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TAKING CARE OF HOOVES

How to trim a hoof properly

INSTRUCTIONS

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HOOF TRIMMING - Instructions

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HOOF TRIMMING - Instructions

THE FORMATION OF THE FOOT

The anterior margin of the claw (between the coronet and the toe of the claw) must form an almost straight line whether in frontal or in side view. Viewed from the side the angle with the ground is about 45°. The length of the anterior margin is the **length of the claw**.

On healthy claws growth rings are very superficial grooves running about parallel with the coronet. It is believed that they result from changes in the rate of horn production and/or in the composition of the horn. Something similar can be observed on the horns of the head of the cow.

The heel must be well developed.

In the back half of the claw, the wall should stand more or less perpendicular to the ground; it should not bend inward. The height of the wall in the back part of the claw is the **height of the claw**.

The sole becomes slightly concave in the direction of the inter digital space.

The claw should be able to bear the weight of the body in an almost **upright position** (they should not fall over). The pressure is then evenly spread over the quick.

The claw should be about **equally high**. This will ensure a **proportional weight-bearing** by the inner and outer claw.

The horny shoe is part of the outer skin of the foot.

The horny shoe is formed at the surface of the quick; it does not have blood vessels and nerves. The horn "grows" forward down, in a direction about parallel with the anterior margin of the claw. The horny wall "grows" from the top downwards and wears off at the bottom (along the weight-bearing border). The wall may be compared with the human nail. If necessary, the weight-bearing border can be trimmed (clipping or cutting); the same applies to over growth of horn under the sole and the heel.

The horny shoe protects the quick.

The horny sole and the heel provide an even support to the quick.

Toughing (wounding) the quick is painful for the cow and causes bleeding. On top of that infection may cause inflammation of the quick especially when the claw is not in a healthy condition.

See figs 1-5 labelled with each of the following parts:

1. The horny wall of the claw.
2. The perioplic horn; backwards it widens into the heel or bulb.
3. The weight-bearing border of the wall.
4. Growth rings.
5. The inter digital space.
6. The coronet.
7. The sole; when the claw is normal and healthy, its thickness is 5 to 7 mm.
8. The sole part of the heel; it is the weight-bearing part of the heel.
9. The white line; it is the horny connection between the weight-bearing border and the sole. The white line consists of rather soft horny tissue of which the colour is not white (as the name suggests), but greyish.
10. The hairless inter digital skin.
11. The hairy skin of the foot.
12. The dew claws.
13. The pastern.

