Cattle Dehorning Methods

Dehorning at a young age minimizes hazards to the calf, the cow-calf producer, and the feedlot owner. Hazards for calves and owners include:

- **sickness or death following dehorning of older calves**
- **decreased live weight gains in the weeks following dehorning of older calves**
- **loss of productivity**

NOTE: dehorning under the age of 2 weeks is strongly recommended:
1. Technically easier procedure
2. Ease of handling resulting in decreased stress
3. Decreased risk of haemorrhage

Options by Age:

<u>Under 2 weeks of age (*strongly recommended)</u>

- Disbudding tube
- Electric dehorner
- Chemical dehorning

<u>Up to 2 months of age</u>

- Hot Iron
- Knife
- Spoon or Tube Dehorners

<u>Older calves and weaner</u>

- ❖ Cup Type/Scoop Type

<u>Up to 1 year of age</u>

- Barnes dehorner

<u>Yearlings and older (*should be performed by a veterinarian due to infection and haemorrhage risk)</u>

- Surgical hand saw

- Obstetric wire saw
- Large Barnes dehorner (if horns are small)
- Guillotine (hydraulic or manual)
- Electric saw

METHODS

❖ Disbudding tube/spoon

A disbudding tube is used to mechanically remove the horn-producing epithelium from the skull. Many sizes are available, and an instrument should be utilized that will cover the entire bud, with an excess border of 1/8 of an inch. A scooping motion is used to cut underneath the horn bud. Some bleeding will occur, and an antiseptic should be applied.

❖ Electric or butane hot dehorning

Hot dehorners can be powered by electricity or gas, and are constructed with a hollow ring that is heated to cauterize the horn bud, thus killing the corium to prevent growth. The "red-hot" ring is placed over the horn bud, and held in place for 10-15 seconds until the hair begins to smoke. At this point, a twisting motion can be used to establish a copper ring around the bud. The bud will slough in 4-6 weeks. Alternatively, the ring can used to "scoop" out the bud after burning through the skin. This method is bloodless, and heals quickly. Care should be taken, however, to avoid burning too deep, as the heat may cause damage to the calf's brain.

http://www.youtube.com/watch?feature=player_embedded&v=VeluAfJlKZg#t=290

❖ Dehorning liquid

With a colodian base dries to form a rubber-like covering that is ot easily rubbed or washed off. The liquid should be applied with a brush or swab. Calves up to 10 days of age can be dehorned with this material.

❖ Chemical dehorning

This class of dehorning methods involves the use of a caustic material that chemically burns the cells of the horn bud. This method should only be used without anaesthesia in calves under 7 days of age, and requires significant pain control in older calves. Some folks prefer this method due to the minimal open wound, decreasing the risk of infection and fly strike.

The chemicals are available as sticks or pastes (Figure 2). To protect yourself, wear gloves when applying the chemicals. To protect the calf, avoid application near its eyes. Do not use caustics in rainy weather.

Dehorning paste is a caustic chemical applied to horn buds to destroy horn-producing cells.

Technique

1. Administer sedation, analgesia and local anaesthetic.
2. Expose the horn bud (about the size of a 5-cent piece) by pushing the hair back (Figure 3).
3. Apply the caustic to the horn button. Use a wooden applicator. Apply a thin layer.
4. Re-position the hair over the paste and horn bud - i.e., cover the horn bud.
5. Although the package insert may instruct operators to clip hair at the horn bud, experienced operators have shown that not clipping hair is preferable, because the hair keeps the caustic in place, reduces the risk of irritation to the cows udder and flanks and reduces irritation to other facial skin of the calf.
6. Protect the calf and the cow from accidental caustic burns. One method is to place a patch of duct tape over each horn bud. The duct tape usually falls off in a few days. For dairy calves, keep in individual pens.
7. In some countries, the technique is only permitted in calves less than eight days of age.

