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TECHNICAL BULLETIN No.18

CASTRATION OF SHEEP AND GOATS



ESGPIP

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FOREWORD

This technical bulletin titled “*Castration of sheep and goats*” is the eighteenth in a series of technical bulletins produced by the Ethiopia Sheep and Goat Productivity Improvement Program (ESGPIP) as an extension support tool to improve the productivity of sheep and goats in Ethiopia.

Castration of sheep and goats is a management practice with important implications for breed improvement and market oriented production of sheep and goats. Farmers generally practice castration especially targeting the production of fatty carcasses required by the local market. Castration is, however, not practiced as a support tool to breed improvement. The methods of castration used are also painful to the animals and also predispose them to infections. The targeted use of castration and the different methods available to do it are presented in this technical bulletin.

Kebele Development Agents (KDA’s) should use this technical bulletin as an extension aid to use it as a support to genetic improvement efforts and also production of sheep and goats required by different markets.

At this juncture, I would like to thank all those involved in the preparation and review of this technical Bulletin.

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Chief of Party
ESGPIP

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CASTRATION OF SHEEP AND GOATS

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1. WHY CASTRATE SHEEP AND GOATS?

Castration is an important management practice for sheep and goat farmers to maintain control of their breeding program and successfully carry out breed improvement. Castration is the removal or destruction of the testes, epididymis and a portion of each spermatic cord from a ram/buck. In most cases, non-breeding males and males not slaughtered at a young age should be castrated.

Traditionally, farmers do not castrate animals and both males and females are allowed to run together. The result is that inferior males mate with females passing on undesirable traits and the young stock produced are not very productive. There are also other reasons for castrating sheep and goats:

- ✚ prevent breeding of related individuals (inbreeding) that can result in genetic defects, poor growth rate, and other problems (see Technical Bulletin 14 Genetic Improvement of Sheep and Goats at the Village Level);
- ✚ avoid unwanted pregnancies and the mating of young females before they are of adequate size and age for pregnancy and parturition.
- ✚ enhance on-farm safety for animals, producers and employees. Castrated animals are usually less aggressive and easier to manage.
- ✚ Reduce goaty smell: meat from castrated males has less 'goaty smell' or tainted odor in the meat from intact bucks.
- ✚ Carcass composition and weight development: This is one of the main effects of castration. In general, the following effects are noted:
 - carcasses from castrated sheep/goats have more fat tissue; and
 - castration could retard growth and reduce the quantity of lean meat if done late (after 6 months of age).

2. AGE OF CASTRATING SHEEP AND GOATS

Castration should take place at the youngest age possible since the stress of castration can adversely affect growth in older animals. Lambs/kids can be castrated as soon as the testicles descend into the scrotum (this can be from a few days of age to three weeks) and no sedation or pain killers are necessary if castration is done at this age. Castration becomes more difficult and painful with age and the chances of complications increase. Further, castration is accomplished more easily and the wound heals more quickly in very young animals. Castration should ideally be done at less than 3 weeks of age. Under Ethiopian conditions this is not usually the case. Many farmers prefer to

castrate male sheep/goats at a later age; in most cases after sexual maturity is attained (yearling to 2 years old). The reason given for this is that early castration can cause stunted growth, resulting in a lack of desired muscling and conformation, leading to a low market price. In Ethiopia there is a niche market for animals that are fattened to very high weight and condition.

3. HOLDING AND CONTROLLING ANIMALS FOR CASTRATION

Because good restraint is essential, castration requires two people. One person to hold the animal while the other one castrates. It is best to put young lambs and kids on a table covered with sacks or on baled hay. The person holding the animal sets it on its butt or tail in an upright position in his lap or stands or kneels behind the animal. He should then grasp the front and back legs at the knee and hock on each side, holding firmly. The animal should have its back to the assistant.

