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Cattle Foot Care And Lameness control

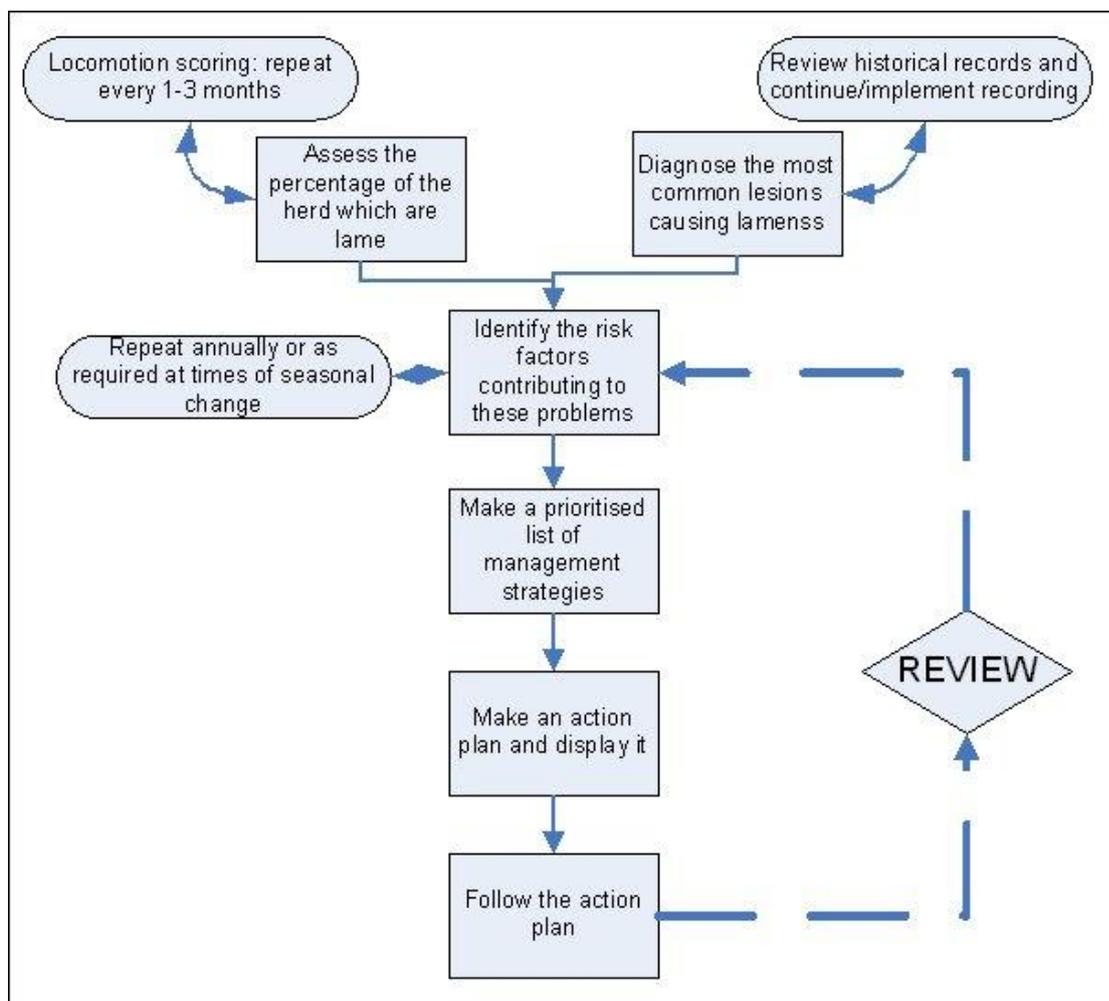


Mobility/Locomotion scoring.

This is the only way to determine the degree of lameness in a herd. It should be performed as an independent assessment otherwise it is claimed that the results may not be a true reflection of what the true lameness situation is like on that particular farm.

I have enclosed a scoring chart outlining the criteria for scoring of cattle locomotion. Scores are rated from 0-3 with scores of 2 and 3 being recognised as clinically lame. This should represent no more than 15% of your herd

Below is a flow chart outlining the benefits of locomotion scoring and how it should be used on a farm as part of the overall lameness control plan.



