

LIVESTOCK HANDLER TRAINING MANUALS

MODULE 3: SEASONAL PLANNING

Wound management



Maintaining the skin as the primary barrier to disease infection.

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Developed by Dr Danie Odendaal

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INTRODUCTION

This manual forms part of Afrivet's series on primary animal health care (PAHC) for small stock and has been developed to help the veterinarian, animal health technician, livestock owner and livestock handler to understand the methodology used when implementing PAHC and production management.

These manuals are ideally suited as practical training aids for training livestock handlers in the principles of planned production management, disease prevention and early disease identification.

The information contained in this manual is a summary of the material used by Afrivet Training Services for the formal training of animal health technicians, extension officers, livestock farmers and livestock handlers.

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Early identification and treatment of wounds and general infections will determine successful healing

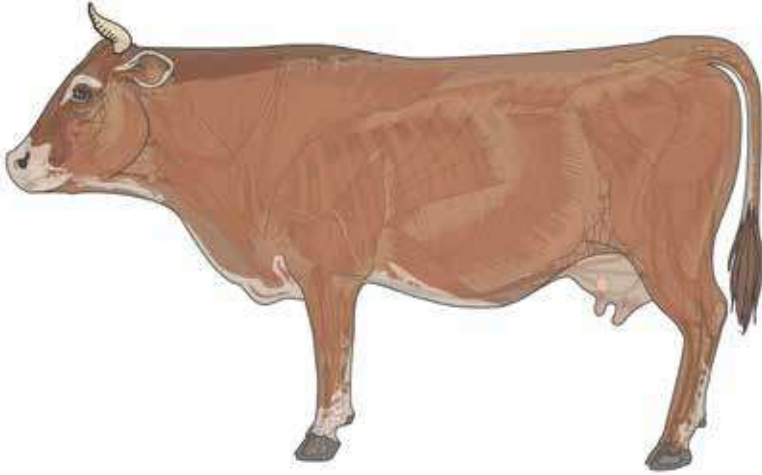
General wounds and infections occur regularly and therefore can be neglected easily.

However, early basic treatment can lead to faster healing and/or preventing the disease condition from becoming serious and resulting in severe losses.

Do not neglect any wound or general bacterial infection because it will affect the welfare of animals. Animals with neglected wounds are a sure sign of bad management.

Any break in the skin or general sign of infection must be treated immediately and until healed completely.

The skin – protecting the outside of the body



- The skin is the largest organ of the body and covers the outside of the whole body.
- The skin is made up of very tough cells that protect the body against injury.
- The skin is also very sensitive to touch, allowing the animal to react and move away to prevent injury.
- The skin is covered with hair or wool that helps regulate temperature, protecting the body against heat and cold.
- If the skin is healthy and unbroken (intact) it will stop germs, such as bacteria, from invading and multiplying in the body.



The environment is contaminated with millions of germs (bacteria) that will infect the body as soon as the skin or inner lining is broken owing to an injury or specific diseases.

Lining or mucous membrane – protecting the inside of the body by lining internal organs

- The lining (mucous membrane) covers the inside of the body and its organs, such as the inside of the eyes, mouth, intestines and respiratory tract.



- In a healthy animal, the mucous membrane is smooth and light pink, or pink and moist.
- It protects against germs ingested with food or water or inhaled when breathing.
- Any wound in the lining allows disease-causing bacteria to enter and infect the body.
- Some nutritional deficiencies, such as a vitamin A deficiency, weaken the lining and make the animal more susceptible to infection through the mucous membranes.

General resistance against bacterial diseases

The skin and lining of inside organs form the first level of protection against disease-causing organisms.

Any lesions (break in the skin or lining) must be regarded as an entry point for these organisms and therefore immediate identification and wound treatment (both external and internal) are very important.

Types of wounds and general bacterial infections

There are many examples of bacterial infection when the body is not properly protected by an intact skin or lining of the internal organs. Here are a number of examples.

Superficial skin wounds

A superficial wound is where the skin has been damaged by injury or parasites with the extent of the wound clearly visible.



Abscesses

An abscess is where there was a very small skin wound that allowed bacteria to enter the tissue underneath. This small wound heals but the bacteria multiply in the tissue under the skin. This process is not visible apart from the swelling or lump that is formed.



Deep wounds

The skin is broken but the wound extends into the deeper layers of the body such as in or between the deep muscles, organs or organ cavities. The full extent of the injury and/or infection is not visible and it cannot be treated superficially.



As soon as there is an injury, wound or bacterial infection, the body will react to initiate the healing process. This causes inflammation and wound healing.

Eye infection

The normally clear parts of the eyeball and inside eyelid get infected and some outward signs of disease can be observed as the body starts to react.



