

# Methods for Disbudding Goat Kids

Most goat breeds used in production systems develop horns. Horns have advantages, such as aiding in heat dissipation and providing a defense against predators. However, they also may have negative effects, such as compromising the safety of handlers and other goats in the herd, as well as getting caught in facilities. Although they are often used interchangeably, the terms “disbudding” and “dehorning” have different meanings. Disbudding refers to the destruction of the horn-producing cells of the horn bud, which typically occurs before 2 weeks (14 days) of age. After 2 weeks, horns on a goat kid will fuse to the frontal sinus, making it more difficult to remove and more intrusive than disbudding. This process is known as dehorning: the procedure of removing horns after they have fused to the sinus of the animal, which typically occurs after 2 weeks of age. When the horns are visibly protruding from the head (Figure 1), it is too late to remove the horns by disbudding. The practice of dehorning is more invasive and should be performed by a veterinarian, whereas disbudding is a management practice that can be done by all goat producers.

Removing a kid’s horns when it is at a younger age can be less traumatic to the animal because the horn is not yet attached to the skull. Dehorning at later ages may have negative effects on the animal’s performance due to the associated stress and trauma. Methods for disbudding and the process of restraining younger animals are also typically easier compared with restraining and dehorning older animals. Because of the animal welfare and management implications, all goat kids should be disbudded between 4 and 14 days of age. Additionally, using proper techniques when performing disbudding procedures decreases the opportunity for



Figure 1. Goat kid with fused horns.

scurs (malformed horn tissue that remains after improper disbudding), injury, infection, or even permanent trauma to the brain of the goat.

## Industry Statistics

According to the 2019 USDA Goat NAHMS report, 87.9 percent of all operations in the United States had kids that had or were expected to grow horns. This statistic does not vary much based on herd size. When evaluating the occurrence of horned kids based on the production scheme, dairy operations (92.4 percent of operations) were most likely to have horns on their farm (91.4 percent of kids having or expected to have horns) than meat and “other” operations. The average age at which producers in all operations remove horns from their goat kids for was 16.3 days. However, meat goats were typically the oldest at horn removal (20.2 days) followed by dairy (14.6 days) and “other” (13.9 days). The age at which all operations typically remove horns is close to

or exceeds the minimum age recommended for disbudding (between 4 and 14 days). Therefore, there is room for all operations to remove horns before they fuse to the kids' skulls, and disbudding is the most effective, safest, and easiest method.

For operations that removed horns from goat kids, the most popular method was using an electric dehorner, otherwise known as a hot iron (95.7 percent of operations). This method was then followed by caustic paste and "other" methods (1.8 percent and 2.4 percent, respectively). Other methods include rubber bands, shears, or veterinarian's preference. There was very little difference in disbudding/dehorning methods among meat, dairy, and "other" operations. Farm owners were most likely to administer the procedures (75 percent of operations), followed by veterinarians (16.5 percent), herd managers (1.4 percent), and "other" (7.1 percent).

## Pain Mitigation

The only painless way to have hornless goats is to select animals that genetically do not have horns from birth. Removing horns from an animal is a painful procedure. Pain mitigation in goat kids during disbudding procedures is important to the welfare of the animal and the safety of both the handler and the animal. It should be a priority to ensure the removal of horns causes the least amount of stress possible to the animal. Although disbudding may be less painful than dehorning, there is still associated pain, and mitigation is recommended for

both procedures. In a study evaluating wound healing and pain response in disbudded goat kids, researchers observed a healing time of 7 weeks, and pain was present in the disbudding site during that time. Therefore, a short-term and long-term pain management program may be beneficial. Pain mitigation can include nonsteroidal anti-inflammatory drugs (NSAIDs), local anesthetics, topical anesthetics, or a combination of pain-reducing and pain-relieving drugs. Lidocaine, although a useful local anesthetic in large ruminants, should be used with caution in goats. Goats are more sensitive to lidocaine than other livestock species. Lidocaine can be safely used for goats when the dose is diluted, buffered, and does not exceed more than 6 mg/kg of body weight. A local anesthetic useful for goats is Bupivacaine (0.25 percent to 0.5 percent solutions), with a sufficient dose of 1 to 2 mg/kg of body weight.

Of the U.S. operations that perform horn removal, only 30 percent provide analgesics or anesthetics during the disbudding procedure. Anesthetics are a pain mitigation method that causes loss of physical sensation, which may or may not be accompanied by loss of consciousness. Analgesics provide pain relief without loss of physical sensation or consciousness. When you consider that a hot iron is used in 95.7 percent of goat operations to remove horns, there is an opportunity to increase the use pain mitigation to decrease the stress on the animal during and after the procedure.

Research on the use and effectiveness of pain management is still ongoing in small ruminants. However, current research has shown the effectiveness of providing a long-lasting NSAID in conjunction with a local anesthetic to provide some relief to goat kids around disbudding. The best pain mitigation strategies are those that are effective, economical, and safe for both humans and animals. To make the best decision for your operation, consult your veterinarian to formulate a pain management protocol.