The cost of lameness is usually much higher than anticipated. The current U.K. average incidence of lameness is running at about 55%. With an average cost of a lame cow being estimated at £178 this would be a considerable loss of revenue to the farm.

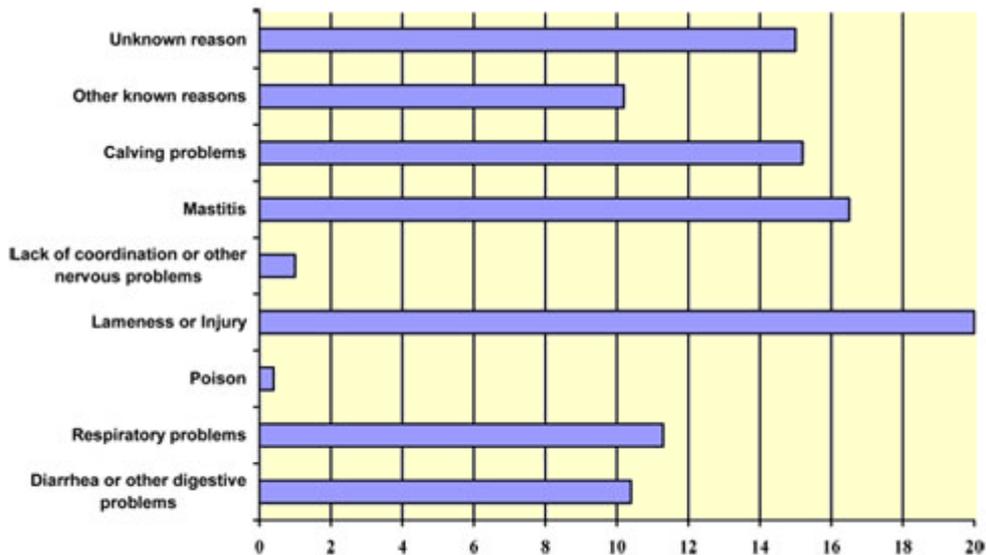
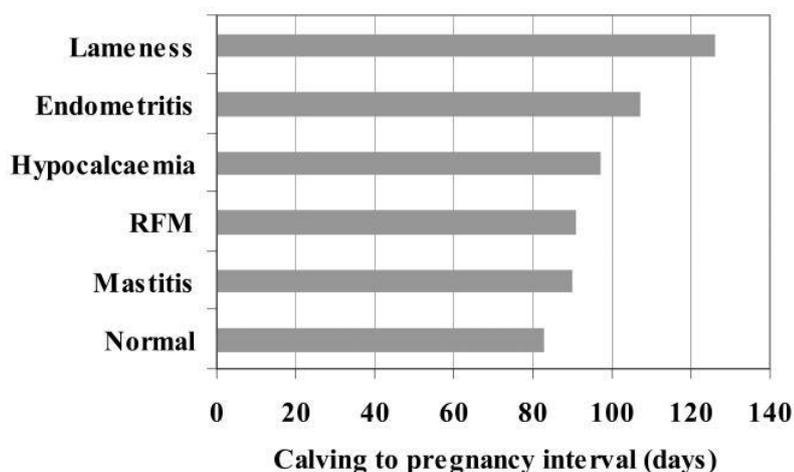


Figure 1. Percentage of cow deaths by producer-attributed cause. (Dairy 2007)

The diagram above shows that main reason for cows being culled (2007) and as can be seen lameness/injury was the most prevalent reason. It is well recognised that lameness is a major contributor to increased incidence of mastitis and increased cell counts, a reduction in dry matter intake hence loss of production and is also a main contributor to poorer fertility (see below).