fig. 1

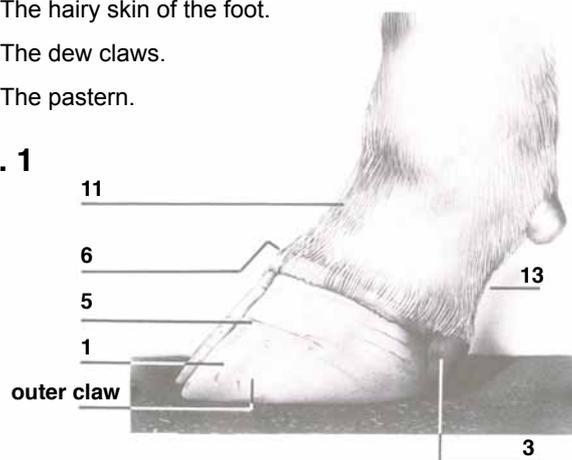


fig. 2

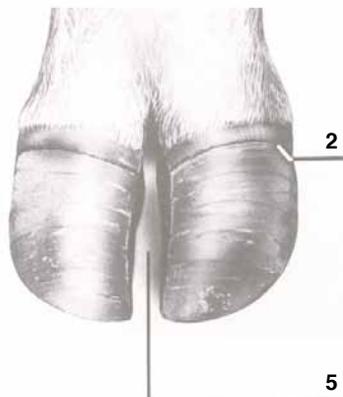


fig. 3

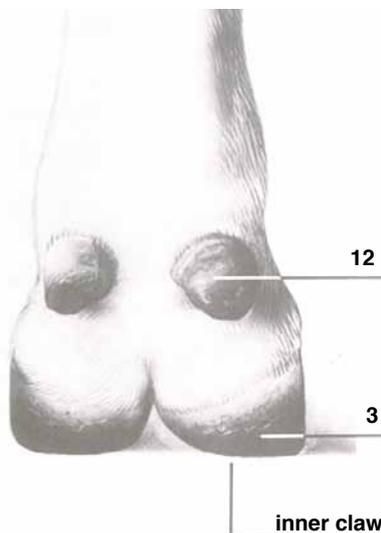
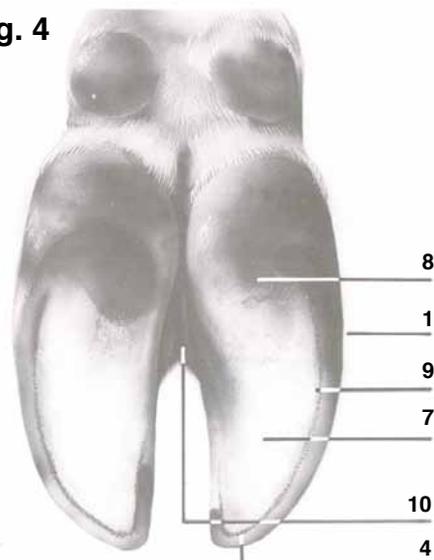


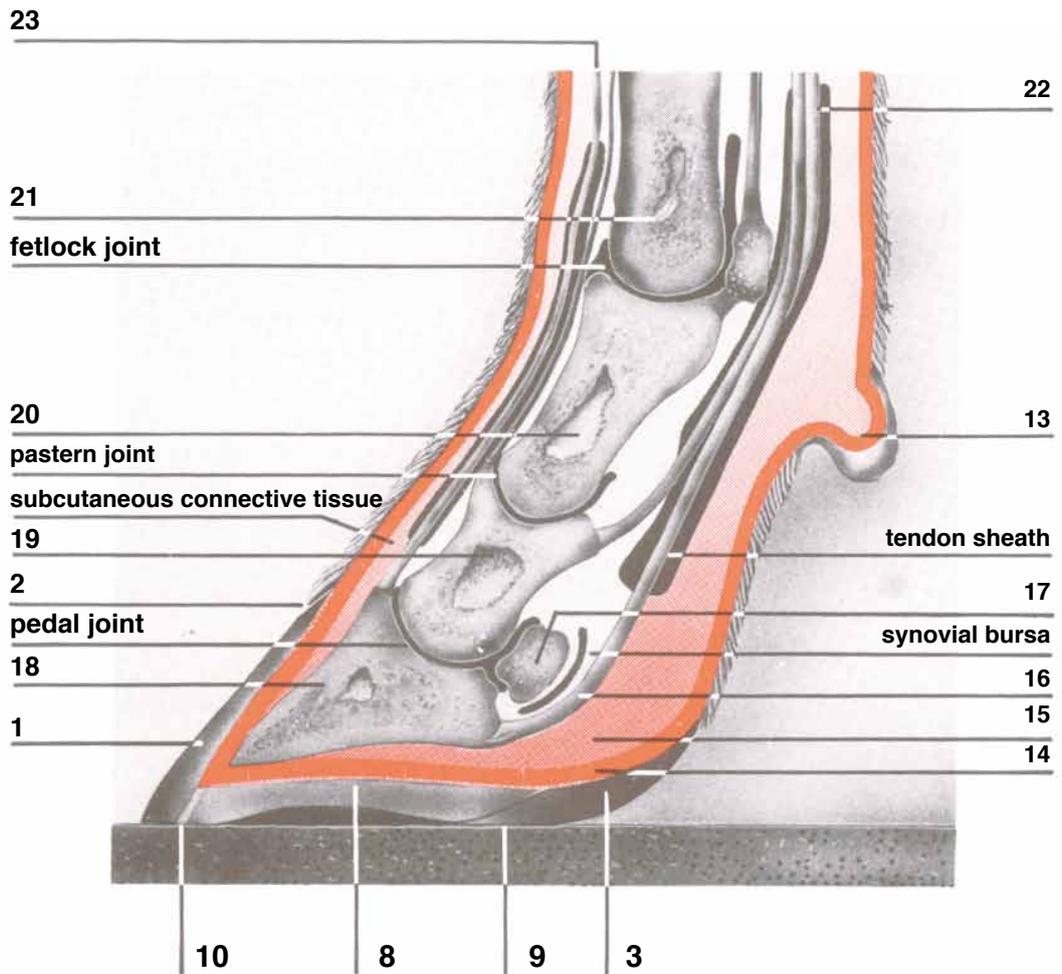
fig. 4



HOOF TRIMMING - Instructions

- 14. The corium, also called the “quick”; it has blood vessel and nerves.
- 15. Digital cushion; it has a shock-absorbing function.
- 16. The deep flexor tendon.
- 17. The navicular bone.
- 18. The pedal bone/pedal joint
- 19. The short pastern bone/pastern joint
- 20. The long pastern bone/fetlock joint
- 21. The shine bone
- 22. The superficial flexor tendon.
- 23. The extensor tendon.

