

Theme 10: Hoof care

HOOF DISEASES AND HOOF CARE MANAGEMENT (Level 1)

Topic	Training & information Content
10.1	Hoof diseases and hoof care management
10.2	Five step protocol for hoof trimmers



1. You will learn about (learning objectives):

- ❑ Essential anatomy and physiology of a hoof.
- ❑ Hoof diseases:
 - Causes
 - Symptoms
 - Prevention and cure



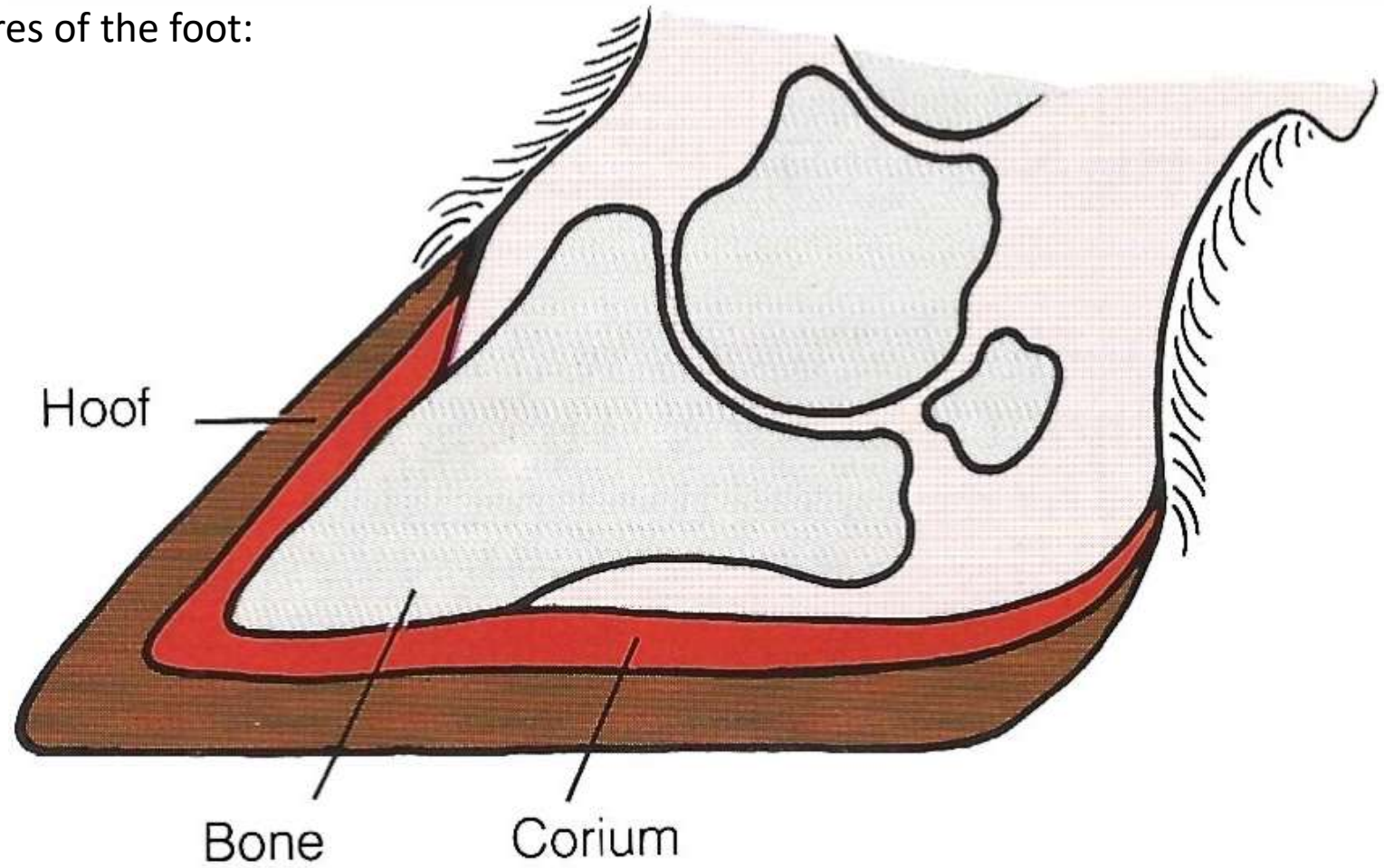
2. Introduction

- Hoof problems are no problem when cattle can graze all day.
- In stables with wet and dirty floor they can become a problem.
- Cattle fed with a lot of supplements and giving a lot of milk are at risk to develop hoof problems.