Advantages and Disadvantages

- performed at a young age with less stress than some other techniques
- bloodless
- use in any season
- painful without anaesthesia
- avoid contact with eyes; operator should wear gloves
- do not use in rainy weather
- not permitted in some countries
- horns or scurs follow improper technique
- requires pain control

The circle at the base of the ear shows the location of the horn bud in a young calf. The horn bud is readily visible after pushing back the hair. Reposition the hair over the paste and bud after applying the dehorning paste.

http://www.dehorning.com/videos/calf-paste-disbudding/

- **Hot Iron** (same as electric or butane hot dehorning of calves

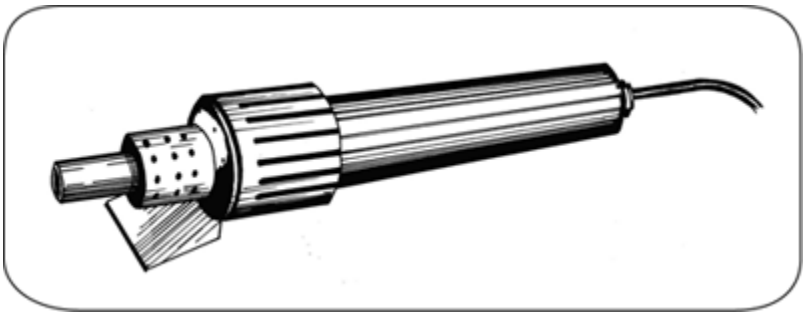
Various hot iron dehorning tools are available, including wood fire heated, LPG heated, butane gas heated and 12- and 24-volt electric models. Generally these methods are best suited to calves up to about 8 weeks of age.

With the calf firmly restrained and the iron heated to a cherry red colour, apply the iron firmly over the emerging horn bud. Roll the hot iron over the horn bud several times so that a ring of tissue around the bud is burnt through the full thickness of the skin. Heat must be transferred evenly all the way around the horn bud to ensure that the horn growth tissue is destroyed. In due course the horn bud will drop off.

The benefits of this method of dehorning are that it can be carried out at any time of the year. There is no loss of blood and no wound to become infected.

Technique

1. Administer sedation, analgesia and local anaesthetic.
2. Preheat the dehorning iron to a red colour. Both electric and gas irons work best when they are "red" hot.
3. Wear gloves to protect your hands.
4. Hold the calf's ear out of the way to keep it from being burned.
5. Place the tip of the burner over the horn and apply slight pressure. When the burning hair begins to smoke, slowly rotate the dehorner by twisting your wrist.
6. Continue the application of heat for 10-15 seconds. Do not leave the dehorner in place for much longer, especially in young calves. Heat can be transferred through the thin bones of the skull and damage the calf's brain.
7. Dehorning is complete when there is a copper-coloured ring all the way around the base of the horn.
8. The horn bud or button will slough off in 4 to 6 weeks.



An electric hot-iron dehorner will destroy the horn-producing skin at the base of the horn bud.

Advantages and Disadvantages

- bloodless
- can be used at any time of the year
- young calves up to 12 weeks of age
- unreliable when done incorrectly, leads to scurs (partial horn growth)
- requires expertise - pain control and technique

❖ **Knife**

A curved knife similar to a farrier's knife (but without a hook on the end) can be used for dehorning.

Start the cut about 2 cm away from the base of the horn, then draw the knife through the skin towards and through the horn, slicing off the horn level with the skull. This will remove an elliptical piece of skin with the horn in the centre. If the cut has gone too near the edge of the horn so that the removed horn bud has an incomplete ring of hair, make another small cut to remove the skin to ensure no horn-forming tissue is left from which a scur (a rudimentary, deformed horn) may grow. Make the cut swiftly and firmly.

You can dehorn calves from two weeks to about six months of age without exposing the sinus cavity (leaving a hole in their head after dehorning) as they can still have a loose, unattached horn bud.

