Western Beef Resource Committee

Fourth Edition

Cattle Producer's Handbook

Management Section 749

Castration of Bulls

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Castration is the removal of the testicles of bulls. Castrated beef animals are called steers. Steers will typically produce a better marbled carcass that will grade higher than bulls. Steers are also typically much easier to handle and are easier on facilities and equipment than bulls.

Although calves from a few days of age up to 8 months of age can be castrated without serious consequences, most calves are castrated using bands soon after birth. Older animals are more difficult to restrain and usually bleed more, requiring more precaution and care. Younger calves typically recover from the process much quicker.

Bloodless Castration

Elastrators are a forceps-like instrument used to place a strong elastic band around the scrotum at the site of its attachment at the groin (Fig. 1). The pressure exerted by the rubber band shuts off the blood supply to the scrotum and testicles, causing them to slough off after 7 to 21 days. The elastrator should be used before the calves are 2 weeks of age.

Disadvantages include the increased risk of tetanus (lockjaw), infections under/around the elastic band, elastic band breakage before castration occurs, and the possibility of missing one of the testicles with the band.

The elastrator can also be used to castrate calves physiologically without removal of the testicles. In this process, the testicles are forced as close to the abdomen as possible, and the rubber band is placed on the scrotum below the testicles. This will cause the scrotum to slough off but will leave the testicles positioned between the skin and muscles of the body wall.

The body heat of the animal is enough higher that the testicles will not produce viable sperm cells, but the growth response from testosterone and other male hormones produced by the testicles continues. These calves will have a normal sex drive and may become staggy in appearance. This method of castration should be done before the calves are 6 to 8 months of age.

The **Burdizzo** is another method of bloodless castration (Fig. 2). This method is often used on older calves and can be successful if properly applied. This method damages the blood supply to the testicle and causes the testicle to be reabsorbed.

The clamping procedure is completed best when the bull calf is standing and restrained with a tail hold (tail

Fig. 1. Elastrator.

Fig. 2. Burdizzo.

held up over the back for restraint). The spermatic cord above the testicle is isolated to the side of the scrotum, and the burdizzo clamp is applied over it with the skin intact. The clamp is closed and left in position for approximately 1 minute.

The same procedure is then repeated to the cord of the opposite side testicle. Crushing the blood and nerve supplies to the testicle causes sufficient impairment to result in a shrunken, non-functional testicle.

Operators must be careful to avoid damage or injury to the penis, which can be mistaken for the cord. Since the Burdizzo clamp does not break the skin, no external bleeding occurs. This can be an advantage where infections or parasites are a concern.

The **Callicrate Bander** is a bloodless castrator that can be used on larger calves, up to 8 months of age (Fig. 3). The bander is loaded with a loop of solid rubber with the ends clamped together. The rubber also has another clamp that will be crimped to finish the process.

The rubber loop is placed around the scrotum in a position above the testicles, similar to the elastrator described earlier for young calves. It is then ratcheted tight. The bottom lever of the tool is pulled downward to crimp the second metal band tight around the rubber. The excess rubber is then trimmed away, and the tool removed (can be done with an ear tag cutter).

Surgical Castration

Testicles can be surgically removed from any age bull, but the risks and potential complications increase greatly with age. The recovery period is also lengthened with increased age.

Surgical castration can be performed with the calf standing in a chute and the tail held up over the back for restraint, with the calf on a calf table, or stretched out on its side on the ground. The most important considerations are cleanliness, control of hemorrhage, and adequate drainage.

Sanitation Precautions

Instruments used in surgical type castration should be kept clean, sharp, and disinfected thoroughly before each use. This will help prevent infected wounds and the spread of infectious diseases. Operators should also keep hands clean.

Fig. 3. Callicrate bander.

Application of antiseptics to the calf's skin before castration is of little benefit unless the area is scrubbed with soap several times before the antiseptic is applied. Cleanliness will be greatly aided if a bucket of warm water containing a disinfectant is available to rinse off the instruments and the operator's hands. The instrument should also be allowed to soak in the bucket between animals.

There are several good disinfectants available on the market, such as chlorhexidine (Nolvasan R), Lysol, and various quaternary ammonium preparations. Each has certain advantages and disadvantages.

Iodine is a good skin antiseptic but is corrosive to instruments. Kerosene, which has occasionally been used, has no disinfecting qualities, is hazardous and should not be used. Consult your veterinarian on specific disinfectants.

Surgical Procedure

Push the testicles into the upper portion of the scrotum. Using a knife or scalpel (Fig. 4), cut off and/or remove the lower one-third of the scrotum.

The preferred method for opening the scrotum is to push the testicles up into the upper portion of the scrotum. Then insert the knife into the side of the scrotum below the testicles. It should extend completely through the scrotum and out the opposite side. Cut the scrotum into two halves from there down. This type of incision will provide good drainage and is less likely to heal closed too quickly.

A third option for opening the scrotum is the **Newberry Castrating Knife** (Fig. 5), which is used to slit the scrotum from side to side to allow easy access for removal of the testicles. The scrotum can also be split a second time from the opposite direction. This type of cut improves drainage and reduces post-castration swelling. Use great care with any of these knives and techniques to avoid personal injury.

Fig. 4. Castrating knife.

Fig. 5. Newberry castrating knife.

Once the scrotum is opened, the next step is removal of the testicles. Use the fingers to press the testicles through the open portion of the scrotum. Firmly grasp the testicles while pushing back the connective tissue surrounding the cord to free it adequately.

On young calves, the testicle can be gradually pulled out until the cord breaks. On older calves, this may result in excessive bleeding or hernia development. The cord may be "scraped" to reduce these problems. This involves grasping the testicle and stretching the cord while scraping on the cord with a knife (be sure to scrape, NOT cut). This allows for the gradual separation of the tissues and vessels of the spermatic cord.

An **emasculator** is an option for removing the testicle in a surgical castration (Fig. 6). This instrument consists of a cutting blade to cut the cord tissue while at the same time crushing the blood vessels to control hemorrhage.

The scrotum is opened up as described previously. The cord is extended and the emasculator applied with the crushing jaw toward the abdomen of the calf. The use of the emasculator is especially important when castrating older calves. In mature bulls, the blood vessels should be tied off with a surgical gut suture before the testicle is removed.

The **Henderson Castrating Tool** is another tool designed for surgical castration (Fig. 7). It is designed to be more effective on older bulls.

Attach the Henderson Castrating Tool securely in a standard, variable speed drill. The scrotum is then opened by one of the previously described methods. With one hand holding the testicle, clamp the pliers of the Henderson tool across the entire cord, just above the large portion of the testicle. With slight tension on the drill and with the tool in a straight line with the cord, begin rotation very slowly. Increase speed slowly with slight tension on the cord.

The testicle will be removed after approximately 20 turns of the tool by twisting action. The same process should be followed for the other testicle. The main advantage for the Henderson tool would be to reduce blood loss through hemorrhaging.

Fig. 6. Emasculator.

Fig. 7. Henderson castrating tool.

Pain Management

When castrating bulls, care should be taken to minimize pain and suffering. This is not only the humane thing to do but will also pay dividends to the producer as calves experience fewer complications and recover more quickly. An increased sensitivity is needed as producers are marketing their beef animal products to a society that is increasingly critical of care given.

Operators should provide a stress-free environment and avoid over-crowding of animals. Work cattle quietly. Use sharp instruments to make quick, clean cuts. Proper disinfectants are recommended to reduce the chance of infection. A general rule to follow is to use the proper equipment in the proper manner on the right class of animal.

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