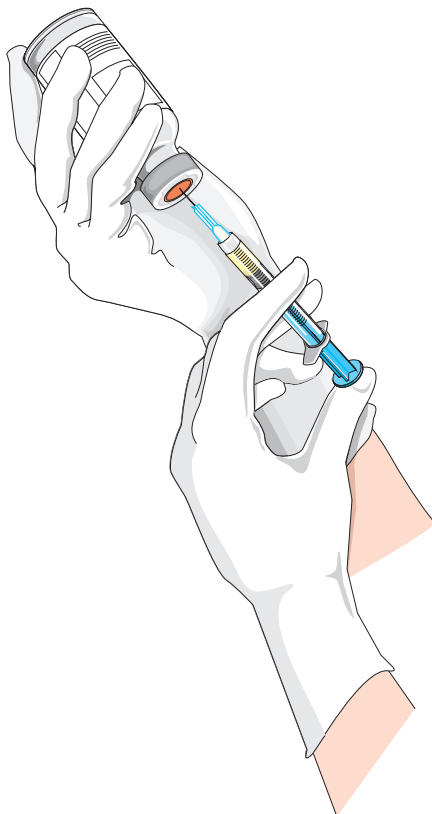




Goats: vaccination programme

Goats are susceptible to a number of diseases. This programme is only an indication of the type of vaccinations that should or can be given to goats. To determine if it is necessary to use a specific vaccine, various factors have to be taken into account, such as area, the diseases which occur in your area and the management system. Whether the animals are kept in intensive farming systems is another important consideration. Consult your local veterinarian if you have questions about specific vaccinations.



Vaccination programme

Month	Essential vaccines	Optional vaccines
January Kids (4–5 months of age) Weaning Adult animals	Epididymitis (male goats) <i>(Brucella melitensis)</i> Enterotoxaemia (oil vaccine)	Quarter evil (1st inoculation) Botulism (1st inoculation) Anthrax (only if the disease occurred in the area during the last 5 years)
February Adult animals (4–6 weeks before breeding season) Kids (5–6 months old)	Enzootic abortion <i>(Chlamydia)</i> Enterotoxaemia (oil vaccine or alum vaccine)	Blue udder Wesselbron disease (if not immunised before) Rift Valley fever Rift Valley fever Wesselbron disease Quarter evil (2nd inoculation) Botulism (2nd inoculation) Anthrax (only if disease occurred in the area during the last 5 years)
March From 15 March Breeding season		
April/May All animals		Botulism Pasteurella Quarter evil
June Adult animals (not immunised before) (6–8 weeks before kidding) All animals	Tetanus (if kids are castrated using rubber ring) (1st inoculation) Vitamins A, D, E Deworm	Blue udder (1st inoculation)

Vaccination programme

Month	Essential vaccines	Optional vaccines
July Adult animals (not immunised before) (2-4 weeks before kidding)	Tetanus (if kids are castrated using rubber ring) (2nd inoculation) Vitamins A, D, E Pasteurella	Blue udder (2nd inoculation)
Adult animals (2-4 weeks before kidding)	Tetanus Pasteurella	
August Kids (2 weeks old)		Pasteurella Vitamins A, D, E Heartwater (in heartwater area)
September All animals	Enterotoxaemia (alum) Deworm	Pasteurella
Kids (6 weeks old)		Pasteurella
October All animals	Deworm	

Remarks

- **Bluetongue** rarely occurs in goats as severely as it does in sheep, and therefore is not mentioned in this list.
- **Rift Valley fever** and **Wesselbron disease** are rainfall related (distributed by mosquitoes) and animals should only be vaccinated if these conditions occur. These diseases can result in heavy losses.
- **Lamb dysentery** does not often occur in goats and vaccination is therefore not mentioned.
- **Pasteurella** is stress related, caused by adverse weather conditions, weaning and change of diet. The animals should be vaccinated preferably 2 months before a possible stressful period.

