

Castrating Beef X Dairy Calves

Castration is the removal of the testicles from male animals. A bull that has been castrated is called a steer. There are various castration methods, and it is recommended that castrations be performed in calves at the youngest age possible (1), preferably within three months of age (2). Using a proper castration procedure on a young calf can add more beef value at the time of marketing. (1).

Why the need for castration?

Compared to bulls, steers are less aggressive in the feedlot and less likely to injure one another. Beef finishing facilities discount bulls because of the inability to house bulls with heifers without the danger of unwanted pregnancies.

Castration reduces undesirable carcass attributes observed in bull carcasses and helps to improve marbling and tenderness of finished beef. Steers acquire higher prices at market due to these improved carcass traits.

When should male cattle be castrated?

While cattle can be castrated at any age, research has shown that younger calves experience less discomfort and pain during and after the procedure. Maintaining animal comfort is a primary consideration and because they are comfortable, calves continue to eat following the procedure. This results in less weight loss compared to calves that are castrated at older ages. Younger, smaller calves are also easier for the operator to handle. The testicles and blood supply are smaller, which results in less blood loss during and inflammation following the procedure.

Prior to castration, it is important to feel for the presence of two testicles in the scrotum. Both should be in the scrotum within the bull's first week of age. If only one testicle is found, perhaps more time is needed for the testicle to descend. Do not remove only one testicle. Recheck the animal at a

later date to determine if the other testicle is in the inguinal canal or in the abdomen of the calf. It may

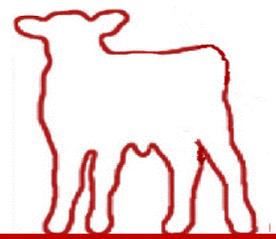
be possible to manipulate a small testicle from the inguinal canal into the scrotum where it may then be removed. Seek veterinary assistance when a testicle(s) cannot be identified in or near the scrotum. This condition is known as cryptorchidism and its associated male hormones allow the animal to express undesired aggression. It is necessary to have a veterinarian surgically remove undescended testicles.

It is also important to identify an inguinal hernia prior to castration. The spermatic cord passes through the inguinal canal from the abdomen to the testicle. The canal normally collapses around the spermatic cord. Calves with an inguinal hernia have a larger than normal inguinal canal opening that allows intestines to fall into the inguinal canal or scrotum. One side of the inguinal area or scrotum is larger, and the testicle may be difficult to discern by palpation. Animals with inguinal hernias should be castrated with the aid of a veterinarian.

Castration Methods

Bovine castration methods are classified as either surgical (open scrotum) or bloodless (closed scrotum) and are often performed in a chute or other handling facility with a group of calves. Restraint is necessary when castrating a calf. Secure the calf in a chute, with a head restraint or a halter. Tail restraint is recommended when castrating standing calves. Lifting the calf's tail up (without twisting or bending it) and pushing it forward over the calf's back will quiet the calf and decrease kicking and potential injury to the handler.

Surgical (open) castration is a procedure in which the scrotum is opened to remove the testicles. It leaves a scrotal remnant that permanently identifies the animal as having been castrated and as the steer finishes, this area fills with fat. It is known as the 'cod' and is an indicator of the degree of finish the mature steer has. In a surgical (open)



castration, the scrotal incision needs to entirely open the bottom of the scrotum, creating a wound that will remain open for aerobic healing to occur. Incisions naturally close as they heal with smaller ones closing faster than larger ones. There is a risk of anaerobic infection from tetanus to occur after the wound closes. Discuss with your veterinarian the merits of using a tetanus vaccine before surgically castrating calves.

Surgical instruments used include knives or a scalpel blade to open the bottom of the scrotum, and an emasculator or castration tool applied to the spermatic cord (tissue connecting the testicles to the body that includes blood vessels) to remove each testicle (Figures 1 and 2). Smaller testicles may be removed with appropriate manual traction to separate each spermatic cord (3).

Avoid surgical castrations during the hot summer months due to fly irritation to the healing scrotum. Castrating on wet days also is not advisable as the calf could lie down in the mud and be exposed to infection risks. Newly castrated calves with healing wounds should be housed in a clean, dry environment.

Surgical castrations are generally performed without skin preparation as the procedure can be quickly performed while paying attention to cleanliness (4). If the scrotum is dirty, it should first be washed with disinfectant and dried. Keep a bucket of wash water for this purpose and replace the solution as needed. Gloved hands should be sanitized after washing the scrotum or before beginning the procedure and between calves. Avoid touching anything except the calf's scrotum, i.e., the chute or the calf's body.