## Recommended Disbudding Methods

### Hot Iron

Using a hot iron is the most common way to disbud goat kids. Hot irons are tools with a heated element that is applied to the horn bud to destroy the horn-producing cells. The potential benefits of this form of disbudding are that it can be implemented at a young age, and it does not cause the animal to bleed. Keep in mind that no blood does not mean no pain, so appropriate pain management should still be administered. Further, proper training is required to ensure the procedure is done correctly.

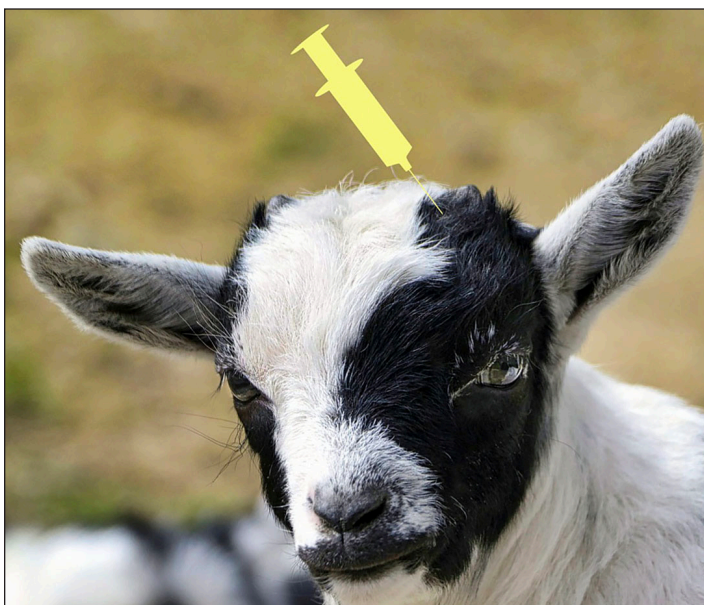


Figure 2. Proper location of lidocaine injection site for pain mitigation for disbudding.

## How to Disbud with a Hot Iron

- Ensure the animal is restrained safely and properly.
- Administer pain mitigation.
- Preheat the iron. It should be visibly red when heated properly.
- Feel for the horn buds with fingertips to ensure placement of the hot iron is exact.
- Place the hot end of the burner over the horn of the animal while applying light pressure. Ensure even distribution by twisting or rocking the iron gently.
- Hold the iron on the horn for 7 to 15 seconds. Do not leave the iron on the goat for more than 15 seconds as heat can transfer to the skull.
- Repeat the process on the other horn bud.
- Once the procedure is finished, the horn will slough off in 3 to 6 weeks.



Figure 3. Proper placement of caustic paste and hot iron.

## Important Considerations for Disbudding with a Hot Iron

- Clipping the hair around the horn beforehand may allow closer contact with the horn bud and ensure a cleaner burn. It will also decrease smoke and inhalation of fumes from burned hair.
- Ensure the animal's ears are out of the way of the hot iron.
- The animal may move or jerk its head, so proper restraint is important for safety of the animal and the person performing the procedure.
- Some researchers have reported that “scooping” the horn bud out while performing the procedure reduces the chance of any horn growth after the procedure. However, horn growth after the procedure may be minimal and not lead to development of full scurs.

### *Caustic Paste*

The second most common method of disbudding goat kids is caustic paste. The advantages of this form of disbudding are that it can be done at an early age, does not cause the animal to bleed, and can be less stressful than using a hot iron (less restraint, noise, and smell). The caustic paste is a strong irritant, so it is crucial to ensure it does not end up on the handler's skin or improper areas of the goat. When paste is not administered correctly, horns or scurs can grow, and the producer may require a veterinarian do a second procedure to remove the horns at an older age.

## How to Disbud with Caustic Paste

- Ensure the animal's head is properly restrained.
- Administer pain mitigation.
- Clip hair around the horn bud.
- Put on gloves.
- Feel for the horn buds with fingertips to ensure placement of caustic paste is exact.
- Apply a thin layer of caustic paste with a wooden applicator to the horn bud.
- Place a layer of duct tape over the paste to prevent rub-off or leakage into the goat's eyes.

## Important Considerations for Disbudding with Caustic Paste

- Take care to not excessively clip all hair around the horn bud; the remaining hair can serve as protection to the goat from any caustic paste running or mistakenly placed outside of the horn bud.
- Once paste is applied, covering the horn can help seal the caustic paste into the correct area. This can be done by using duct tape to cover the area where the paste is administered.
- Housing goats individually for a short time while the paste is still wet can help decrease the chance of the paste transferring from animal to animal.

## Conclusions

Disbudding before 2 weeks (14 days) of age is recommended and allows for a less stressful experience for the animal and handler. Although all forms of disbudding are painful, there are means for limiting the amount of pain the goat kid experiences. Therefore, proper pain mitigation strategies are important to a successful disbudding program. To ensure proper pain mitigation, consult your veterinarian and establish a disbudding program together to optimize management for your farm. To avoid the risk of missing animals and having to remove horns from older goats, producers need training to make sure that disbudding is performed properly the first time and that records are for each animal. Lastly, for all disbudding procedures, the safety of the animal and the human handler should be the top priority.

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