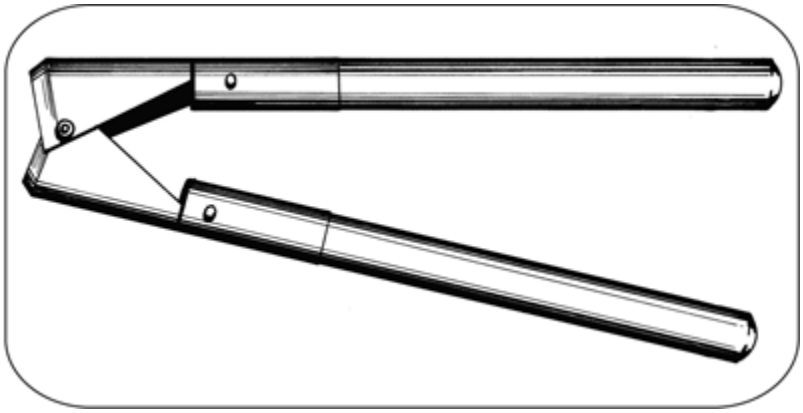
- **Scoop, Gouge or Barnes-Type Dehorner**

Scoop dehorners are used for calves ranging in age from two to four months with horns up to four inches long. Some operators claim better dehorning with a rectangular-shaped scoop because it removes an even ring of skin around and with the horn bud. When used properly, it does not go too deep, but the dehorner can open the frontal sinus when used at the top end of the age and horn-size range. The blades must be kept sharp for best results.

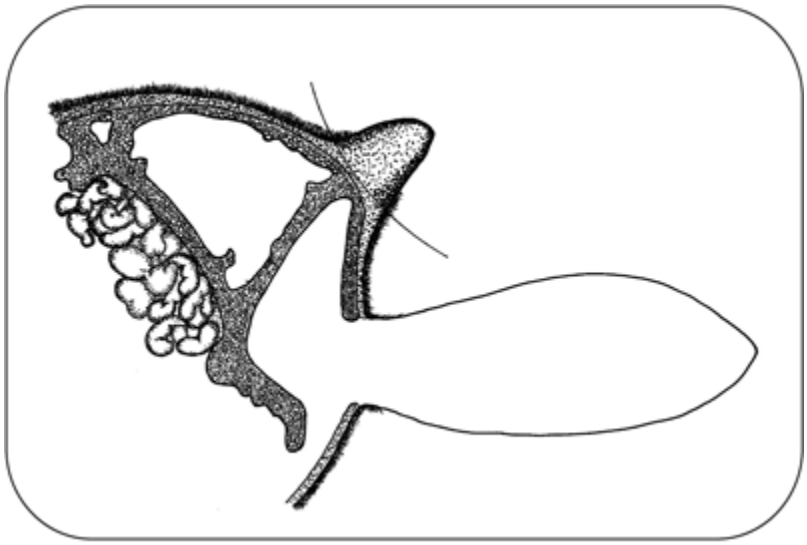
Scoop dehorners are used by passing them vertically down the horn and pushing the handles outward thereby scooping out the horn. As with other methods the head of the animal must be well restrained. Scoop dehorners come in a number of sizes and it is important the right size instrument is used on the appropriate animal. The larger size scoop dehorners can leave a deep hole if used on too smaller animal, but are useful for weaners and older cattle.

Technique

1. Administer sedation, analgesia and local anaesthetic.
2. Close the handles together.
3. Place the jaws of the dehorner over the horn bud. The objective is to completely remove a ring of skin surrounding the horn base. Therefore, adjust the opening as needed (Figure 7).
4. Press the gouger gently against the head. Maintain the pressure and quickly spread the handles apart to bring the blades together to remove skin and the horn bud.
5. Control bleeding by pulling the artery with forceps or using a hot iron to cauterize the artery.
6. Clean and disinfect the jaws of the gouger between calves.