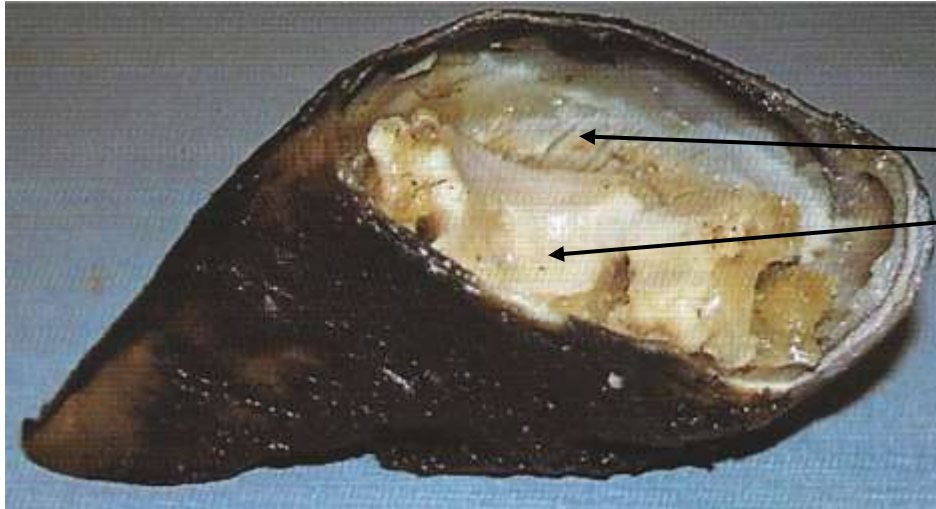


3. Anatomy of the foot

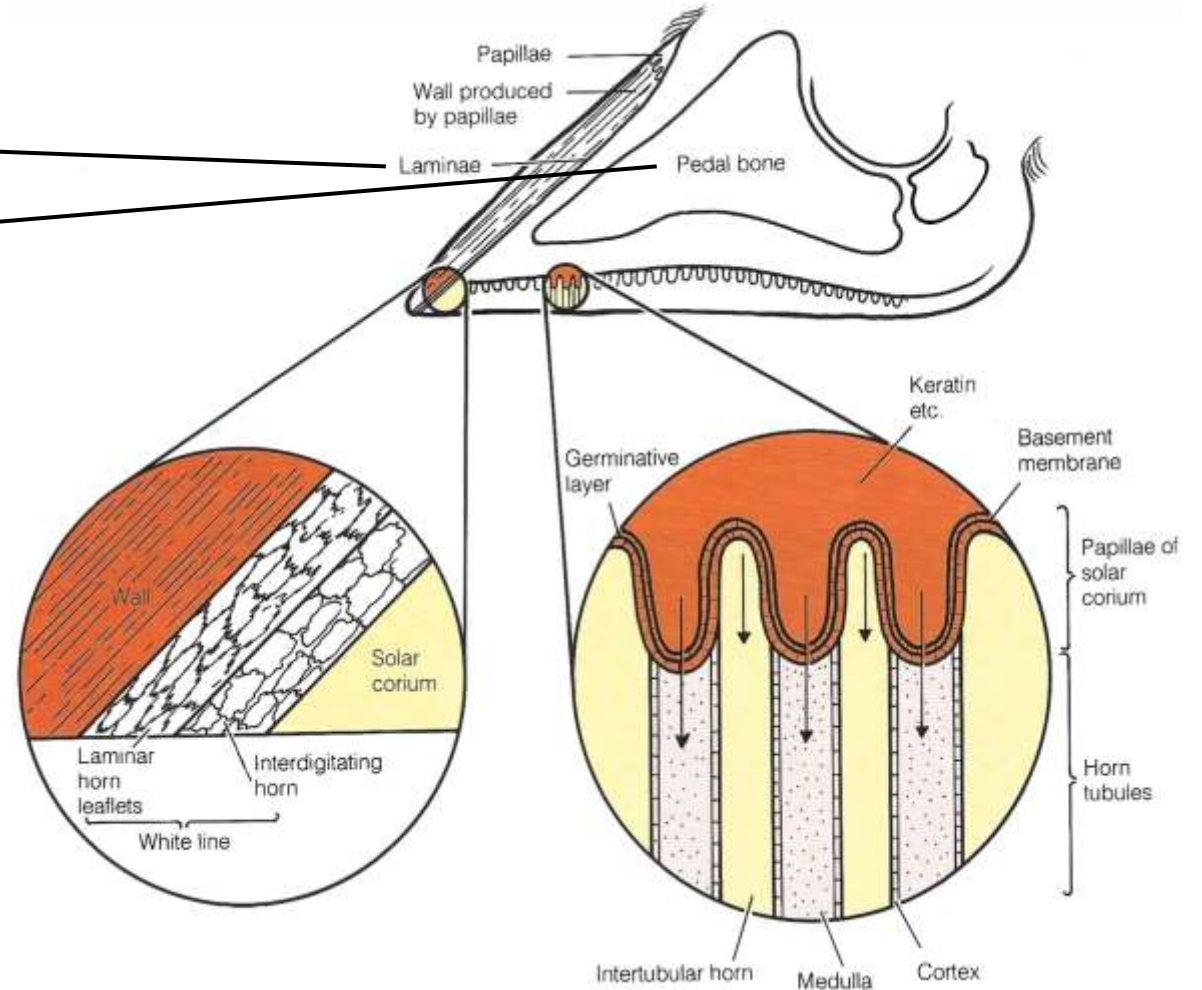
- The three basic structures of the foot:
 - i. Hoof
 - ii. Bone
 - iii. Corium



3.1 Anatomy of the foot Cont'd...

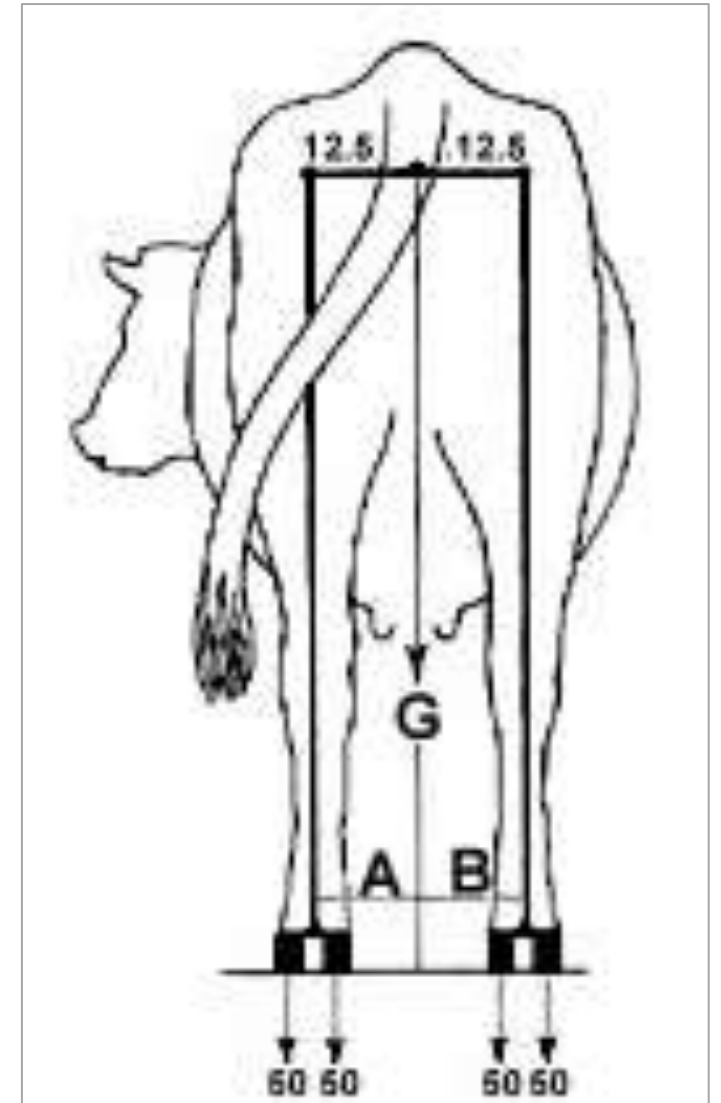
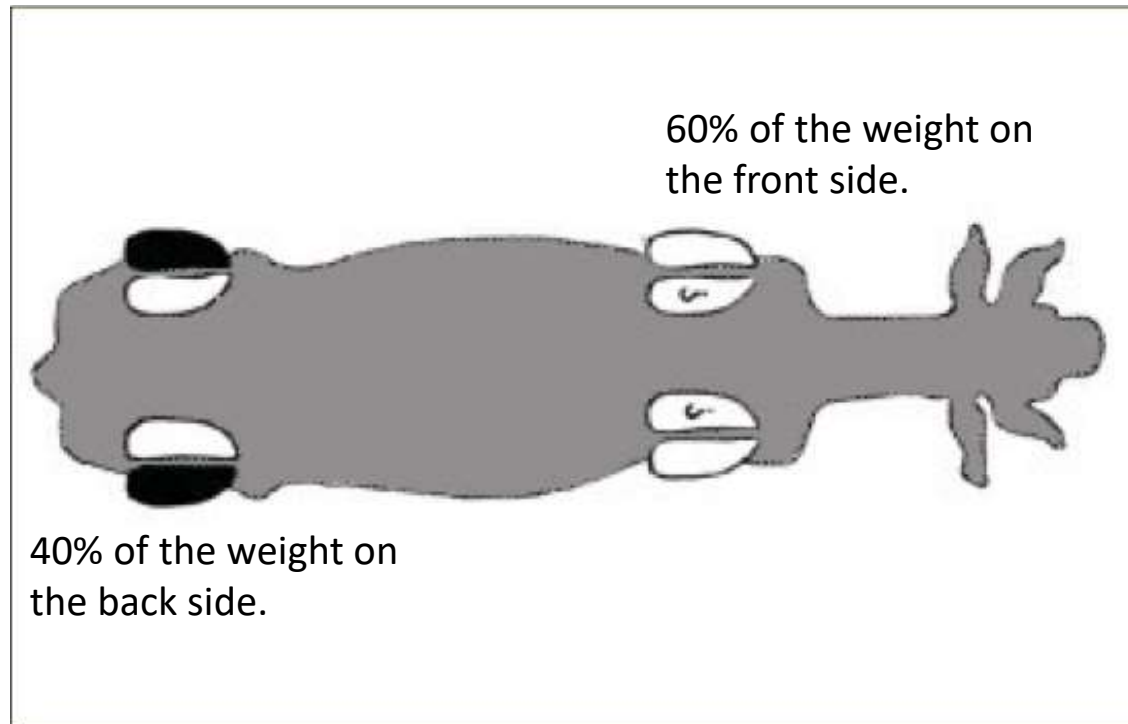


- The horn grows from the corium.
- When the corium gets sick and swells, it becomes painful because there is no room for the swelling.



