



Project: Technical assistance to improve implementation of food safety standards and disease crisis preparedness

## **The killing of sheep and goats in case of FMD**

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- General overview
- Purpose for killing of sheep and goats
- Depopulation
  - Depopulation plan
  - Depopulation report
  - Handling of the animals
- Stunning and killing of sheep and goats
- Safety

# How should be used the SOP



This SOP will be used by **member staff** of the CDCC, LDCC and EG and all others involved in the implementation of killing measures in affected establishments.

Where?

1. 'central disease control centre' – CDCC
2. 'local disease control centre(s)' – LDCC
3. expert group/s – EG, - operational on request of the CDCC or LDCC.



Following the 'official' confirmation of FMD outbreak in an establishment, the LDCC shall immediately start the planning of the depopulation of the susceptible species.

- **all animals** of susceptible species kept in the affected establishment shall be killed as soon as possible on the spot, within the establishment, in such a way as to avoid any risk of spreading a listed disease agent during and after killing;
- **stunning is compulsory** in all cases and the kill should be done as soon as possible so that death is painless;
- for **biosecurity considerations**, infected animals should be killed first, followed by in-contact animals, and then the remaining animals;
- **young animals** should be killed before older animals;
- the risk of spread of disease to **other premises** must be minimised during the culling on farm;
- the risk of spread through the **wild animal population** (e.g., feral pigs and wild boar), pests (e.g., rodents, birds and insects) and domestic animals (e.g., pet animals and stray animals);



- **stunning and killing** must be carried out **by workers** with an appropriate level of competence who are trained or have sufficient experience;
- it is important that **animal welfare** is observed and that rules are complied with at all stages in the process of depopulation;
- depopulation should take place as soon as possible, with the **depopulation goal of 24-hours or less (if possible)**;
- for the purpose of sound planning and organizing of the depopulation, **each premise is evaluated individually**, considering epidemiological information, housing and environmental conditions, currently available resources and personnel, and other relevant factors;
- there should be **continuous monitoring** of the procedures by the veterinary specialist to ensure they are consistently effective regarding animal welfare, operator safety and biosecurity;

# The purposes of SOP



The purpose of SOP is to provide a guideline for: the CDCC, LDCC and EG 'officials' on conducting the killing of animals in case of an outbreak of FMD.





The depopulation plan should be drafted **in accordance with Annex 1 part 1** and it shall contain, at least the following elements:

- the **ID number of farm** and susceptible animals, by type and age category;
- sketch/**map of the farm** where the killing of animals should be carried out;
- **list of appropriate equipment**, mechanization and means of transport to realize this activity;
- **list of material** and **human resources** needed for the realization of the activity;
- the **precise time** frame for realization;
- the most appropriate method for **euthanasia and depopulation**;
- number of teams and their composition;
- **PPE** and other consumables;
- the **cost** of activities;
- **manipulation** and movement of animals;
- **biosecurity** measures;
- the **health and safety of the killing staff**;
- and **other** issues depending on case by case basis



The **team leader/s** of the depopulation team responsible for depopulation should prepare a report **for each establishment** where **the animals** were killed. This report should contain:

- ✓ **status of the killed animal** (contact, positive result, suspicious);
- ✓ **number, type and category** of killed animals;
- ✓ **methods** used for stunning and killing;
- ✓ **remarks**;



# Handling of the animals during the killing



The **killing of the animals** can start **after the approval of the depopulation plan.**

The team should mark out the culling area and designate it as “**High Risk**” or the “**RED**” zone.

**Depopulation activities should be performed quickly and correctly in the following order:**

- assessment and evaluation of the condition and the necessary time for performing the activity of the farm;
- examination of animals and review and completion of documentation for epidemiological investigation;
- the killing of animals at the farm;
- safe loading and channelling transport of the carcasses;
- safe removal of carcasses.

# Handling of the animals during the killing



Regarding the location of the killing, the following should be taken into account:

- available **space**;
- **staff safety**;
- **animal safety** and **welfare**;
- accessibility and proximity to the location where the corpses will be **removed/loaded**;
- the **risk to public safety**;

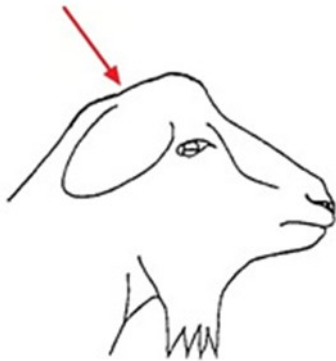


Both sheep and goats are **herd animals**, they like to **stay within their group** and to follow one another, and particularly the leader of a group. When **separated** from their group, they become **anxious**.