It is important to minimize infection when performing surgical castration. Start with sterile or disinfected instruments. Sanitize instruments between testicles and between calves, and thoroughly clean and disinfect all surgical equipment after the group's castration is done. Store equipment in a clean, dry place.



Figure 1: An emasculator tool simultaneously cuts and crushes the spermatic cords. This photo illustrates the cutting surface of the blade, and the handle length that allows the operator to deliver adequate crushing force. Photo taken by Sandy Stuttgart Extension Taylor County.



Figure 2: This photo illustrates the crushing grooves found on the back surface of the blade. Photo taken by Sandy Stuttgart Extension Taylor County.

Bloodless (closed) methods include using banding methods or an emasculatome. Bloodless methods may be preferred when environmental conditions increase the risk of surgical complications.

Banding is a process of placing a band above the scrotum, close to the abdomen, entrapping both spermatic cords. An elastrator tool is used to apply an elastrator band (figure 3) to smaller calves and other banding tools are used for larger bulls. The band restricts blood supply to the testicles and scrotum causing the scrotum and testicles to shrivel and fall off. Banding is associated with a high incidence of missed testicles as operators fail to check for the presence of both testicles in the scrotum before the band is applied.

While banding is a simple method of castration, it should be noted that the risk for tetanus infection increases when bands are used. Consult your veterinarian for a tetanus vaccination protocol to use before banding your calves.

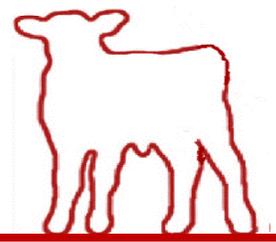


Figure 3: Elastrator tool and bands. Photo taken by Sandy Stuttgen Extension Taylor County.

An emasculator crushes the spermatic cord of each testis without removing the testicle. The scrotum is not opened when using this procedure. The testicles atrophy without their blood supply. This procedure may fail due to the lack of applying proper pressure for enough time when attempting to crush the spermatic cord. Anaerobic conditions within the scrotum are created following this procedure, therefore tetanus prevention is recommended

Chemical and hormonal castration methods are also available. Both involve additional procedural techniques. Chemical castration has twice the healing time compared to surgical methods.

Authors: Agriculture Educators, UW-Madison Division of Extension

Jackie McCarville, Heather Schlessler, Ph.D., and Ashley Olson

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Reviewers

Sandra Stuttgen, DVM, Agriculture Educator, UW-Madison Division of Extension
Larry Baumann, DVM, Ph.D., Extension Specialist, UW-River Falls

References

1. Castration and Dehorning of Cattle. American Veterinary Medical Association. Retrieved July 2020 from <https://www.avma.org/resources-tools/avma-policies/castration-and-dehorning-cattle>
2. Beef Quality Assurance Supplemental Guidelines 2014. Retrieved July 2020 from https://www.bqa.org/Media/BQA/Docs/supplemental_guidelines_2014.pdf
3. Techniques in Large Animal Surgery. A. Simon Turner and C. Wayne McIlwraith. Pgs. 251-253. Lea & Febiger. 1982.
4. Castrating Beef Calves: Age and Method. Guide B-22. Boone Carter, Clay P. Mathis, Clint Löest, and John Wenzel. College of Agricultural, Consumer and Environmental Sciences, New Mexico State University. Retrieved July 2020 from https://aces.nmsu.edu/pubs/_b/B227/welcome.html

Hormonal castration has been associated with delayed healing or persistent bullish behavior (1).

Pain Mitigation

Castration is a painful procedure to the animal. The pain occurs first as acute, short-term pain associated with the procedure. Chronic pain is the longer-lasting pain that occurs in the days following castration while the injury site heals. Minimizing castration-induced pain is important for animal welfare, growth performance, and immune suppression (2).

Work with your veterinarian to obtain prescription anesthetics that are applied locally to help alleviate the acute pain of castration. The veterinarian can also ensure proper placement and dosage of a local anesthetic.

Calves may also receive a prescription non-steroidal anti-inflammatory drug (NSAID) afterwards to help alleviate chronic pain after castration. Research has shown that a combination of anesthetics and NSAIDs results in the calf experiencing less pain and stress due to the castration procedure (2).