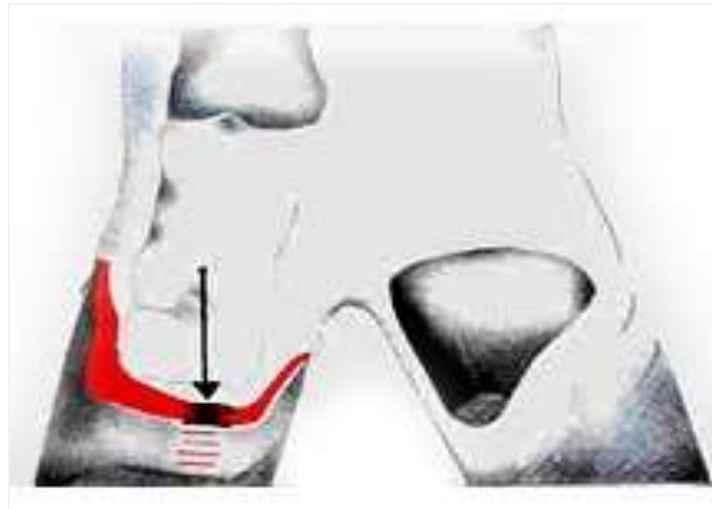
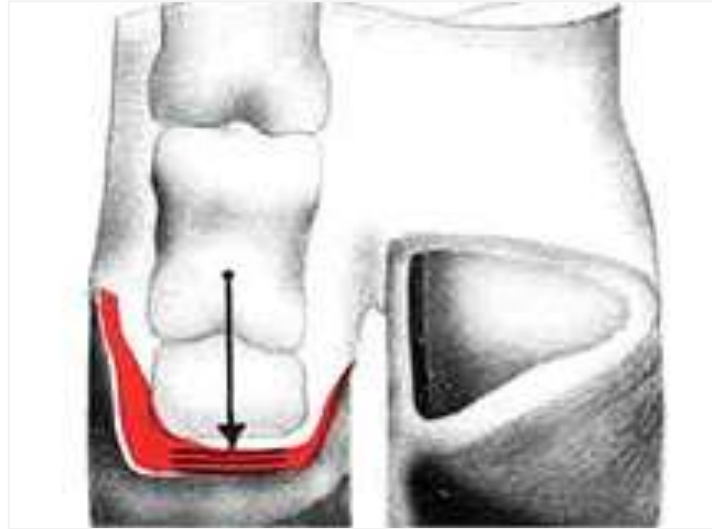
4. The Biomechanics

- In a normal situation, the weight is equally distributed over the 4 hoofs.
- When having a hoof problem, this balance is disturbed.
- A problem at one place will affect other places in foot(s) as well.



4.1 The Biomechanics Cont'd...

- Due to growth of horn the pressure on the pedal bone can switch to a small area, which can give over pressure, and eventually can cause a sole ulcer.



5. Causes of hoof problems

- The causes of hoof problems can be divided into;
 - i. **Infectious problems:** caused by bacteria living in wet and dirty places.
 - ii. **Non-infectious problems:** other causes, like not good feeding or inflammations in other parts of the body.
- For both problems feeding a proper ration is of importance.



Muddy homestead

6. Infectious hoof problems

- These start with infections of the skin (dermatitis).
- Goes from outside skin to inside hoof and horn.



7. Infection between the claws

- A - Stinking interdigital skin damage and superficial horn defects on the heel.
- B - More severe stinking interdigital skin damage and deep horn defects on the heel.
- C - Severe stinking interdigital skin damage with sole ulcer. Painful.



7.1 Foul in the foot

- The infection is caused by the bacteria.
- Occurs mostly on wet floors.
- It starts as a stinking inflammation on the surface of the skin.
- Then damages of the horn in the heel with a lot of extra horn forms.
- Initially the cow is not lame.
- Pedicure, disinfection and hygiene are possible solutions.

The split in the interdigital skin is typical



The swelling forces the claws apart

8. Mortellaro disease

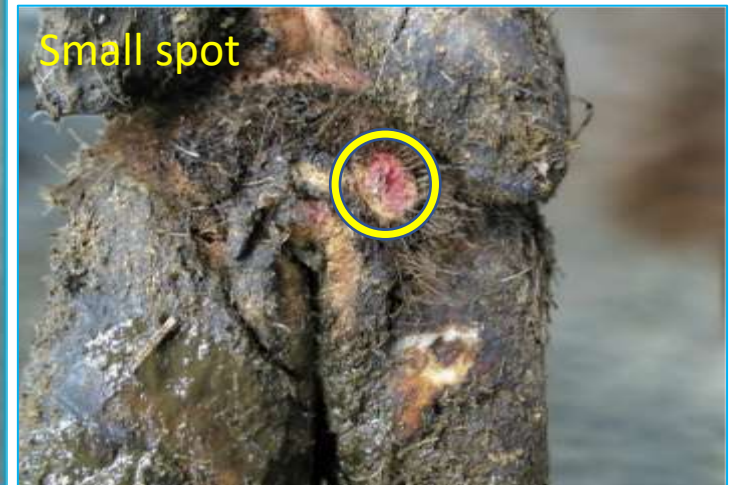
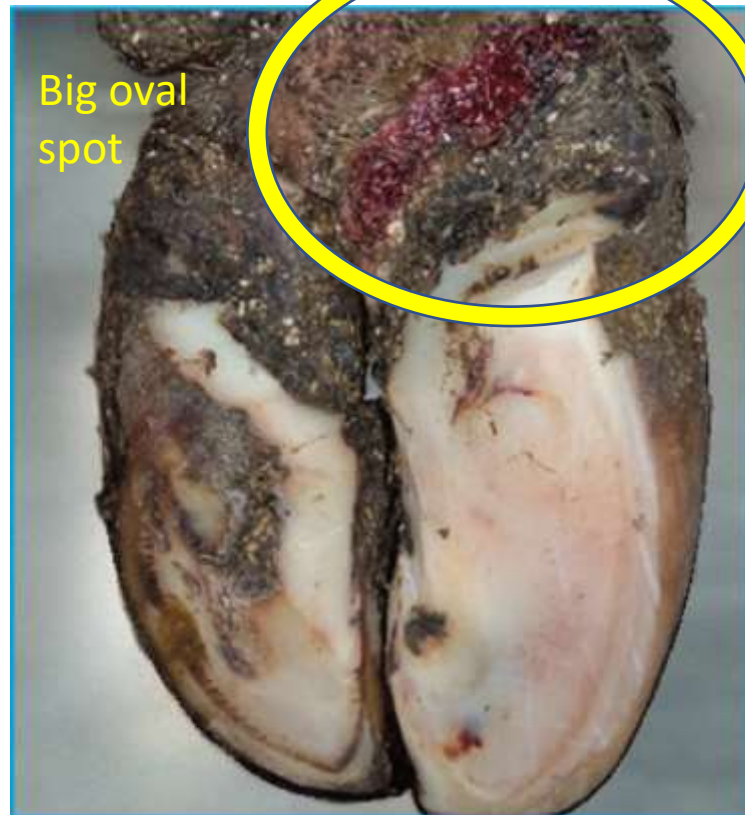
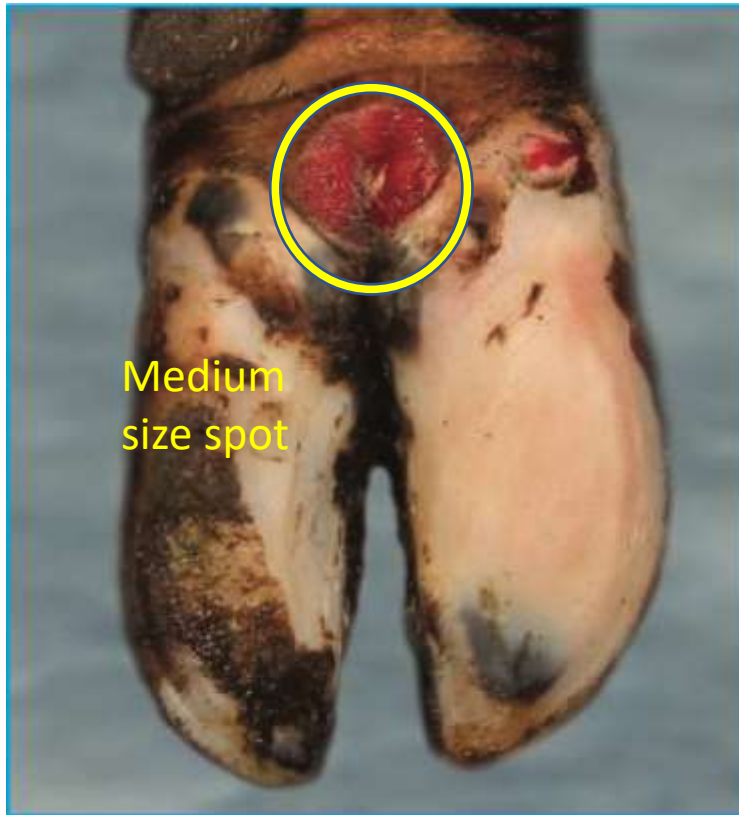
- It is caused by bacteria.
- The bacteria is present in manure.
- The bacteria enters deep into the corium and is therefore difficult to tackle.
- It is very painful for the cow.
- The skin around the claw is affected which is shown by a 'strawberry' like spot.
- Goes often together with other hoof problems.
- Dry floors, pasture, disinfection and trimming can reduce the problem.