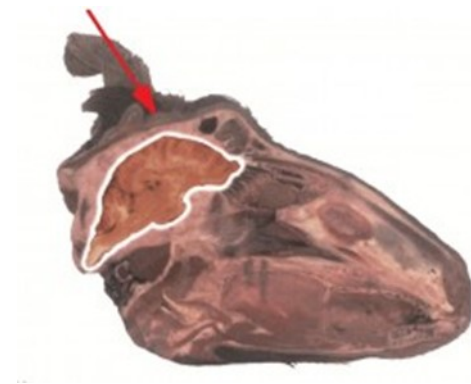
- **Dairy sheep and goats** are used to people. They are used to being handled directly and are usually easily led;
- Sheep and goat kept for **meat (and wool)** may not be used to people. They will be more anxious around people;
- **Rams and bucks** can be unpredictable and can knock down handlers. You should be very careful when handling and restraining them;
- **Doe and nanny goats and ewes** can be agitated and aggressive if you try to separate them from their offspring. There is a risk that they knock over their handlers;
- **Lambs** and (to lesser extent) **kids** can be agitated if separated from their mother.

## Captive bolt stunning

- All goats should be treated as though they have horns.
- Therefore, the muzzle of the stunner should be placed behind the bony mass on the mid-line and aimed towards the base of the tongue.
- The reason for this is that the large, bony mass on the top of the skull will absorb much of the energy from the bolt and may prevent bolt penetration through to the brain cavity.



Stunning position - Goats

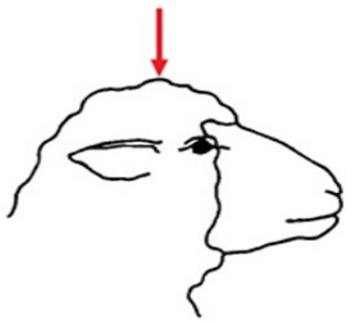


Cross-section

## Captive bolt stunning

The correct position for stunning sheep depends on whether the animal is polled (hornless) or horned.

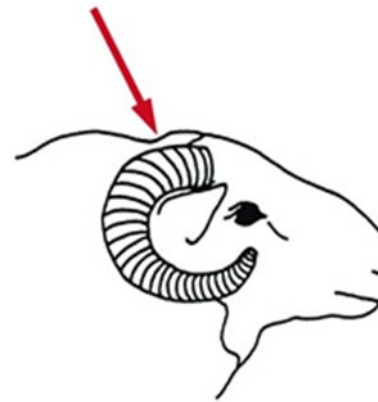
- **For polled sheep**, the muzzle of the stunner should be placed on the highest point of the head, and on the mid-line, aiming straight down
- **For horned sheep**, the muzzle of the stunner should be placed on the mid-line, behind the ridge between the horns, and aimed towards the base of the tongue.