Hoof infection

If the skin between the hooves becomes soft owing to ongoing wet conditions, it can be easily injured by stones and become infected. Ticks can also cause a break in the skin, providing an entry point for bacteria and the start of infection.



Internal infection

The internal respiratory, digestive and reproductive tracts can be infected by bacteria if the lining is damaged. Specific signs of disease can be observed if the daily observation card (DOC) is used effectively.



Secondary infections

Specific viral diseases, such as lumpy skin disease and bluetongue, cause lesions in the skin or lining, providing an entry point for bacteria resulting in a secondary bacterial infection which can lead to pneumonia, for example.



All general bacterial infections have one thing in common. If observed early, they can be treated effectively with an antibiotic and correct actions.

Certain bacterial infections cause specific diseases such as black quarter and pulpy kidney. These diseases are not considered general infections and are discussed in separate training modules.

Treatment options

There are four basic treatment options available over the counter to livestock owners:

1	Ectoparasiticides
2	Endoparasiticides
3	Antibiotics
4	Combination products
Other treatments and products are available from a veterinarian on prescription.	

Antibiotics

- Antibiotics are a range of products that kill the invading bacteria or stop their multiplication.
- Those available without a veterinary prescription normally suppress the multiplication of bacteria. It is therefore essential to give treatment at the first signs of disease for it to be effective.
- Most antibiotics for livestock are injected, but there are also antibiotics for wound treatments available in an ointment, powder or spray formulation.
- There are also antibiotics in a special formulation that can be used for infection of the udder (mastitis).
- Antibiotics are very sensitive to light and heat, which break down the product, making it ineffective.

Antibiotic spray for wound treatment

These products are specifically formulated for use on infected superficial wounds. These antibiotics will only work against bacteria on direct contact.



Antibiotic injection for protection of the whole body

These products are formulated to be injected under the skin or into the muscle (*See training module for the correct handling and application of injections*).

They are absorbed in the bloodstream and distributed throughout the body to the infection site.



After injection, it takes some time for the antibiotic to be taken up by the bloodstream and distributed throughout the body.

In this way it reaches the areas where there are infection as well as the bacteria present in the blood.

Use a combination of products for the treatment of wounds. There can also be dirt and external parasites such as blowfly maggots that enter the broken skin. On the following page the use of antibiotics in combination with other products is discussed by using superficial wound treatment as an example.

Wound development

- Injuries, tick bites or other causes that break or damage the skin will lead to a wound. This exposes the underlying tissue which is normally sterile (not exposed to germs).
- Germs immediately enter the wound and start multiplying in the blood and flesh as it provides a good food source for the bacteria.
- Because the farmer does not have the equipment to close a wound like the veterinarian, it must be treated as an open wound until it is healed completely.
- The most important precaution is to stop blowflies from complicating the infection. These flies will lay eggs in the wound. Maggots (larvae) hatch within hours and start feeding on the host's tissues, progressively deepening and extending the injury. Besides the digestive enzymes, larvae also release toxins that prevent wound healing. Blood and pus attract other flies, which further complicates the wound infection.
- If a wound is severely infected by bacteria, the animal can become ill.

Basic wound treatment

- Soften and clean the wound by washing it with saltwater or a disinfectant such as iodine. Clean it with a sterile gauze swab.
- Stop the infection by applying a wound spray that contains an antibiotic that will suppress or kill the bacteria in the wound.
- Keep the wound soft by spraying wound oil on or around the wound for faster healing. Repeat every day until the wound is healed.
- The antibiotic spray and wound oil stop further contamination of the wound by bacteria and blowflies that lay eggs in the wound.



ent and treatment



Advanced wound treatment

If the wound is very deep and/or already rotten and infested with maggots, more intensive treatment is needed.

First, inject the animal with a tetracycline antibiotic (eg Ultratet).

This antibiotic will go through the bloodstream to the wound to kill bacteria deep inside or bacteria that have already entered the bloodstream. Repeat this injection after two to three days if the wound is still open and infected.

Give an ivermectin injection (eg Ecomectin) for rotten wounds that were not treated timeously and are full of maggots. The ivermectin will go through the bloodstream to the wound and kill the maggots hiding deep in the wound and/or under the loose skin around the wound.



Abscesses – signs of disease, closer examination and treatment

First sign of disease

A swelling under the skin that grows bigger over time. One of the typical places where abscesses develop is below the ear, as illustrated in the picture. These abscesses are caused by tick infestation in the inner ear.



Closer examination

The swelling can be hard and warm or can have a soft point.

If an abscess does not have a soft point it cannot be treated (drained) and if you cut into the abscess at this stage it will just bleed.