Moist and exudative area with matted hair

8.1 Mortellaro disease Cont'd...

- The picture below shows the typical 'strawberry' formed skin lesion, which is not always so clear.



9. Non-infectious hoof problems

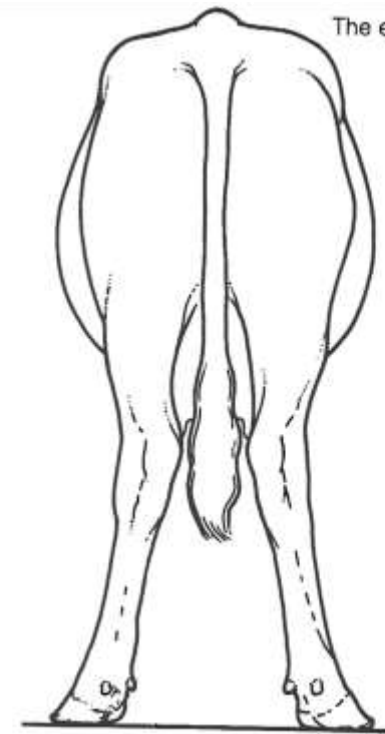
- The main cause of non infectious hoof diseases is laminitis.



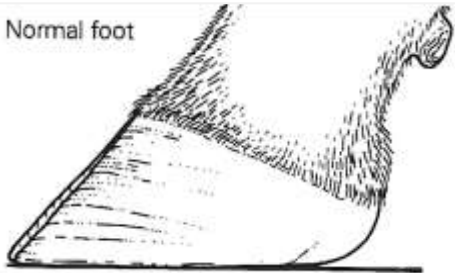
Normal stance



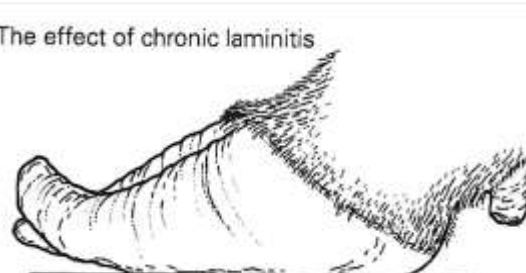
The effect of laminitis



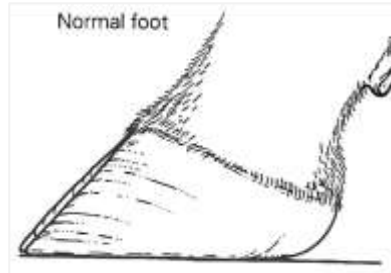
Normal foot



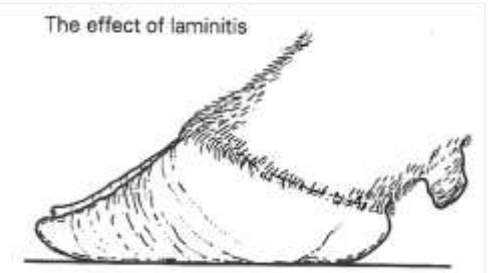