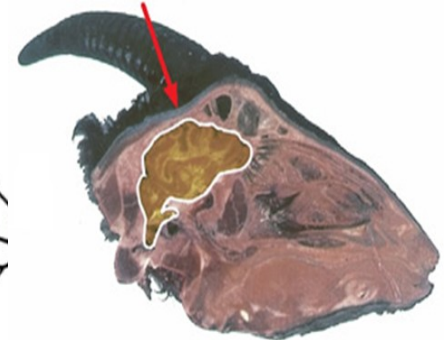
Stunning position -  
Polled sheep



Cross-section



Stunning position -  
Horned sheep

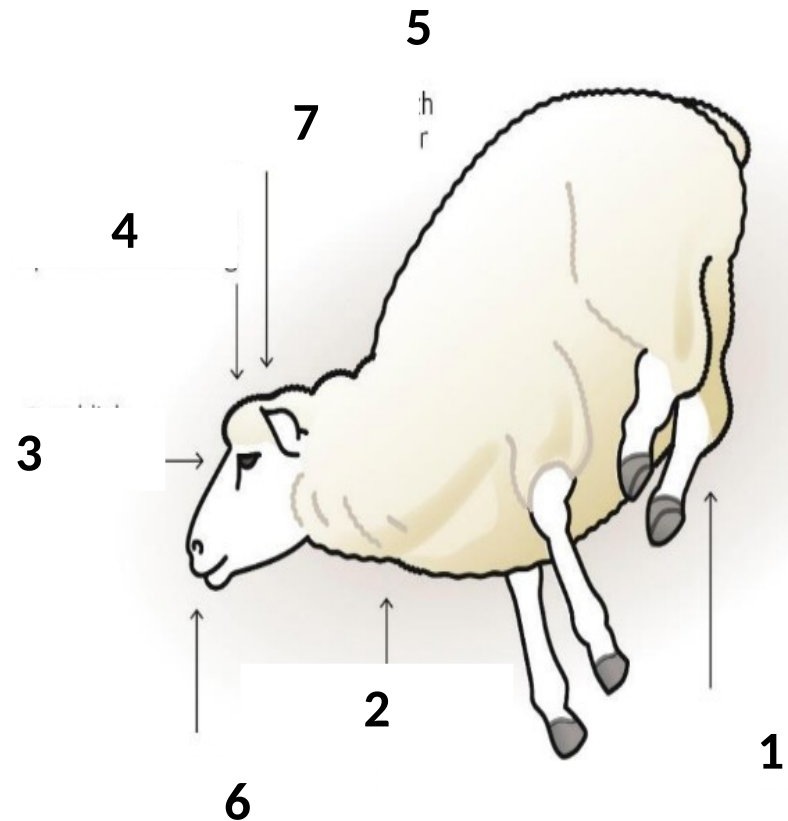


Cross-section



# Verification of stunning

1. The animal's legs are initially stiff and extended ("tonic phase"), followed by twitching and or kicking ("clonic phase")
2. The animal is not breathing regularly
3. The animal's eyes do not blink when touched with a finger
4. The animal's eyes have a fixed, glazed expression / spontaneous blinking
5. The animal has collapsed and does not attempt to right itself or lift its head
6. The animal is not making any noise
7. The animal does not respond to any pinch or prick on the nose or ear



*Signs of loss of consciousness in sheep and goats*



In order to confirm that the kill has been effective, **you should check** that:

1. pupils are dilated;
2. the animal is not breathing regularly;
3. the animal's body is relaxed;
4. there are no spontaneous movements;
5. the animal does not respond to any pinch or prick on the nose or ear;
6. the animal has collapsed permanently;
7. the animal is not making any noise;
8. there is no heartbeat; there is no pulse;
9. there is no agonizing panting;
10. bleeding has stopped.

# Safety - Inbuilt safety features



Captive-bolt stunning equipment is potentially lethal to the operator. However, the equipment includes a number of inbuilt safety features:

1. The bolt is 'captive' within the barrel of the stunner, rather than a free bullet which could ricochet around the slaughter hall;
2. Recuperator sleeves automatically return the bolt to its pre-firing position. This prevents it from becoming embedded in the animal's head and reduces the possibility of the operator being dragged down as the animal falls;
3. The double 'rolling block' action necessitates at least two positive actions by the slaughterman before it is possible to fire;
4. Most trigger-fired stunners have anti-drop mechanisms which prevent them firing if accidentally dropped, even when fully cocked;
5. There is a need for positive action from the 'safe' position on contact-fired equipment.



Penetrating captive bolt ([Schermer KR Stunner Standard Bolt](#))



Captive Bolt, Pistol-Style Stunners ([Extended Bolt Stunner](#))





The stunning equipment should be used in accordance with the provided instructions for the safe and proper use and maintenance of the equipment. Following procedures should be observed:

- When handling captive-bolt equipment, during and on completion of loading, the muzzle of the stunner must at be pointed away from any part of the operators, or any other person's, body at all times;
- Refer to the manufacturer's instruction sheet for the correct loading procedure and the correct cartridge size. Avoid repeated use of too heavy a cartridge, or air shots, which can result in the bolt shearing and flying free of the stunner;
- Captive-bolt stunners should always be handled as if they are loaded;
- Once the stunner has been loaded, ensure that the mechanism is in the 'safe' position until an animal is ready to be stunned;
- Never leave a loaded stunner unattended



- In the event of a misfire, do not open the stunner breech for 30 seconds. Sometimes slow primer ignition will cause a 'hang fire' and the cartridge will explode after a short pause;
- At the end of the day's kill, return the stunner to the person appointed to carry out the daily cleaning procedure;
- Make certain the stunner is unloaded before cleaning;
- Immediately report any faults in the operation of the stunner to the person responsible for maintenance and do not use the equipment until the fault has been rectified;
- When not in use, ensure that captive-bolt equipment is stored securely at all times.