In a study of 195 cows, looking at the effect of lameness on fertility factors

	lame	Non lame
Ovarian cysts	25%	11.1%
Conception rate	17.5%	42.6%



Practical Foot Trimming

Regular foot trimming is the best way to reduce the incidence of lameness on your farm. This should be performed as a routine task and as soon as possible when a lame cow is spotted. We know that a number of our dairies have a regular professional foot trimmer involved but the temptation is to leave a lame cow for the foot trimmer to examine when he/she next visits. This will inevitably turn an acute lameness into a chronic one with a much greater recovery time and more foot damage occurring and hence reducing the chances of a total recovery. To understand the principals of foot trimming it is important to know a little of the basic anatomy of the hoof.

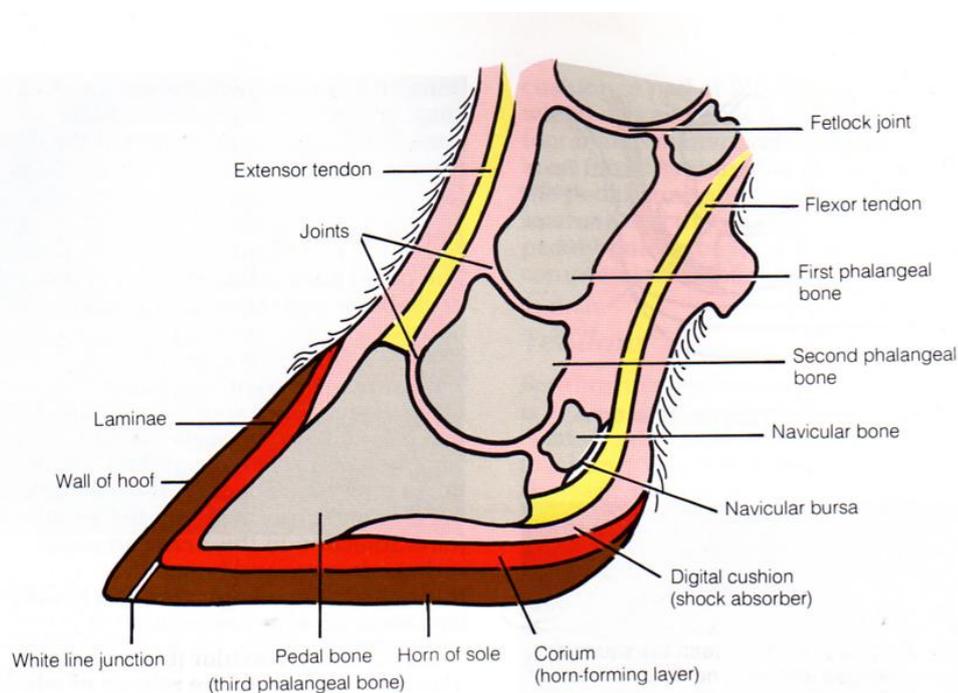


FIGURE 2.12 The structure of the foot: bones and joints up to the fetlock.

As can be seen from the diagram above the foot has three basic structures

1. Inner skeleton i.e. pedal bones and joints
2. Middle soft tissue area containing blood vessels, nerves and connective tissue
3. Outer hard horn i.e. the wall and the sole.

This in turn means that if there is inflammation within the middle soft tissue area then there is nowhere for the swelling to go hence the foot will become very painful.

There are four areas of horn

1. The wall
2. The sole
3. The bulb of the heel leading into the periople (that waxy area near the coronary band)
4. The white line

The hardest part of the hoof is the wall at the toe as this starts its growth at the coronary band and will grow at half a centimetre per month. During this time of growth there are chemicals/hardeners being added to the wall as it continues to grow.