The effect of chronic laminitis



Normal foot



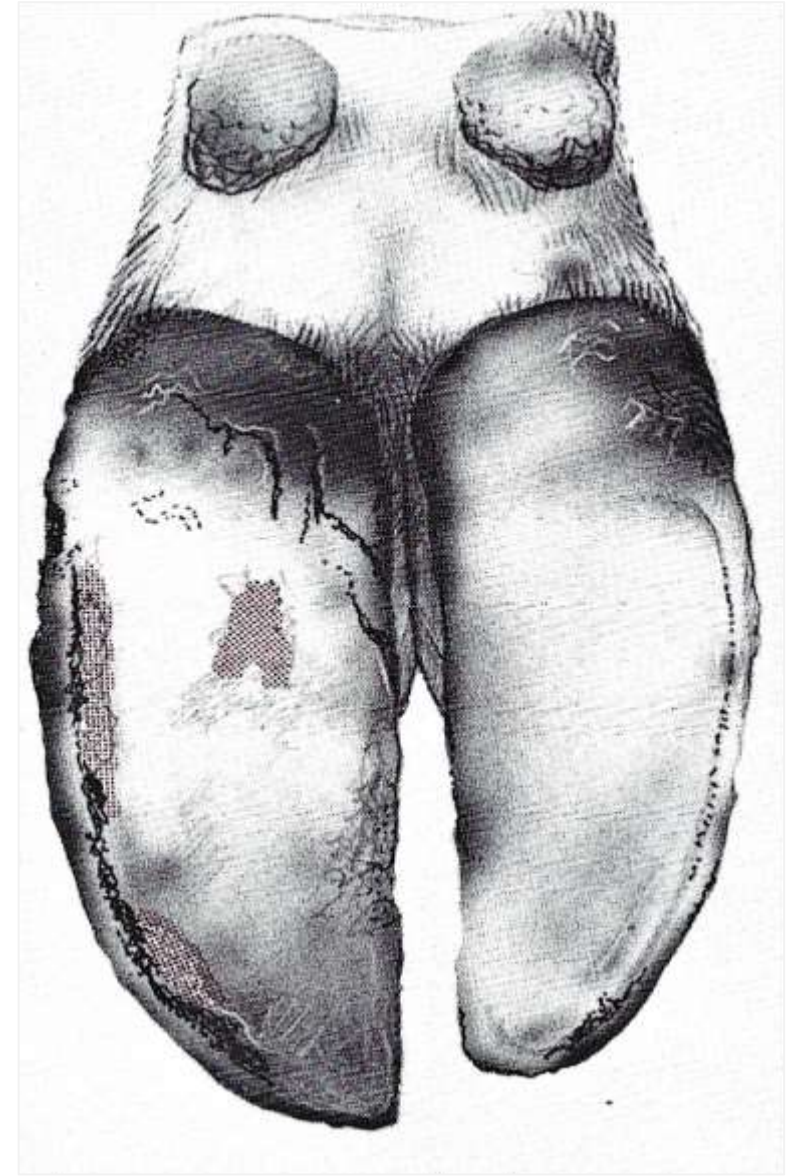
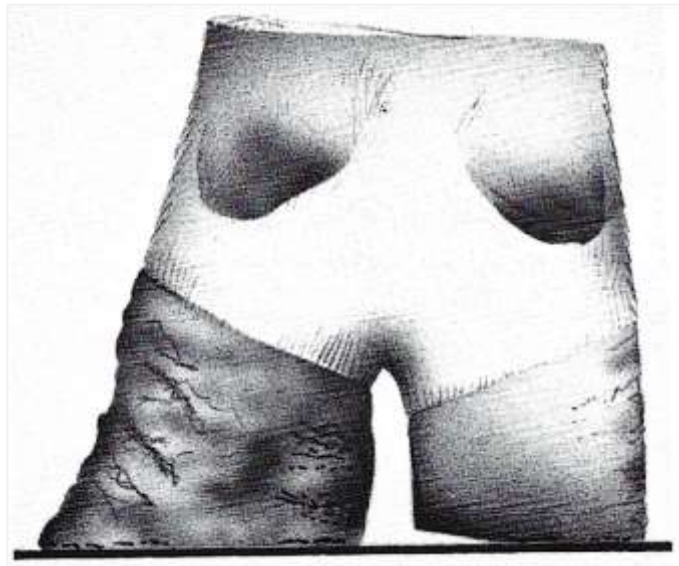
The effect of laminitis



10. Laminitis

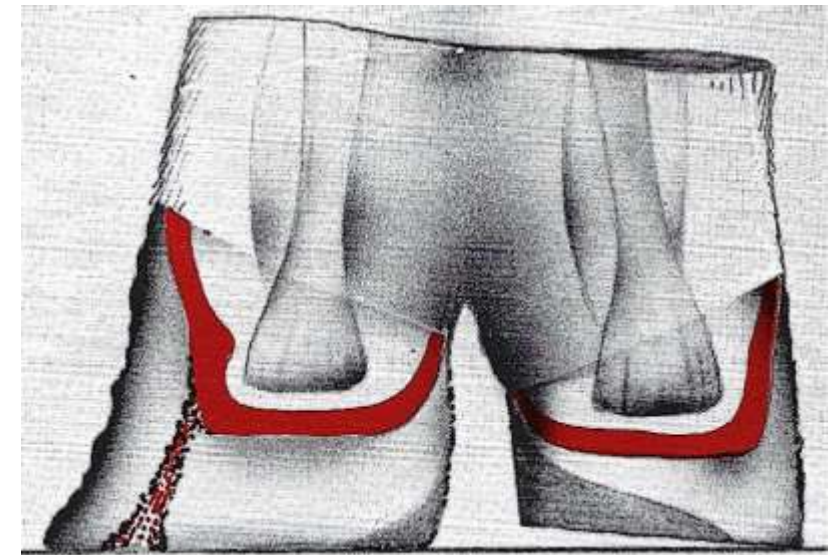
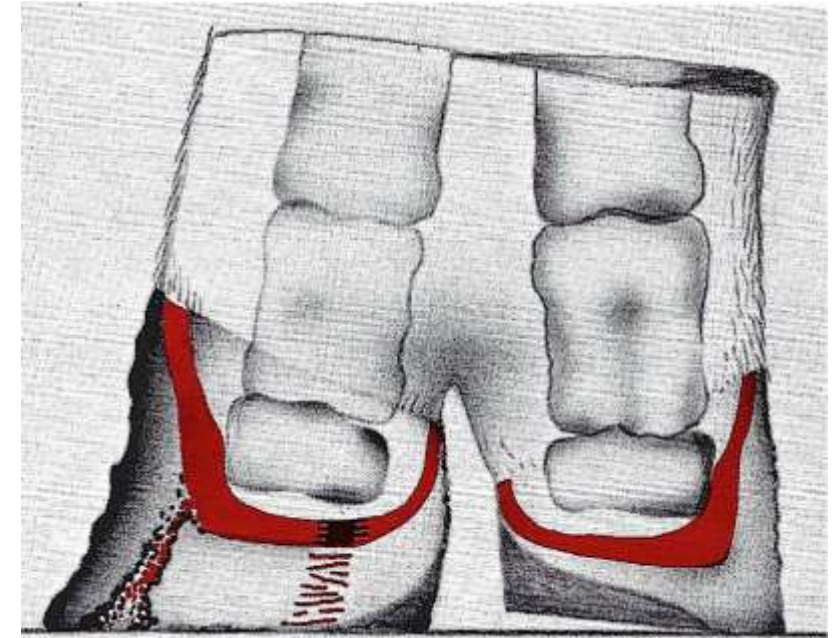
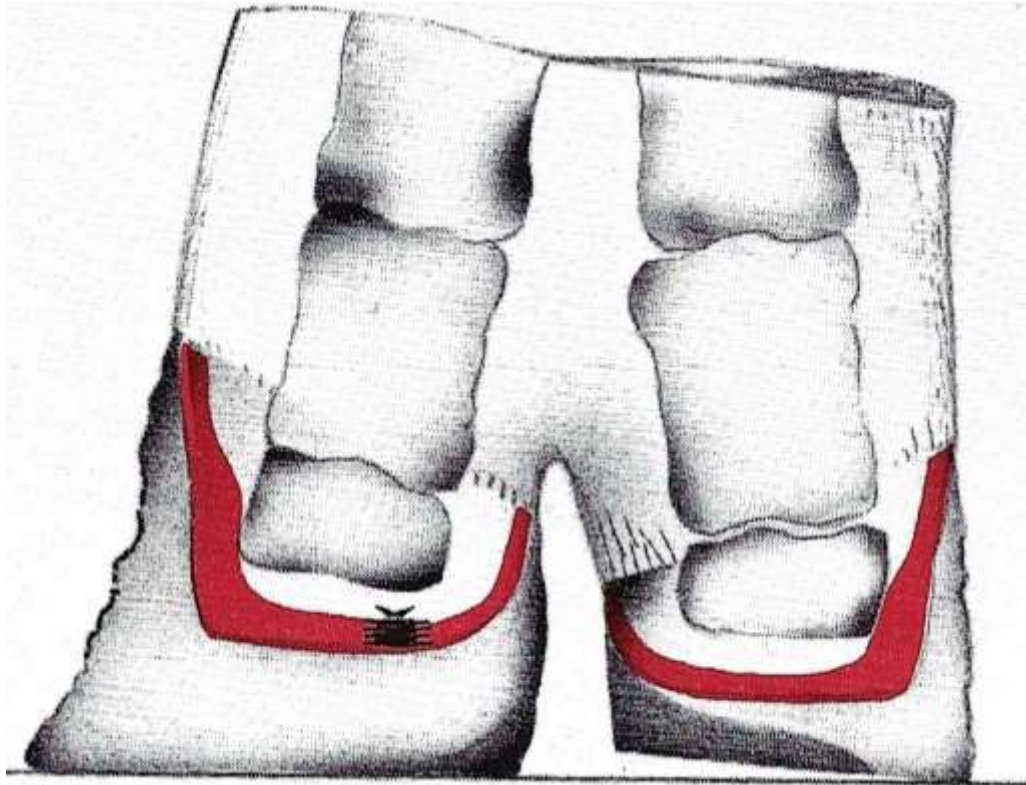
Symptoms

- The back outside claw is clearly too high (similar to digital dermatitis).
- The sole is often coloured due to bleedings.
- Front claw is bent in.
- Growth ring pattern changes.
- Toe tip comes up.
- It affects full sole.