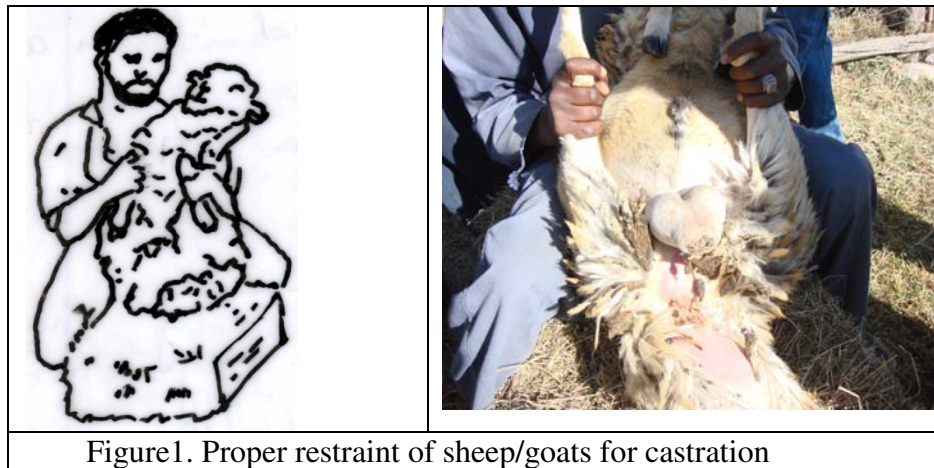


Figure 1. Proper restraint of sheep/goats for castration

4. METHODS OF CASTRATION

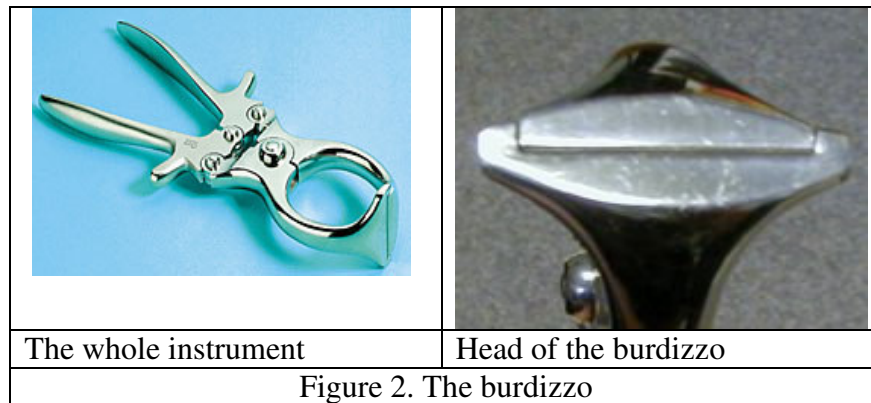
There are three commonly used methods of castration for sheep/goats: the Burdizzo method, the banding or elastrator method and the knife (surgical) method. The different methods are more suitable for different sizes and age of animals, e.g., the elastrator method being more suitable to very young animals. It is good to match castration method to size and age of animal.

4.1. THE BURDIZZO (EMASCULATOME) METHOD

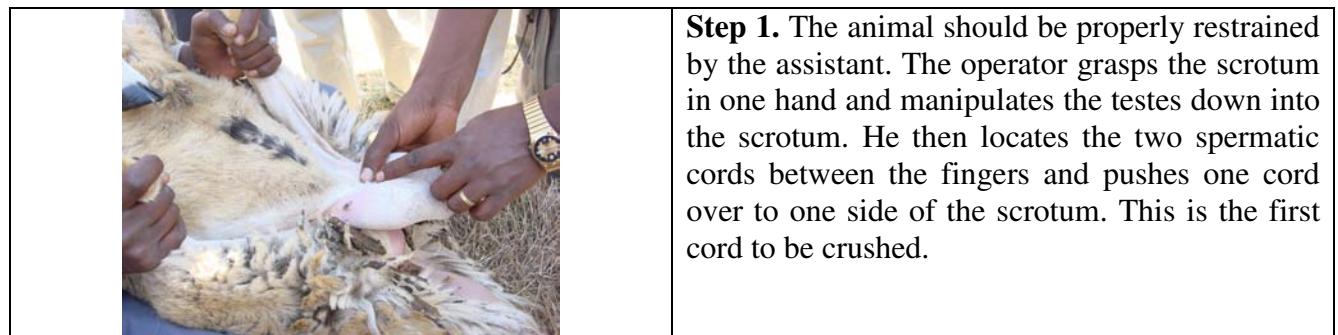
The Burdizzo is an instrument used to crush the spermatic cords and associated blood vessels leading to the testicles, thus destroying the blood supply for the testes. Without this blood supply, the testicles degenerate and atrophy. This method is known as a "bloodless" method since no cutting is done and when done properly even the skin is not broken. While no castration method is completely painless, the least painful is the Burdizzo method. Castration with this method can be done at any