fig. 5



Rear hinge gates for excellent front feet access

Front leg hooftrim support with tie down which is great for those hard to get at front feet, total control..No effort



HOOF TRIMMING - Instructions

WEIGHT-BEARING BY THE OUTER CLAW OF THE HIND FOOT

When the cow is still young, the hind claw are about the same size, but slightly different in shape. The sole-surface of the outer claw is just slightly concave, while the inner claw is more concave. (fig. 6)

This does not apply to the claws of the fore feet (fig. 7), which are both rather flat.

Consequently, in the case of the hind feet claws, only a flat surface (e.g. in the cow house) the outer claw tends to carry somewhat more weight, because of its better balance.

Apart from this, the pressure on the outer claw is more irregular than that on the inner claw; it is especially the outer claw that receives the movements of the body of the cow.

(This does not apply to the fore feet claws).

In the long run a heavier and more irregular load makes the outer claw to form somewhat more horn; to become somewhat bigger than the inner claw and this increases the load considerably (figs. 8 and 9).

The cow will try to escape and overload on the outer hind claw by adopting a base-wide or a cow-hocked posture. In spite of this adjustment the outer hind claw remains overloaded (fig. 10).

In a continuously overloaded claw the quick may become bruised, underneath the hind border of the pedal bone. This can be painful, and may cause bleeding - which may lead to sole ulcers in the long run.

The tendency of hind claws to develop in an uneven way is not always equally strong.

With **healthy** claws the tendency is limited and functional trimming (in order to reduce excessive height of the outer claw) will be unnecessary or hardly necessary.

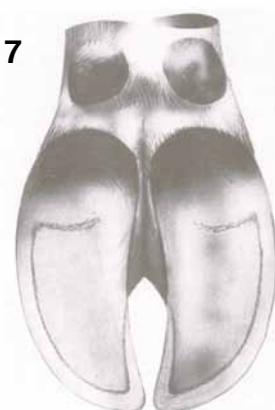
But, in the presence of **claw diseases** (inter digital dermatitis and laminitis) the tendency of excessive horn formation in the outer claw is uncontrolled and becomes very much apparent (fig. 11), together with hornshoe deformities and defects which go hand in hand with the above-mentioned diseases.

In that case functional trimming of the hind claws is necessary and remains necessary over and over again!

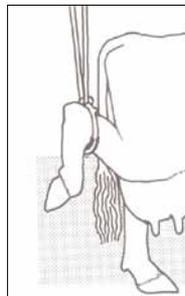
fig. 6



fig. 7



The belly hoist with winch is great for stabilizing the cow and to make sure she stays up



The rear strap is securely placed behind the hock and with the help of the lifting assembly the leg is hoisted up

fig. 8

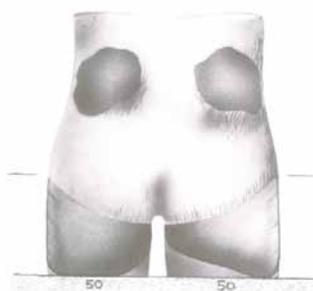


fig. 9

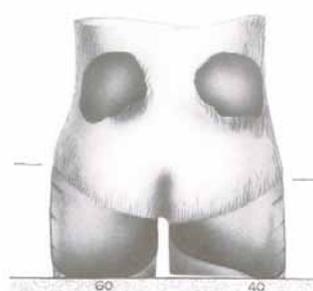


fig. 10

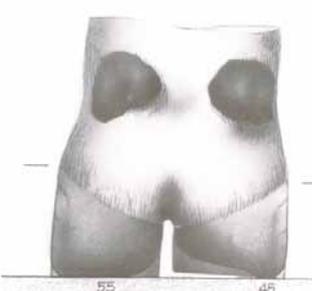


fig. 11



HOOF TRIMMING - Instructions

DISEASES OF THE FOOT

1. Inter digital dermatitis
2. Laminitis
3. Inter digital phlegmon
4. Digital dermatitis

1. INTER DIGITAL DERMATITIS

This disorder occurs almost wherever intensive dairy farming is found and it is one of the main causes of claw lameness in cattle.

The disease starts with a wet, stinking inflammation of the skin in the inter digital space (fig. 12); hence the common name "stinky foot". (foot rot should be reserved for sheep!).