11. Biomechanics and Laminitis

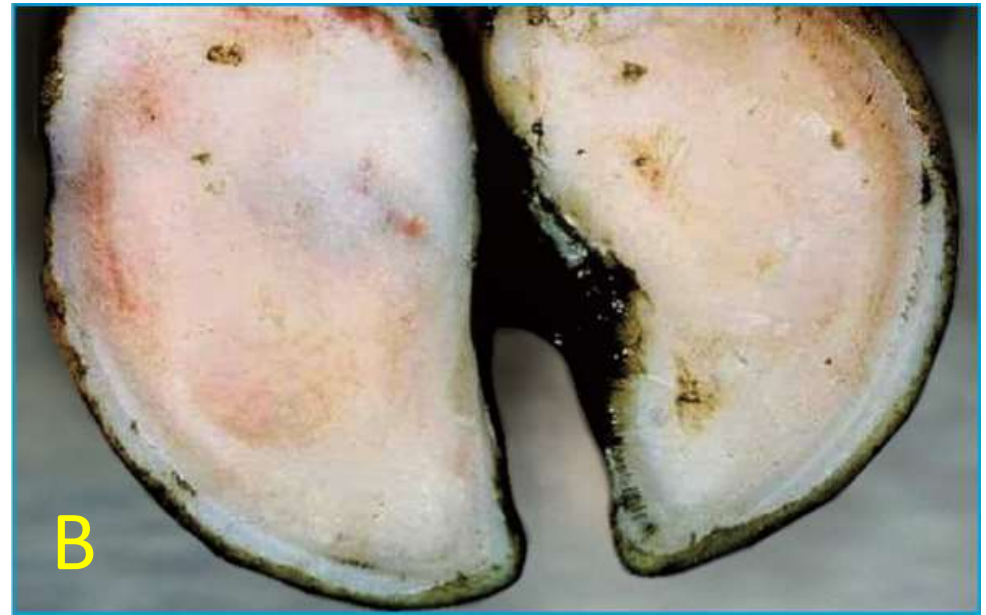
- The pictures show how by growth of horn and change of pressure sole ulcers and white line defects can develop.



12. Laminitis and sole bleeds

- A - Big bleeding with release of sole from the corium.
- B - Yellow coloured sole with small bleeds.
- C - Bleeds in nearly half of the sole.

A sole bleed can be compared to a bruise or a black eye.



13. Laminitis and white line defects

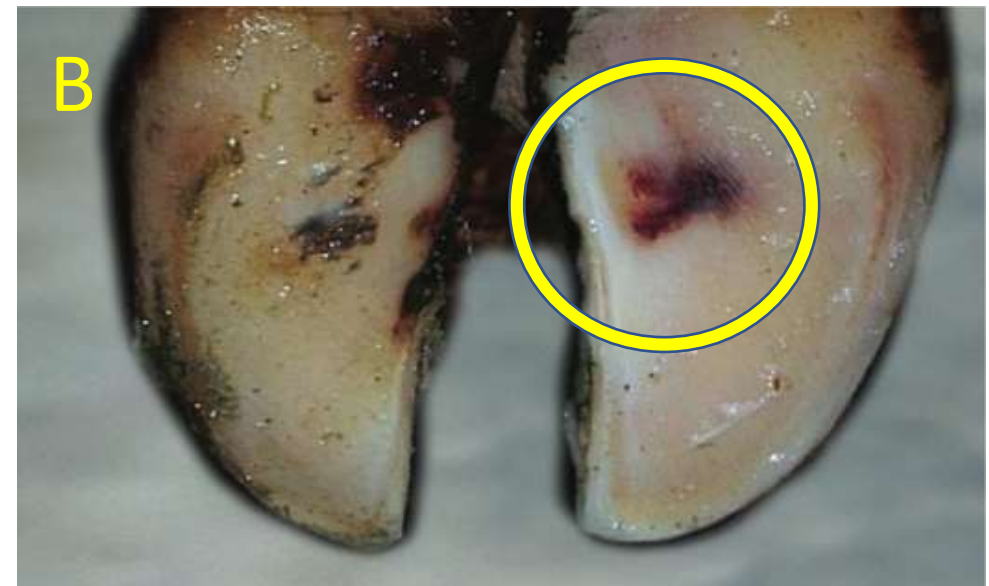
- A - Small defects in the white line.
- B - White line inflammation or release.
- C - (White line) wall ulcer.



14. Laminitis and sole ulcers

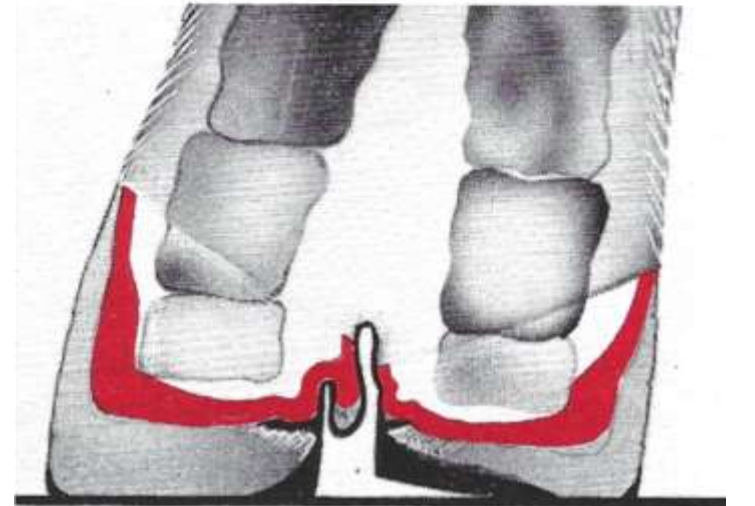
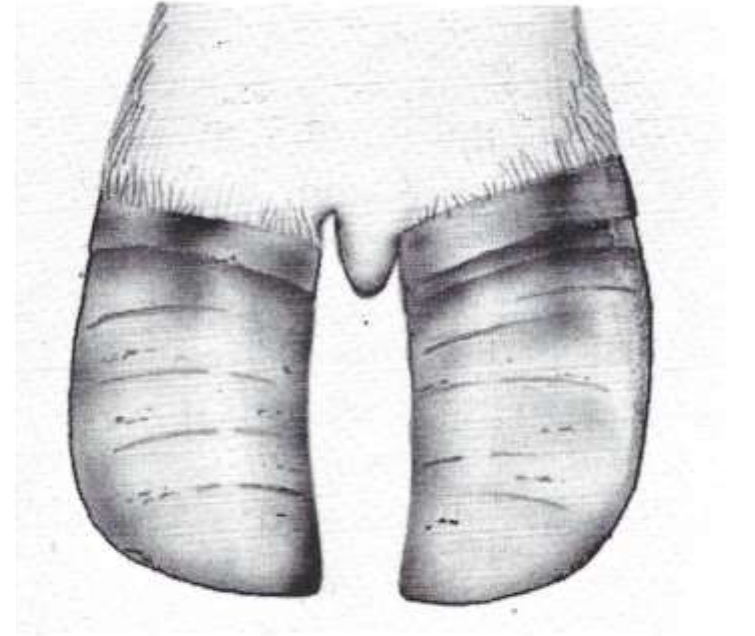
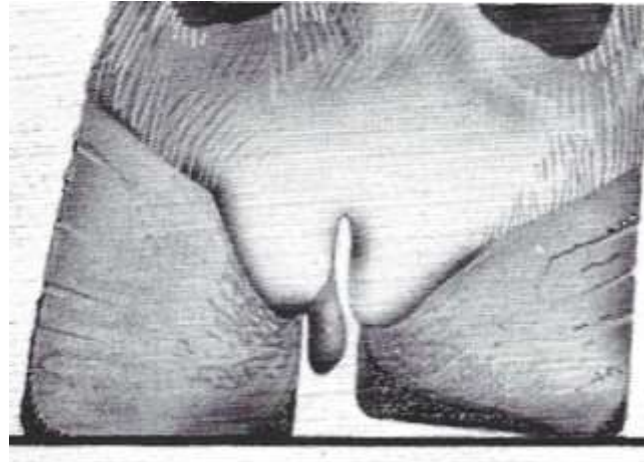
- A - Bruising on typical spot.
- B - Heavily bruising on typical spot.
- C - Ulcer with prolapse.