A Barnes-type dehorner scoops the horn and horn-producing skin surrounding the horn base.



With young calves, the Barnes-type dehorner removes horn-producing skin but does not cut into the frontal sinus as shown by the arced line above. In older calves with the horn attached to the skull, the dehorner cuts into the frontal sinus.

Advantages and Disadvantages

- fast - takes a few seconds to perform
- useful after the horn bud attaches to the skull
- not bloodless
- risk of infection because of open wounds
- opens the frontal sinus in older calves
- avoid use during fly season
- unreliable when done incorrectly, leads to scurs
- requires expertise - anaesthesia, sedation, analgesia and technique
- requires control of bleeding - pulling arteries or cautery

❖ **Cup dehorners**

Calves that are too big to dehorn with a knife, hot iron or scoops can be dehorned with cup dehorners, which will handle cattle up to 12 months of age. Again it is necessary to take a complete ring of skin around the horn base.

Cup dehorners are operated with a scissor-like movement. The operator may need an assistant to apply downward pressure on the tool to stop it from riding up the horn and leaving some horn-forming tissue behind. Both instruments are effective and easy to use. When removing the horn with either instrument the same principle applies as with the knife: at least a 1 cm ring of skin around the base of the horn must be removed.

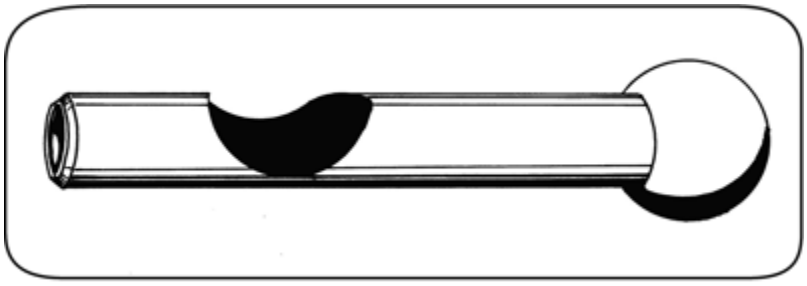
- **Spoon or tube dehorners**

These instruments are used in a similar way to the knife to remove the small horn bud.

Dehorning spoons or tubes provide a quick and efficient technique for removing horn buds in calves less than eight weeks of age. With this method, a sharpened metal tube cuts through and removes the horn-producing skin at the base of the horn bud. Use the proper size tube to remove the horn plus about 1/8 inch of skin around the entire horn bud.

Technique

1. Administer sedation, analgesia and local anaesthetic.
2. Select the correct size tube (4 sizes available) to fit over the horn bud, and cover about 1/8 inch of skin around the horn base.
3. Place the cutting edge straight down over the horn.
4. Apply pressure to the tube; push and twist the tube until the skin has been cut through.
5. Cut under the horn bud and remove it, using a scooping motion.
6. Apply an antiseptic to the wound. Some bleeding may occur.
7. Clean and disinfect the cutting edge of the tube between calves.



A dehorning spoon or tube is used to remove the horn bud plus the horn-producing skin at the base of the bud.

Advantages and Disadvantages

- not bloodless
- useful for young calves
- risk of infection because of open wounds
- avoid use during fly season
- unreliable when done incorrectly, leads to scurs
- requires expertise - pain control, technique, control of bleeding

- **Hand Saw Dehorning**

In this method of dehorning, a hand saw is used to remove the horn along with a ½-inch ring of skin around the horn base.

Advantages**:** Can be used in older calves with large horns.

Disadvantages: Risk of infection and death from blood loss; may lead to set-backs in overall health and performance, including weight loss; animal must be monitored for several days afterward.