Please note: Not all swellings under the skin are abscesses. Depending on where the swelling occurs it can be an abscess or swelling owing to another reason such as a hernia or bleeding under the skin.



Treatment

- 1 If the swelling is still hard, it cannot be treated and must be left and monitored until it becomes soft. Do not inject an antibiotic at this stage because it will stop the abscess from becoming “ripe” and ready to be drained.
- 2 If there is a soft point on the swelling, push a syringe with a thick needle into the swelling to see if puss or other fluid can be extracted.
- 3 If clear fluid, blood or dung comes out of the needle, do not cut into the swelling because it is not an abscess. In this case consult a veterinarian.
- 4 If it is puss (yellow), cut it open over the soft point at the lower end of the abscess and drain into a plastic bag.



- 5 Flush the abscess with salt water, diluted iodine or peroxide.
- 6 Cut a second hole in the skin a few centimeters away from the first drainage hole and thread a sterile gauze bandage strip through and tie it on the outside.
- 7 Keep the gauze in place for a few days for the wound to drain completely and then remove for the cuts to heal.
- 8 After draining the abscess, treat it as an open wound to prevent further contamination.



Inject an antibiotic (after draining the abscess) to protect the animal while the abscess is healing.



Prevention of wounds and damage to the skin and inner lining of the organs

Maintaining good skin health

The maintenance of good skin health and a healthy inner lining is part of improving general disease resistance, which is the first approach to disease prevention.

1. Increase general resistance

Vitamin A and zinc supplements during deficiency are essential to maintain the good health of these structures.



2. Increase specific resistance



3. Decrease exposure

A good example of decreasing exposure to disease-causing factors is treating the navel wound of newborn calves. In many cases, calves are borne in heavily contaminated areas, exposing them to disease-causing organisms that can contaminate the soft navel wound.



4. Avoid exposure

Reduce exposure by applying a long-lasting disinfectant such as iodine to the wound to prevent disease-causing organisms from entering the bloodstream of the newborn through the navel wound.



Alternatively, ensure that animals don't give birth in heavily contaminated areas.

Good handling of animals

- Because the skin is sensitive to touch, animals will immediately step away from something touching the skin or causing pain, thus preventing wounds.
- When animals are handled in a kraal or crush pen they cannot avoid sharp objects in the handling facility because they are being herded in a close group.
- This can cause wounds, and therefore handling facilities must be inspected before animals are let into these facilities. Ensure that there are no sharp points or edges that can break the skin and cause wounds.



Other situations that can damage the skin or inner lining of organs

- Sharp points on or around the feeding trough can cause wounds and abscesses around the head and neck.
- Sharp points in very coarse feed can cause wounds in the mouth and digestive tract.
- Hitting animals with heavy sticks and other objects causes bruising, bleeding and inflammation under the skin and between muscles. These bruises heal by forming hard connective tissue that will affect the quality of the meat.

Never beat or hit animals with a stick or metal pole. This is a severe transgression and amounts to animal cruelty.

TREATMENT OF BACTERIAL INFECTIONS USING ANTIBIOTICS

ULTRATET LA

Reg No. G2857 (Act 36/1947)
NSO V01/18.1.2/307

Oxytetracycline 230 mg/ml

Treatment of tick-borne gallsickness (anaplasmosis), heartwater, pneumonia, footrot, joint-ill and navel-ill in cattle, sheep, goats and pigs.

Withdrawal period:

Meat: 28 Days

Milk: 5 Days

Administration: IM or SC



Registration holder: ECO Animal Health Southern-Africa (Pty) Ltd Co.
Reg. No.1992/000835/07



Packaging available

100 ml, 500 ml

 1 ml / 10 kg  1 ml / 10 kg  1 ml / 10 kg

FUTASPRAY

WOUND TREATMENT

Reg No. G2715 (Act 36/1947)

Chlorhexidine gluconate 100 mg / Cetrimide 1,0 g / Gentian violet 500 mg

Antibacterial and fungicidal wound spray with gentian violet, for the treatment of wound and skin infections.

Withdrawal period:

Meat: None **Milk:** None



Registration holder: Oloff Trust (Co. Reg. No. 1211/85).



Packaging available

400 ml

EXPEL WOUND SPRAY

WOUND TREATMENT

Reg No. G3245 (Act 36/1947)

Resins and Oils 99,39 % m/m / Germicide 0,51 % m/m / Deltamethrin 0,10 % m/m

A multi-purpose remedy which effectively controls and prevents screw-worm/blowfly strike, promotes healing and kills ticks present at time of application.

Withdrawal period:

Meat: None **Milk:** None



Registration Holder: Afrivet Business Management (Pty) Ltd. Co Reg No 2000/011263/07



Packaging available

300 ml