Ulcer is a difficult word for **swear**.



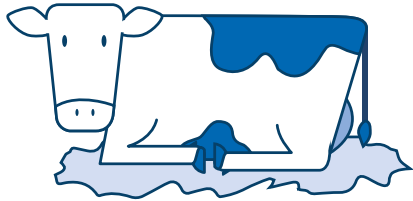
15. Tyloma

- Tyloma is overgrowth of skin between the claws.
- Caused by irritation, dermatitis and possibly foreign bodies.
- Has a high hereditary component (certain cow families are more sensitive).
- Also in certain families within a breed.
- Develops most on the inside of the outside rear claw.

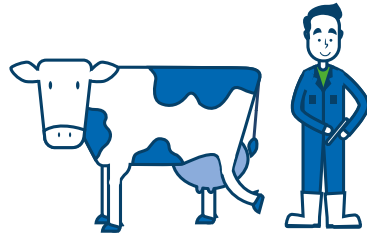


16. How to handle hoof problems

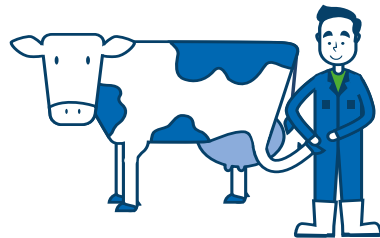
- The Dutch Animal Health Service recommends seven items to take care about:



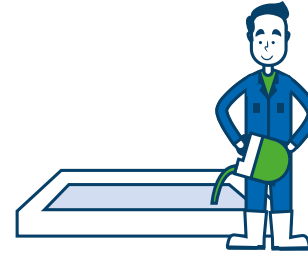
1. Floors and cubicles



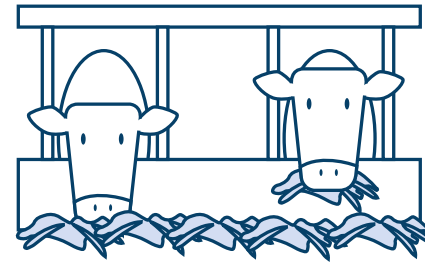
2. Hoof checks



3. Treatment of lame cows



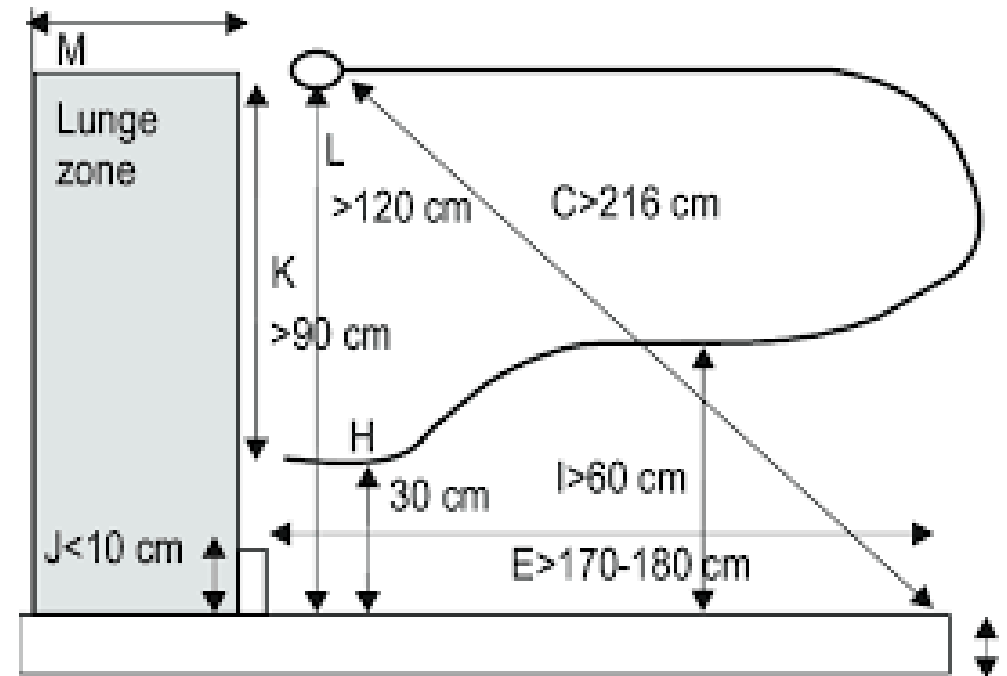
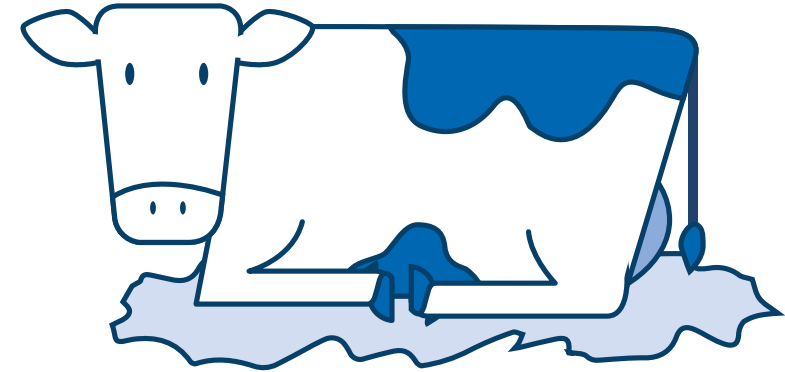
4. Disinfection