time; but when done at a later age, it may bring about a temporary shock in growth. This is the recommended method for castration by non-health professionals.

The Burdizzo (Figure 2) must be in good condition. The jaws must be parallel and close uniformly across their width so pressure will be evenly distributed. Keep the Burdizzo clean and oiled. Leave it slightly open when not in use. There are Burdizzos for animals of different sizes. Use the right size of burdizzo for sheep and goats. The use of burdizzos meant for cattle can tear the scrotal tissue and cause undesirable wounds.



The following step wise procedures and figures show the castration of sheep/goats using the burdizzo.





Step 2. Place the jaws of the burdizzo onto the upper scrotum, leaving the rudimentary teats above the crushing point. Do not crush the septum or tissue between the testicles. Rather, do one side of the scrotum at a time.



Step 3. Clamp the burdizzo over the cord on the side of the scrotum you are doing first. You can generally hear a clicking sound as the cord is crushed. Leave the instrument closed for 20 to 25 seconds or the time it takes to count from one to 25. The spermatic cord is very elusive when you try to crush it. Be sure that you feel it within the jaws of the burdizzo before and after the jaws are closed. You can tug on the cord to see if it feels ruptured.



Step 4. Release the Burdizzo, move it lower to a new site about 1 cm closer to the testicles and close it again to be doubly sure that the cord is crushed. A site below the first crush is chosen to minimize acute pain from a second crush.

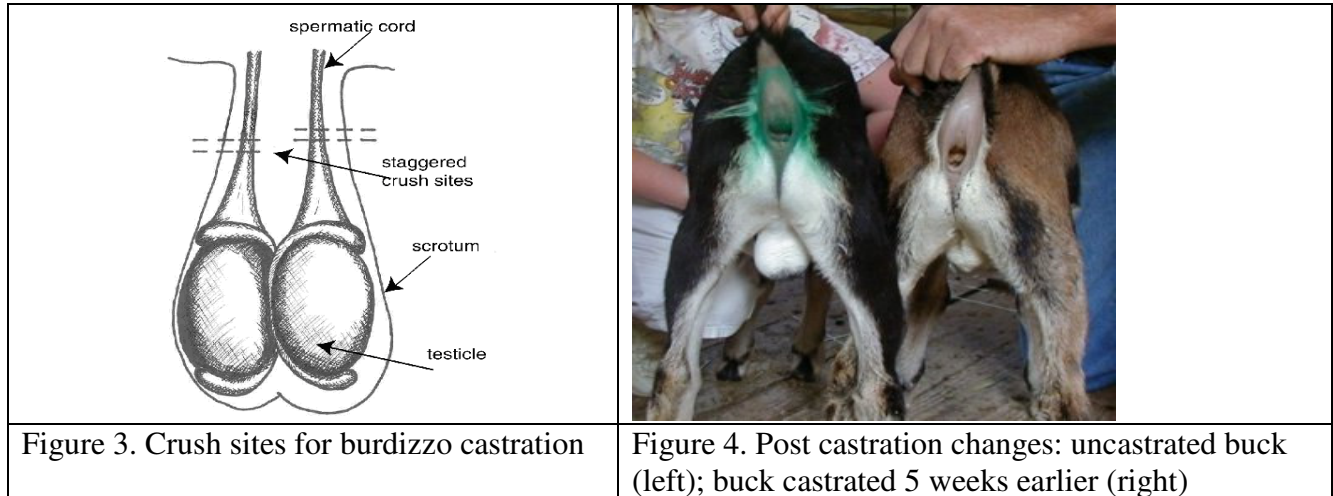


Step 5. Locate the cord on the other side of the scrotum and position the burdizzo over it. Close the burdizzo and repeat what you did with the first cord.