The inflammation of the inter digital skin may spread to the heel horn of the adjacent claws. Abnormal horn formation, with ridges or fissures (figs. 13 and 14) may lead to contusion of the quick in this region. This is accompanied by soreness or lameness.

The infection stimulates horn formation of the wall the sole, particularly in the outer hind claw. Consequently this claw becomes excessively high and considerably overloaded.

Contusion of the quick will especially occur in this overloaded outer hind claw. In the long run the quick can be damaged by the contusion, even destroyed. Horn production stops and the hole develops in the horny sole. Such a defect is often called a sole ulcer.

A **serious** herd infection stimulates horn formation on **all** claws. It not only produces fissures in the heel area of the hind claws, but can also give similar problems in the front claws.

Inter digital dermatitis is the cause of a large number of claw deformities and abnormal leg positions (the cows adapt their stance, (fig. 15), but the outer claw remains overloaded) and of a large number of lame and untimely worn out cows. The control of the infection and subsequently symptoms consists of:

- foot baths
- timely and skilled trimming

fig. 12

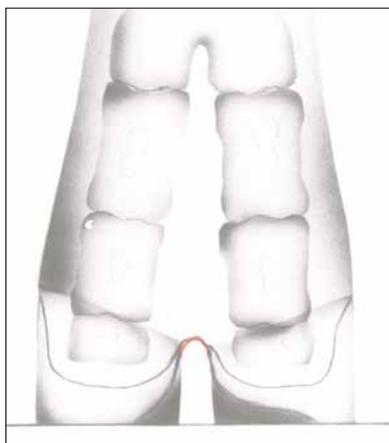


fig. 13



inter digital dermatitis - cubicle housing

fig. 14



Inter digital dermatitis - trying stalls straw

2. LAMINITIS

Laminitis is a metabolic disorder of the quick that occurs mainly around the time when the cow is calving down. However, often it becomes apparent only at a later date when it manifests itself in changes in horn production and in changes in the form of the claw. Laminitis proper does not last long (a few days to weeks), but the changes in shape of the weakened claw may entail prolonged weight-bearing problems.

Continuous overloading promotes laminitis. Hence laminitis and its effects occur especially in the outer hind claws. One of these effects is increased horn production, resulting in yet more overloading as

the claw becomes excessively high.

The result is contusion of the quick and sole ulcer; and again abnormal stances because of pain in the outer hind claws.

The most distinct changes caused by laminitis are:

- A buckled toe (fig. 16)
- Abnormally distinct growth rings dropping down backwards (fig. 16).
- Yellow or red discolorations (sue to tissue fluid or blood) in the horn of the sole and the white line
- Defects in the white line

HOOF TRIMMING - Instructions

Laminitis occurs mainly around the time when the cow is calving down and is promoted by:

- Prolonged overloading (enlarged outer claws on a hard surface)
- Incorrect feeding

Control of laminitis and its effects consists of:

- Timely and skilled trimming
- Sensible feeding

N.B Cows which have regularly had inter digital dermatitis or laminitis will have for the rest of their lives deformed claws showing unsuitable growth over and over again, Only by means of regular trimming these animal can be maintained in the herd till a reasonably advanced age.

fig. 16 chronic laminitis

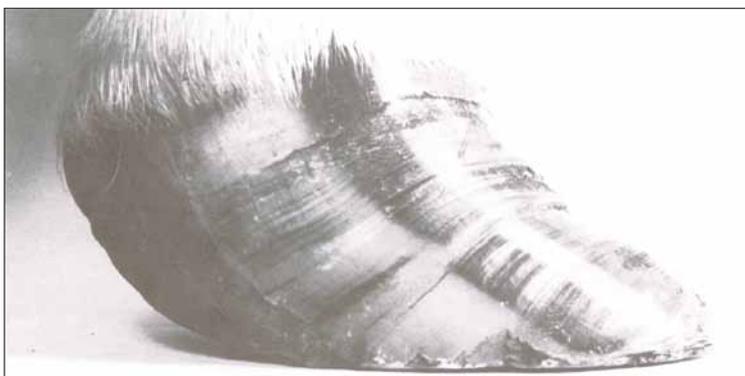


fig. 15



3. INTER DIGITAL PHLEGMON

Stinky foot-with-subsequent-horn-deformation should not be confused with inter digital phlegmon (foul-in-the foot).

Inter digital phlegmon is an inflammation between the toes (fig 17) i.e. above the inter digital skin, and accompanied by a hard swelling in the middle of the pastern region (fig. 18), just above the inter digital space. The animal shows acute lameness (fig. 19).