5. Ration (good feeding)

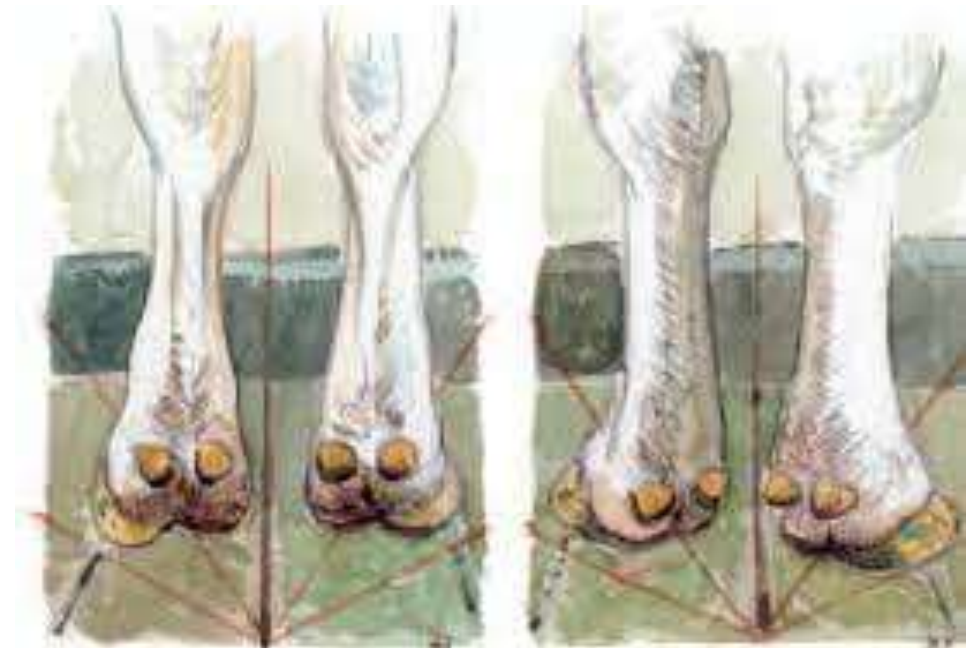
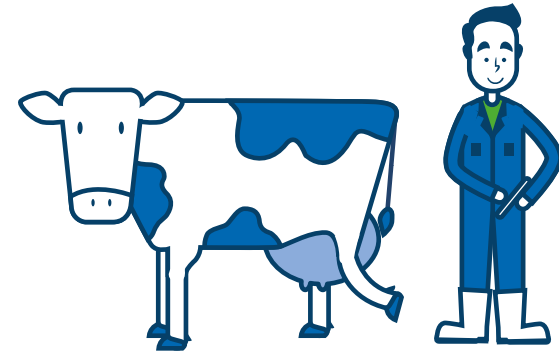
17. Floors and Cubicles

- Assure a dry clean floor with comfortable cubicles.
- Pasture is often the best remedy for hoof problems.
- Cubicles should have the right size.
- Take care of daily dry bedding.
- Clean the walking area at least twice a day.
- Prevent overcrowding.



18. Hoof checks

- Check the hoofs (by taking them up);
 - At the start of the dry period,
 - Two to three month after calving,
 - And cattle who need extra attention, because of lameness.
- This is a recommendation for cattle in zero grazing circumstances.
- While checking you can do a functional pedicure (See five steps protocol for hoof trimming).

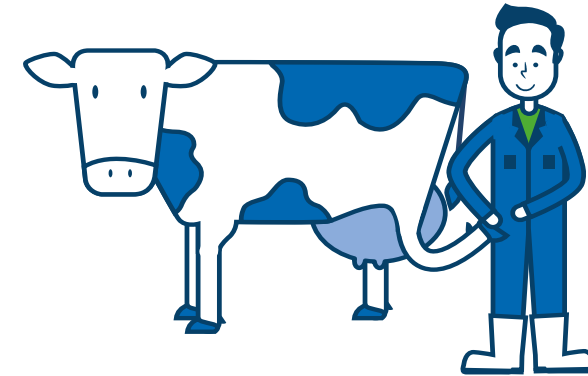


Claw score

19. Treatment of lame cattle

- Treat lame cattle as soon as possible.
- Majority of lameness are hoof related, so hoof trimming is the first step.
 - Functional trimming first.
 - Therapeutic trimming when necessary.
- When an infectious diseases is present you can use an antibiotic spray after trimming.
- Seven (7) days later you can then treat with a disinfectant, preferably by spraying.

Cattle with a severe acute laminitis need veterinary attention.



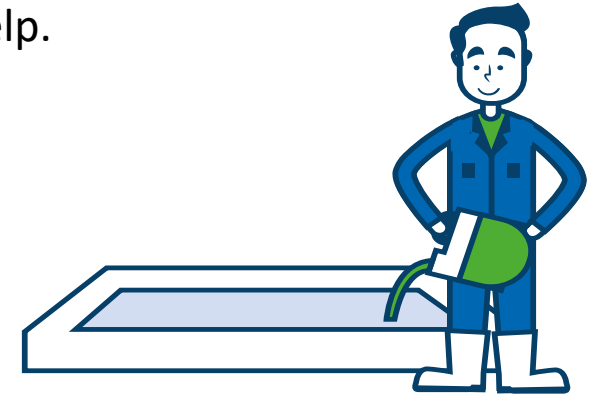
Therapeutic treatment

20. Disinfection

- When there are problems with infectious claw diseases disinfection can help.
- A disinfectant kills bacteria, so spray with a disinfectant.
- Ask a specialist which one to use.

Protocol for Mortellaro disease;

- Spray all cows with symptoms once daily for three days in a row.
- Repeat this after ten days.



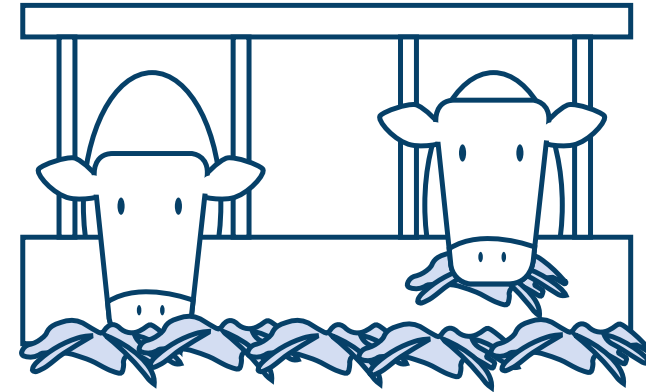
Mortellaro disease



Farmer spraying hoofs

21. Ration

- A good ration is is very important for horn growth.
- As you all know parturition has effect by counting the rings off the horns to see the number of calving the cow had.
- This has to do with changes around giving birth. Especially the provision of Zinc, Manganese and biotin are of interest.
- Often, the problem is not lack of these minerals and vitamin, but disturbances in the rumen (acidosis) which decrease the absorption of these substances.
- So feed your cattle well.



Interruption in horn growth

22. Summary/Take home messages

1. Infectious diseases of the foot first will damage the skin closely adjacent to the horn of the hoof and then cause damage in the deeper tissues and the horn.
2. Non-infectious diseases of the foot will develop from the inside of the claw and slowly show signs on the outside.
3. When checking the herd this difference is mostly not clear.
4. Symptoms of laminitis give opportunities for infections from the outside while infections in general are contributing to the development of laminitis.
5. So, hoof diseases are multi-factoral diseases and treatment and prevention have to tackle all factors (causes).
6. With infectious diseases, hygiene and disinfection have to be emphasized.
7. With laminitis, the emphasis will be on general management and feeding.
8. When a herd has foot problems, trimming is a key factor in prevention as well as in treatment.



Under-run or double sole