Step 6. When you are done, you may see a mark on each side of the scrotum. The animal may be sore and move slowly for about a day. Be sure to encourage it to move around. At first the scrotum will swell up a little, but the testicles will gradually shrink over the next few weeks leaving a small scrotal sac.

Even though this is supposed to be a bloodless method, it is possible to break skin with the corners of the burdizzo. Examine each crushed area carefully after castration. If the skin is broken, apply an antiseptic like alcohol. Also give an injection of tetanus antitoxin if available.



4.2. THE BANDING OR ELASTRATOR METHOD

This method involves cutting off the blood supply to the testicles with a heavy-duty rubber band or ring. Materials needed include an elastrator and castrating bands. An elastrator is a special applicator that stretches a heavy-duty rubber band and applies it to the neck of the scrotum. The scrotum and testes will fall off in two to 4 weeks, depending on the size of the testicles. This method is most effective for young animals whose scrotal tissues have not yet become well developed, preferably while they are 7 to 10 days of age and definitely before 6 weeks old. This is an easy method of castration provided a continuous supply of rings is available. When using the band for castrating, be sure to check that both testicles are in the scrotum below the band. Animals castrated by this method will have a female-like appearance because of early castration. One caution in the use of this method is the potential for tetanus to occur prior to the scrotum falling off. The risk increases with increasing age of animals castrated.



Figure 5. Elastrator tool used to apply rubber rings



Figure 6. Elastrator band (ring)



Figure 7. Inserting an elastrator ring onto the scrotum.

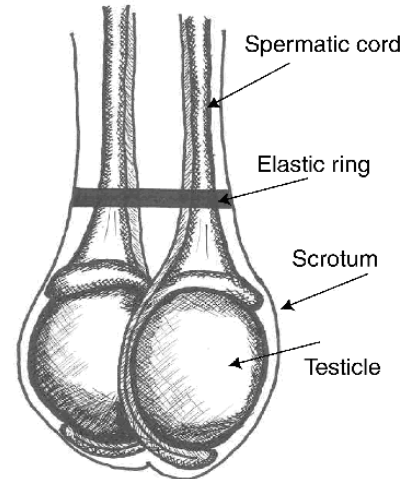


Figure 8. Proper placement of the rings.

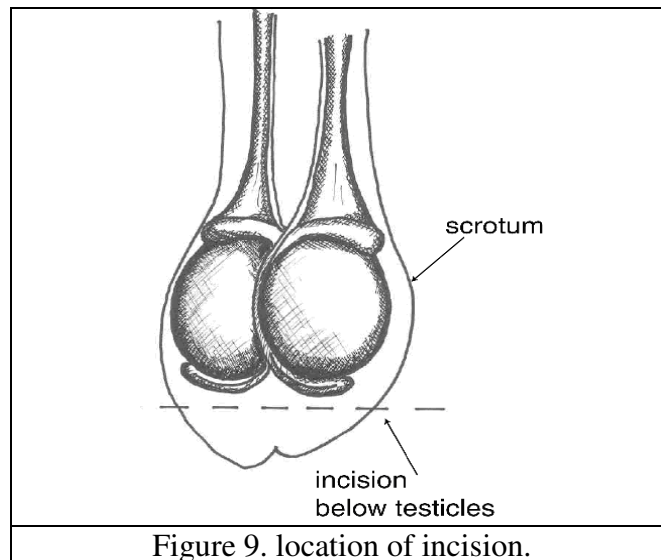
This method causes some stress to the animal due to the pain and discomfort experienced by the constricting band, especially for 10 to 15 minutes after the elastrator band is applied. Follow these procedures to castrate lambs/kids using the elastrator method:

- ✚ Do not use rings older than 12 months to avoid breakage and to assure a tight fit. The rings must be strong enough to cut off blood flow in the arteries as well as the veins. If not, the scrotum will swell.
- ✚ Restrain the animal as described above.
- ✚ Place a rubber ring over the prongs of the elastrator. Hold the elastrator with the prongs facing up. Close the handles to open the band. The scrotum and testicles are then passed through the expanded hole of the band. Position it as close to the animal's body as possible, with care taken not to place the band over the rudimentary teats or involve the penis.
- ✚ Release the elastrators displacing the ring from the prongs, thereby positioning the band. The band will return to its original shape cutting off circulation to the testicles and eventually causing all of the tissue below the band to die and fall off.
- ✚ Check to be sure both testicles are still in the tip of the scrotum and that the ring is placed properly (Figure 8). If not, cut the ring with scissors and repeat the procedure.
- ✚ Administer an injection of tetanus antitoxin. Even though this is a bloodless procedure, the tetanus organism can gain entry through the irritated tissue around the rubber ring.
- ✚ Check daily to be sure that the rubber band is still around the neck of the scrotum and for signs of infection.

4.3. THE KNIFE METHOD

The testicles may be surgically removed. Materials needed include a clean and sterile sharp knife, a one-sided razor blade or a scalpel, warm water; disinfectant (iodine can be used), syringes, tetanus antitoxin and a fly control spray designed to be sprayed on open wounds. Bucks and rams older than 6 months may need to be sedated prior to castration using a knife. To perform a knife castration, follow these procedures after the animal is restrained by the assistant.

- ✚ Begin by washing your hands and instruments (knife or scalpel) thoroughly with soap and water and then disinfectant. Next, wash the scrotum thoroughly and disinfect it. Do not excite the lambs/kids before or immediately after castration. This will increase bleeding.
- ✚ Push the testicles high up into the scrotum. Cut off the bottom one-third of the scrotal sac with a cut parallel to the ground. The testes should now be visible. Manipulate each testis separately to the open end of the scrotum. It may sometimes be necessary to push on the abdomen if a testicle has been pulled deep into the abdomen.



- ✚ Grasp one of the testes using your fingers. The testes are slick and difficult to hold, so grasp firmly or use clean gauze to grip the testicles. Do not allow the testis or spermatic cord to slip out of your hands and go back up into the scrotum once you have touched it nor insert your fingers into the cut area. This will increase chances of infection. With constant tension on the testicles, move your fingers up and down over the spermatic cord to weaken and break it. This will help decrease blood loss.

- In young kids (less than 4 or 5 weeks) pull down away from the body firmly, but steadily until the cord breaks.
 - In older kids or adults, instead of pulling the cord, use the knife or scalpel to sever the cord. Do not cut the cord cleanly; instead scrape it with the blunt side of the knife until it is severed from the body of the lamb/kid. This will result in less bleeding. Repeat the above procedure for the other testicle. If an emasculator (a crushing and cutting tool) is available use it on older rams or bucks.
- ✚ If a segment of the spermatic cord is protruding below the cut scrotum, it must be removed. It will attract bacteria into the body cavity and cause infection. Pull it free or abrade it with the knife. The bottom of the scrotum should remain open to allow for drainage after castration.
 - ✚ Apply antiseptic to the castration site. Spray the wound with the fly control spray and administer an injection of tetanus antitoxin.
 - ✚ Place the lamb/kid in a clean, draft-free pen. Keep the animal out of mud and rain. Exercise will help keep any swelling down so try to avoid confinement in a tiny area. Check for excessive bleeding during the next 24 hours. Check daily for the next week for signs of infection or swelling. The wound is allowed to drain and heal naturally which will normally occur in one or two weeks.

While this method is the most reliable and least expensive method of castration, it is the most painful and also has the greatest potential for infection and fly infestation. It is essential that proper aseptic technique is used when castrating by the surgical method. It is not advisable for non-health professionals to use this method of castration.

5. WHAT CAN THE DEVELOPMENT AGENT DO?

- Train farmers on the need for early castration of sheep and goats that are not selected for breeding purposes;
- Demonstrate the methods of castration described in this technical bulletin and advise them to use these methods instead of the more painful traditional methods;
- Organize farmers to collectively purchase and own a burdizzo for castrating sheep and goats whenever the number of sheep and goats owned doesn't warrant purchasing the equipment individually.