitor the wound healing process and the general state of the animal, looking for indications of pain. For calves older than 2 months, check for symptoms of sinus infection, indicated by the presence of pus, the calf scratching its head or keeping it low, apathy, anorexia or fever.

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