The captive-bolt stunner is a dangerous firearm, never point the muzzle of a stunner at yourself or anyone else.



- The ability of captive-bolt equipment to deliver an effective stun is mainly dependent on the velocity of the bolt.
- Lack of regular maintenance can significantly reduce bolt velocity and the efficiency of stunning.
- Captive-bolt stunners should be dismantled, cleaned and lubricated after use even if they are used only a few times in the day, or even less frequently.
- Back-up equipment must also be regularly serviced, even if it has not been used.
- The continual use of the captive-bolt, as occurs on a busy line in a slaughterhouse, causes comparatively less build-up of carbon than sporadic use for the same number of shots.



The most common reasons for poor performance of penetrating captive bolt devices include:

- Failure to service and clean the device after use;
- Failure to properly store cartridge charges in a cool and dry location;
- Failure to replace damaged parts as needed



## **Part 1 - Form for depopulation plan**

- Depopulation plan for establishment
- Depopulation plan for village/settlement

## **Part 2 - Form for the report for depopulation**

- Report for depopulation of establishment
- Report for depopulation of village/settlement



# Annex 2 - Summary check list 1

Feature	Check
General	
Depopulation plan is approved by the CDCC	
Sufficient PPE equipment	
Stunning and killing equipment is available and in good operability	
Back up stunning and killing equipment is available	
Mechanization and transport vehicles are available	
Staff from the composed teams are available	
Clear hierarchy is established	
Staff are well trained and informed about the procedures and using of equipment	
Farmer is well informed about the procedures on the farm	
Animal welfare	
Inspect and test equipment before use	
A working back-up stunner must always be immediately available at the point of stunning	



# Annex 2 - Summary check list 2

Feature	Check
Follow safety procedures	
The correct type of stunner	
The correct cartridge or air pressure	
The correct shooting position	
Signs of an effective stun	
Animal collapses	
No rhythmic breathing	
Fixed, glazed expression in the eyes	
No corneal reflex	
Relaxed jaw	
Tongue hanging out	
Bleed immediately after stunning	
Clean and maintain the stunner after use	



## Local legal texts:

1. Legal text on Animal Health 41-2012 <http://veteriner.gov.ct.tr/Mevzuat>
2. Instruction for the animal diseases control program  
<http://veteriner.gov.ct.tr/Mevzuat>

## EU legislation:

3. Council Regulation (EC) No 1099/2009 of 24 September 2009 on the protection of animals at the time of killing (Text with EEA relevance) OJ L 303, 18.11.2009, p. 1–30 (BG, ES, CS, DA, DE, ET, EL, EN, FR, IT, LV, LT, HU, MT, NL, PL, PT, RO, SK, SL, FI, SV)  
*Special edition in Croatian: Chapter 15 Volume 007 P. 223 – 252*  
<https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009R1099>
4. COMMISSION DELEGATED REGULATION (EU) 2020/687 of 17 December 2019 supplementing Regulation (EU) 2016/429 of the European Parliament and the Council, as regards rules for the prevention and control of certain listed diseases  
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32020R0687&qid=1638809318232>





3. European Commission, Directorate-General for Health and Food Safety, *Preparation of best practices on the protection of animals at the time of killing: final report*, Publications Office, 2017,  
<https://data.europa.eu/doi/10.2875/15243>

## Other resources:

1. OIE Terrestrial code - CHAPTER 7.6. KILLING OF ANIMALS FOR DISEASE CONTROL PURPOSES  
[https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=1&htmlfile=chaptre\\_aw\\_killing.htm](https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-code-online-access/?id=169&L=1&htmlfile=chaptre_aw_killing.htm)
2. Humane slaughter Association [www.hsa.org.uk](http://www.hsa.org.uk)



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# THANK YOU FOR YOUR ATTENTION



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