When treated at an early stage (by means of injections or powders), the inflammation generally disappears without causing permanent damage.

If it is not treated at all or if it is not treated in time, the inflammation

may penetrate through the inter digital skin; this complication may be accompanied by prolong lameness.

It is repeated that inter digital phlegmon occurs above the claws; in principle it does not affect horn formation.

There are indications that the frequent occurrence of inter digital phlegmon in a herd can be reduced by the use of formalin footbaths. This is of importance, in particular, for loose housing.

Animals in which the inflammation has penetrated through the inter digital skin should not use the formalin bath.

fig. 17

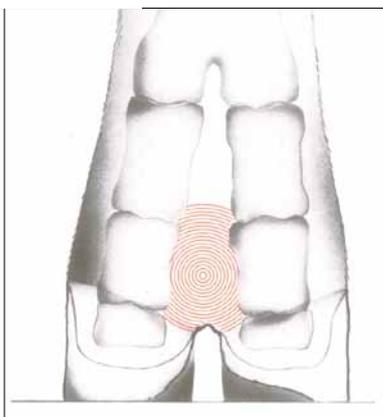
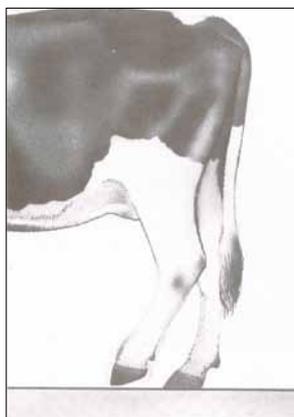


fig. 18



Inter digital phlegmon

fig. 19



HOOF TRIMMING - Instructions

4. DIGITAL DERMATITIS

A fourth disease of the foot has been recognised, of which the extent over the world is unknown. It is described as "digital dermatitis", the symptoms of which are circumscribed, superficial inflammations of the skin bordering the claw.

The hair around often stands upright. A single, intensive topical application of medicaments containing tetracyclines and "gentain violet" seems to be effective.

As the origin is unknown, preventive measures cannot be advised for the time being. Obvious lameness is a frequent symptom. Digital dermatitis can provoke excessive growth of horn.

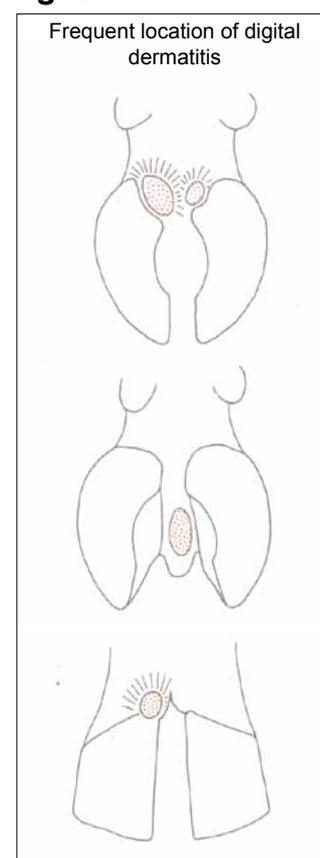


Hoof care has never been easier!



Fully opening side gate for total access

fig. 20



PROBLEMS WITH FRONT CLAWS

Claw problems in dairy farming usually occur in outer hind claws.

However, if in cubicle housing it is difficult to control the stinky foot problem, the infection will also clearly manifest itself in the front claws, in the form of affected horn in the heel area and of overproduction of horn in the rest of the claw.

Trimming of the front claws may then be considered. Another problem with front claws, which has in later years revealed itself in loose housing, is excessive growth of the inner front claw. Often this accompanied by changes in the shape of this claw (it becomes "cork-screw like") and by a base-wide toe-out position of the front legs. When not very pronounced, there are few difficulties; but when it becomes very much apparent trimming becomes desirable.

The cause is thought to lie in the difficulty of reaching the feed at the feed gate. Pushing and over reaching is said to result in oblique overloading of the inner front claw.

A solution may be found in elevating the feed passage with regard to the walking area.

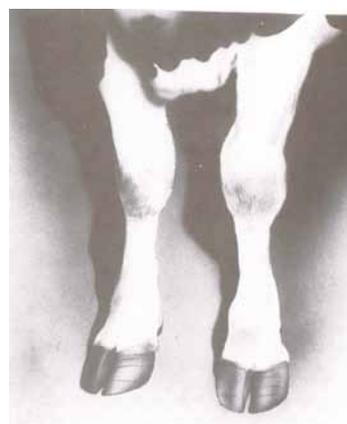
However, problems with front claws do not arise in all loose housings and when they arise, their seriousness differs from case to case.