Diseases

Enterotoxaemia

(Pulpy kidney/*bloednier*)

Cause: *Clostridium perfringens*, also known as *Clostridium welchii* type D (bacterium)

Symptoms: Acute death of animals.
Laboured breathing, salivation, diarrhoea.
Twitching muscles, rolling eyes, grinding of teeth.
Many animals in one herd (herd problem).

Treatment: Unsuccessful, because disease is noticed too late.

Prevention: Vaccinate all animals according to the vaccination programme.
Kids are vaccinated twice with an interval of 4–6 weeks.
Adults are vaccinated annually, or more often if necessary.
Do not make sudden changes in diet, grazing or deworming.
Vaccinate at least 3 weeks before deworming.
In a severe outbreak you may consider treating all animals once with a long-acting tetracycline.

Pasteurella

(Pasteurellosis/infectious pneumonia/*harslagsiekte*)

Cause: *Pasteurella haemolytica* and *Pasteurella multocida* (bacterium)

Symptoms: Acute death of animals.
Fever, lack of appetite, rapid breathing.
Coughing, loss of condition, difficult breathing, discharge from nose and eyes.
Animals lie down with neck stretched out.

Treatment: Inject with sulpha or oxytetracycline (Sulphatrim or Liquamycin L A).

Prevention: Vaccinate all animals according to vaccination programme. The vaccine does not give complete protection, therefore cases of pasteurella can still occur.
Kids are vaccinated twice with an interval of 4–6 weeks (oil vaccine).
Adults are vaccinated annually with an alum vaccine.
This disease is stress related. Make sure animals are protected against possible stress: weather, weaning, scarcity of feed, etc.

Epididymitis

(Brucellosis)

Cause: *Brucella ovis* (bacterium)

Symptoms: At first swelling of the testes, later only a hard area in the testes.
Leads to infertility of the males.

Treatment: No treatment.
Infected animals should be removed from the herd.

Prevention: Vaccination of male goats at weaning.
Males should be tested for diseases before introduction into a herd.
Do not vaccinate female goats, this may cause abortion.

Diseases

Enzootic abortion

(Chlamydiosis)

- Cause: *Chlamydia psittaci* (bacterium)
- Symptoms: Low kidding percentage.
Abortion in later stage of pregnancy.
Weak lambs.
- Treatment: No treatment.
Infected animals should be removed from the herd.
- Prevention: Vaccination of all animals before annual breeding season.

Rift Valley fever

(Enzootic hepatitis/RVF)

- Cause: Bunyavirus
- Symptoms: Acute death of kids.
Kids show fever, tremors and weakness, adults abort.
- Treatment: No treatment.
- Prevention: Vaccination (once per animal, lifelong immunity).
Vaccination together with that for Wesselbron disease.

Wesselbron disease

- Cause: Flavivirus
- Symptoms: Acute death of kids, not as acute as in RVF.
Kids show fever, tremors and weakness, adults abort.
- Treatment: No treatment.
- Prevention: Vaccination (lifelong immunity).
Vaccination together with that for Rift Valley fever.
These two diseases are difficult to distinguish.

Heartwater

(Rickettsiosis/*heartwater*)

- Cause: *Cowdria ruminantium* (Rickettsia)
- Symptoms: Loss of appetite, listlessness, rapid breathing.
Followed by muscular tremors, circular movements, grinding of the teeth.
Recovering animals show diarrhoea.
Immune animals show a slight fever.
- Treatment: Treatment should occur as early as possible
(preferably before the nervous symptoms occur).
Oxytetracycline (Liquamycin L A).
- Prevention: Vaccination after 2 weeks of age may cause severe disease reaction, therefore block the reaction on day 8 or 9 with long-acting tetracycline at a lower dose than prescribed.
Eliminate transmission (the bont tick) by dipping.
Do not import animals from a heartwater-free area into a heartwater area without vaccination.