- ***Gigli Wire dehorning (method used)***

Gigli wire is a flexible cutting wire with a toothed edge used to cut hard materials such as Fiber glass casts, bone and horn. Standard grade stainless steel saw wire, with a loop at each end for ease of use when attaching to gigli handles. 50cm and 70cm lengths of Gigli wire are threaded down a plastic sheath; this facilitates the removal of the casting materials at a later date. Sheaths can be removed and cut to more suitable lengths if required.70cm Non-sheathed wire is ideal for removing bone and horn. Wire and handles can be autoclaved for sterile procedures.

http://www.youtube.com/watch?v=zF3_aIWV0j8

- **Obstetrical or Embryotomy wire dehorning**

A long piece of wire is attached to two handles, then moved back and forth rapidly to saw through the horn base plus a ½-inch circle of skin.

Advantages: Can be used to remove horns in older cattle.

Disadvantages: Greater risk of exposed sinus, infection and blood loss; painful; may lead to set-backs in overall health and performance, including weight loss; requires follow-up care; poses risk of injury to the animal and handler.

http://www.dehorning.com/videos/cattle-wire-dehorning/

- **Callicrate Bander**

The Callicrate Bander has been is use to remove various size horns from cattle of various ages. The technique employed by most producers is quite simple and very satisfactory. Tetanus toxoid must be used

CAUTION: Adequate restraint on the heads of cattle must be used. The head should be tied back to the side using a halter or nose tongs. A chute with adequate neck chain, neck extender or head sweep also works well. Electronic immobilizers are also a good choice when dehorning.

Method:

- Put on safety glasses.
- Insert the end of the loop with the clip (SEAM SIDE UP) into the nose of the bander. (See figures 1 thru 6 on instructions.)
- Reach across the top of the animal's head and place the loop over the horn furthest from you. Do not drag the loop along the bottom side of the horn.
- Dragging the loop along the bottom of the horn as you pull it toward the head will cause the loop to roll. If the loop rolls on the horn, it will tend to return to its original shape and roll back toward the tip of the horn.
- Pull the bander and loop toward you. This will keep the loop close to the head and in the hairline at the horn base.
- Tighten the loop until the tension peg on the bander touches the back of the slot.
- Press the crimping lever until it will go no further.
- Cut the loop as close to the spool as possible using the Callicrate Cutter.
- Some users recommend placing duct tape around the loop after it is applied to the horn.
- Repeat procedure on other horn.

Expect the horns to fall off in 20 to 30 days for small to medium sized horns. Horns with large bases may take up to 50 days as experienced by some producers. Ligation allows the horns to drop slowly, giving the holes at the base of the horn time to fill with tissue and thus no open hole into the sinus. Flies and maggots are not a problem, plus dirt and debris cannot get into the sinus, reducing chances of infection

http://www.youtube.com/watch?v=vthCZJEPIRA

- **Keystone or "Guillotine" Dehorning**

A keystone dehorner has two handles that move a blade downward against a plate or another blade, slicing through the base of the horn and surrounding skin.

Advantages: Can be used in older cattle with large horns.

Disadvantages: Greater risk of exposed sinus, infection and blood loss; painful; may lead to set-backs in overall health and performance, including weight loss; requires follow-up care; poses risk of injury to the animal and handler.

http://www.dehorning.com/videos/calf-keystone-dehorning/

- **Electric Dehorning Saw**

A dehorning saw with safety features to protect the operator as well as the animal - two rotating blade guards that wrap around the horn as it is being severed. Open-end design means no threading over end of horn. Just place "V" of blade guards at the desired location on horn, start motor and push forward, and horn is severed in seconds, before the animal senses any pain. Cut is clean with no bruising or crushing.

- **Horn tipping**

The removal of the sharp points of the horns of adult cattle is known as horn tipping. This procedure is of little value in reducing the amount or severity of bruising on carcases, but tipping can relieve the irritation caused when a curled horn grows back into the head. The operation can sometimes be done by placing large dehorners over the horn tip. Where this is not possible, embryotomy wire is used to saw through the horn tip.

Tipping as compared to dehorning does not reduce bruising.