HEREDITARY PREDISPOSITION

Hereditary properties play a role in various aspects of claw problems; the resistance of the quick to influence of weight-bearing and pressure, the resistance of the animal to stinky foot infection and the resistance of the animal to metabolic disturbances or poisonings which manifest themselves in laminitis.

Properties which are all difficult to recognise because rearing, housing and care also influence the symptoms which can be observed on the animals.

fig. 21



normal fore feet

fig. 22



growth of the inner claws of the fore feet is curved and the inner claws are turning over

This also holds for abnormal claw forms which cannot immediately be recognised as resulting from diseases (laminitis, stinky foot); what was already present and what has been acquired during life?

A sound advice would seem to be, not to continue breeding with animals which already have claw problems at an early age.

HOOF TRIMMING - Instructions

TRIMMING

Abnormal pressure may be exerted on the quick because of improper horn growth and of incorrect weigh-bearing. In the long run this will seriously damage the quick. By means of trimming something can be done about this:

- An excess of horn underneath a claw which is too high may be cut away.
- If there are no lesions, one should make sure that sufficient healthy horn is left to protect the quick.
- This cutting should be done in such a way that the claws stand upright on the ground, which ensures an even pressure on the quick, by the pedal bone
- Claws that are too long should be shortened first
- In case of lesions, horny borders which exert pressure must be cut away or be thinned down.

fig. 23

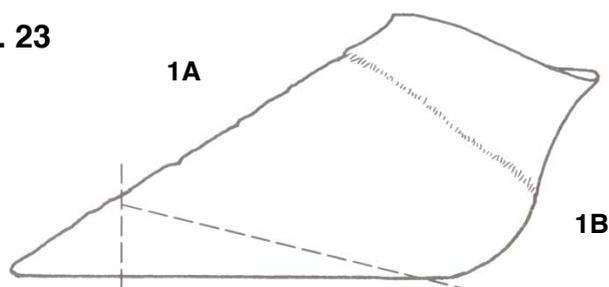
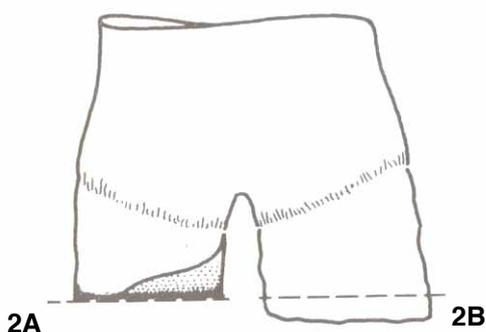


fig. 24



So, improper (unsuitable) claws must be trimmed, preferably before lameness occurs.

If there is a person on the farm who can judge the condition of claws, he knows which animals need foot care and how often they need it.

If this is not the case, then it makes sense to have all milking cows treated twice a year, as a matter of precaution.

When learning how to trim claws, the following working plan for trimming of hind claws can be recommended.

1. Judge the length of the claws - usually the shape of the inner claw is more normal than that of the outer claw and hence the length of the inner claw must be taken as a yardstick - 7,5 cm for an average Friesian cow

1A If necessary, clip the inner claw to correct length (fig 23) and 1B cut, departing from this length, a plane bearing surface underneath this claw (fig. 23). When doing this as little horn as possible (if any!) Should be taken in the heel area, so that later on it will be easy to make the outer claw equally high.

"Plane" includes the bearing surface at right angles to the long axis of the shin bone in standing position. This ensures a stable supporting surface on hard ground (fig. 24).

A proper length ensures a proper thickness of the sole, certainly in the front part of the claw (5-7mm). And a proper sole thickness (a sole hardly or not at all impressible) is important!

2A If necessary, clip the outer claw to the same length as the inner claw and 2B cut, if possible, the outer claw to the same height as the inner claw (fig. 24). "If possible" because the sole may not become too thin! The anterior margins should point in the same direction, when comparing the two claws (figs. 24, 26, 27). Again, make sure to obtain a "plane" bearing surface.

fig. 25



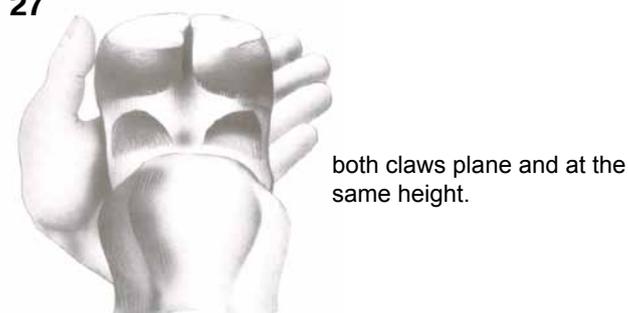
outer claw higher bearing surfaces plane.

fig. 26



outer claw higher bearing surfaces inclined.

fig. 27



both claws plane and at the same height.