Diseases

Black quarter

(Quarter evil/Black leg/sponssiekte)

- Cause: *Clostridium chauvoei* (bacterium)
- Symptoms: Fever, loss of appetite, stiffness and swelling of affected area. Initially the swelling is hot and painful, but soon becomes cold and painless. Overlying skin becomes dark. Death occurs within 24–36 hours.
- Treatment: Early treatment is necessary, as soon as fever occurs. Treat with penicillin or oxytetracycline (usually unsuccessful).
- Prevention: Vaccination, twice at about weaning age, repeat annually. Disease is almost always the result of infection of a wound caused by management practices (castrating, etc) and environmental causes (steekgras, thornbushes, etc). Hygiene is very important. Destruction of carcasses by burning.

Botulism

(Lamsiekte/gallamsiekte)

- Cause: *Clostridium botulinum* (bacterium)
- Symptoms: Stiffness of the limbs (noticed in leg and neck muscles). Followed by partial or complete paralysis of all muscles. Tongue may protrude. In less acute cases, animals have difficulty feeding and drinking.
- Treatment: No treatment.
- Prevention: Vaccination (especially if animals are fed with chicken litter), twice at about weaning age, repeat annually. Destroy all carcasses. Bacteria form spores which occur in the soil. Make sure animals do not suffer from mineral deficiency or show signs of pica (animals start eating soil or bones).

Blue udder

(Blue bag)

- Cause: *Staphylococcus aureus* or *Pasteurella haemolytica* (bacterium)
- Symptoms: Occurs in female goats soon after kidding or even before. Udder becomes infected, swollen and painful, later it turns purple to blue. Loss of appetite and fever, milk is abnormal and may cause death of kid(s). Toxins produced by the bacteria cause general disease signs and eventually death.
- Treatment: Difficult and costly to treat. Penicillin or oxytetracycline.
- Prevention: Hygiene. Vaccination, animals that have not been immunised before are given 2 vaccinations, 6–8 weeks and 2–4 weeks before kidding. Repeat annually.

Diseases

Anthrax

(Miltziekte)

- Cause: *Bacillus anthracis* (bacterium)
- Symptoms: Acute death without any symptoms.
High fever, shivering and trembling, sometimes diarrhoea.
Rapid bloat and decomposing of the carcass. Rigor mortis does not occur.
After death, blood appears at the natural openings (nose, anus, etc).
NEVER OPEN THE CARCASS!! This will spread the disease.
- Treatment: No treatment. Disease is noticed too late.
- Prevention: Vaccination if there are known cases in the area during the last 5 years.
Vaccination at weaning, 5–6 months of age, repeat annually. Bury and burn carcass to prevent spread of the disease.
Prevent animals from grazing near the infected areas.
NOTIFY THE STATE VETERINARIAN.

Caseous lymphadenitis

(Cheesy gland disease/pseudotuberculosis/absesse)

- Cause: *Corynebacterium ovis*
- Symptoms: Development of one or more abscesses in the lymphatic glands.
- Treatment: Open mature abscess with a clean scalpel or knife on a soft spot. Squeeze the pus out of the abscess and collect it in a tin or plastic bag (do not leave it lying around). Burn it or discard it where animals and humans cannot come into contact with it.
Rinse the empty abscess with hydrogen peroxide.
Fill the empty abscess with a disinfectant cream and spray with a disinfectant.
Inject the animal with penicillin to prevent a secondary infection from occurring.
- Prevention: Vaccination repeated every 6 months (not very successful, treatment of the disease might be more economical).
Does not provide complete cover. The disease might still occur.

Tetanus

(Lock-jaw/klem-in-die-kaak)

- Cause: *Clostridium tetani* (bacterium)
- Symptoms: Muscular stiffness, noticeable in neck and legs.
Animal cannot eat or drink.
Sensitive to any light touch, sharp noise or bright light.
Animal may lie down on its side with stiff limbs stretched out and off the ground.
- Treatment: Treat the animal with penicillin.
Keep animal in a dark, quiet place.
- Prevention: Vaccination, twice, a month apart before kidding, then annually 1 month before kidding.
Disinfecting of any wounds (castration, etc).
Do not use elastic bands for castration.

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