HOOF TRIMMING - Instructions

3. If necessary, cut some "slope" in the sole (fig. 28)

Trim the other foot.

This is functional trimming

If there are horn lesions remaining (fissures, a sole ulcer, separation of horn in the white line), then this "diseased" claw needs further treatment (curative trimming):

4. Take away more "height" towards the heel, in order to give the claw more rest (fig. 29); possibly fix a block underneath the healthy claw in case the sole of the diseased claw becomes too thin (too vulnerable) (fig. 30);

5. Take away loose horn (fig. 30a);

Trim down hard ridges (fig. 30b);

do not damage the quick!

Trim the other foot.

N.B. Good trimming is easier said than done; learning it requires good supervision.

If possible, trimming must be avoided during about three months before putting into use a new concrete stable; the excessive wear is not immediately compensated by a sufficient growth of horn.

fig. 28

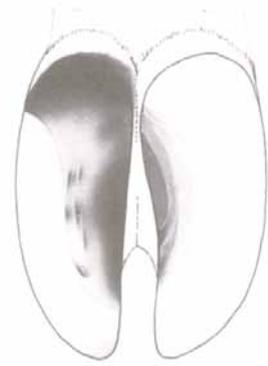


fig. 29



fig. 30

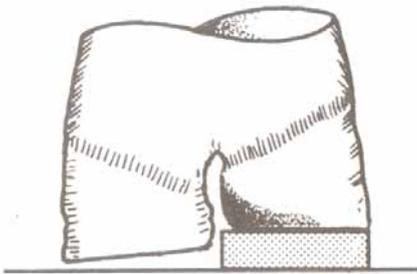


fig. 30a

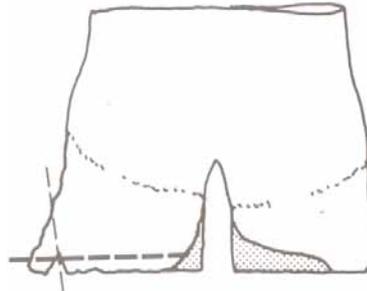
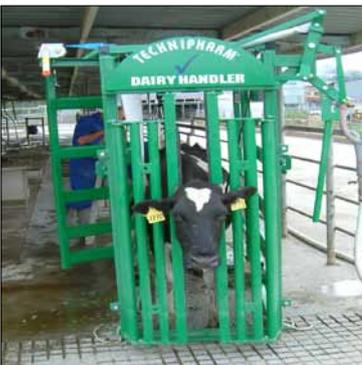


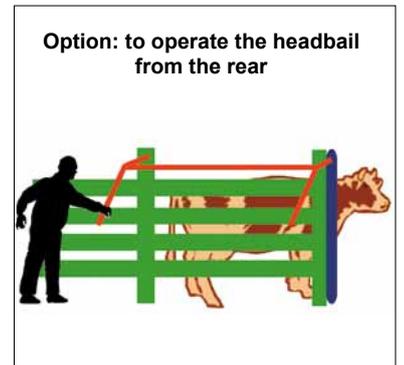
fig. 30b



"Clear view" full walk through means you can put the hoofcare handler at the end of any exit race - permanently!



The rubber lined dairy handler headbail is very quiet and light to operate. The patented moon shape concertina is great when ear tagging



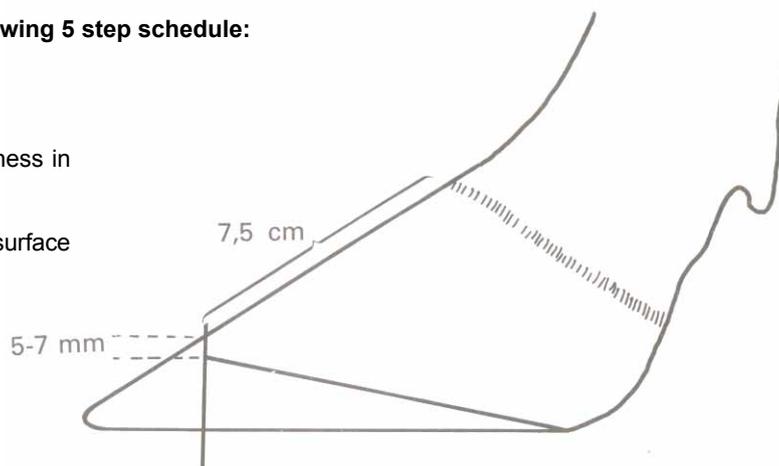
HOOF TRIMMING - Summary

SUMMARY

For the practical foot trimming one should use the following 5 step schedule:

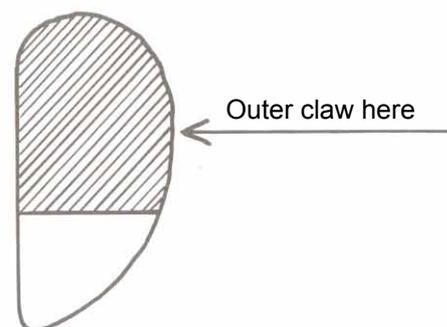
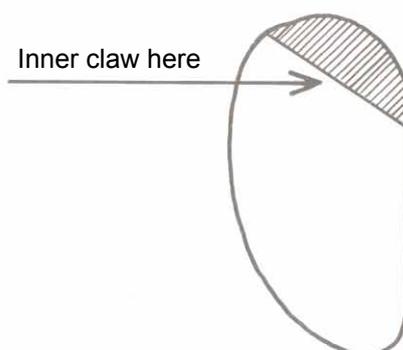
Functional trimming:

1. Make the inner claw 7,5 cm long. Leave 5-7mm thickness in the tip. Spare the heel.
2. Make the outer claw equally long, and make the bearing surface at the same level as the inner claw (if possible)
3. Make a slope (model) in the sole



Curative trimming:

4. If the outer claw is damaged, make this claw lower towards the heel. So the weight is transferred partly to the sound claw.
5. Remove loose horn and trim down hard ridges



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HOOF TRIMMING - Instructions

METHODS TO RESTRAIN THE COW

Trimming the claws without some method of restraining the animal requires a combination of strength, routine, patience and knowledge of cattle behaviour which may not always be on hand.

That is why methods to restrain the animal have been worked out, methods to hold the legs of cows fixed.

A practical method is hoisting up the leg (fig. 31). This does not require so much strength.

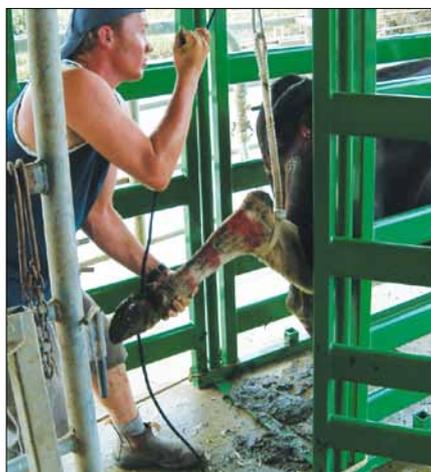
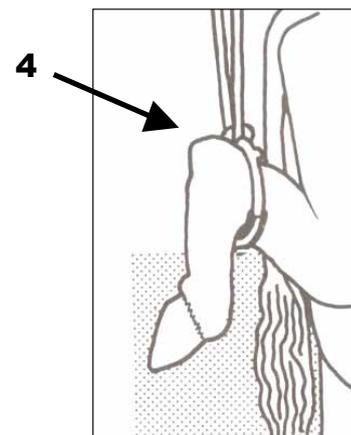
Most cows tolerate this action without undue resistance, the more so when it is done with patience and when the operator maintains "contact" with the animal.

With hoisting, the hind leg of the animal is tied with a rope, just above the hock; the leg is hoisted up vertically. Boxes specially made for cows requiring care usually have an outfit for mechanical hoisting of a cow's leg.



The key elements of restrain are:

1. Head Locked in quality no noise Dairy Handler Headbail
2. Belly hoist support attached
3. Front feet support engaged (one at a time)
4. Rear feet lifted by placing soft vet rope above the hock (see example) The placement above the hock is very important as this is where you will have superior control! DO NOT PLACE ROPE JUST ABOVE THE HOOF EVER! As this is where the hoof is most sensitive and the cow has most strength in her "kick"
5. At any stage open side gates for access, place restricter bar where it suites as this avoids the cow from side stepping



The lifting assembly to hoist the leg up



Rear end lock gates to allow full containment of the animal



The unique side bar ensures you can open a side gate and yet keep the cow fully side supported -stops her swaying sideways