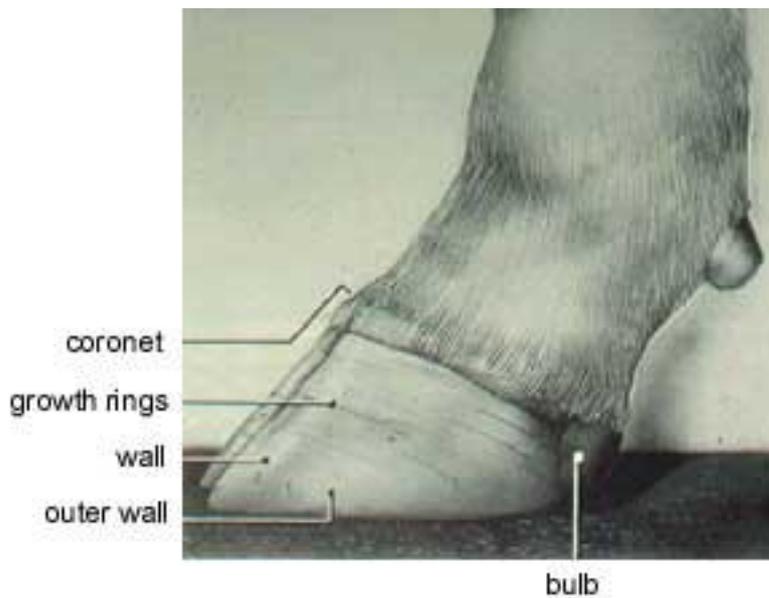
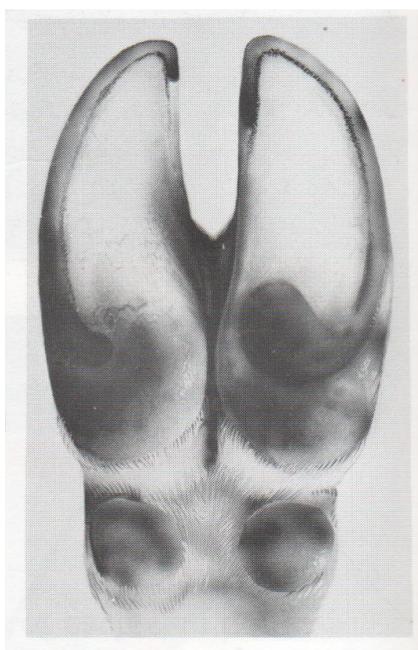


Figure 2. Abaxial View of the Normal Hoof



This picture shows the sole of the bovine digit. The abaxial (outer) claw is the one on the right (as we look at the picture). Note how the wall of the hoof on the abaxial side curls around the toe and returns part way up the inside of the outer toe. This is very important to remember with respect to the balance of the foot

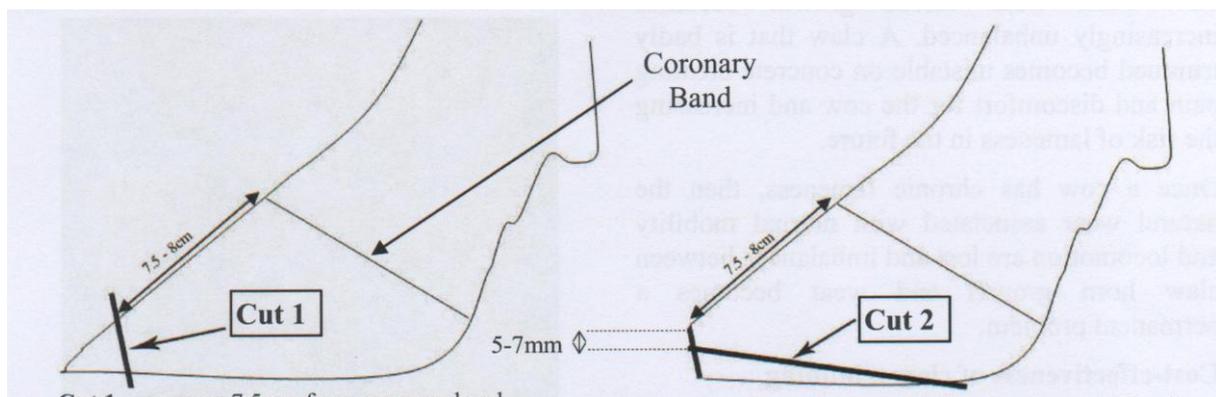
Objectives of good foot trimming:

1. Improve the weight bearing surface of the bovine foot.
2. Improve weight distribution of the bovine foot.
3. Remove excess horn especially around the heel area.
4. Relieve any weight on painful areas e.g. shoe ulcers etc
5. Treat any underlying infection.

To achieve these objectives it is important to develop a routine to approach every hoof in the same way. This has led to the development of the 5 stage trimming method (Dutch method).

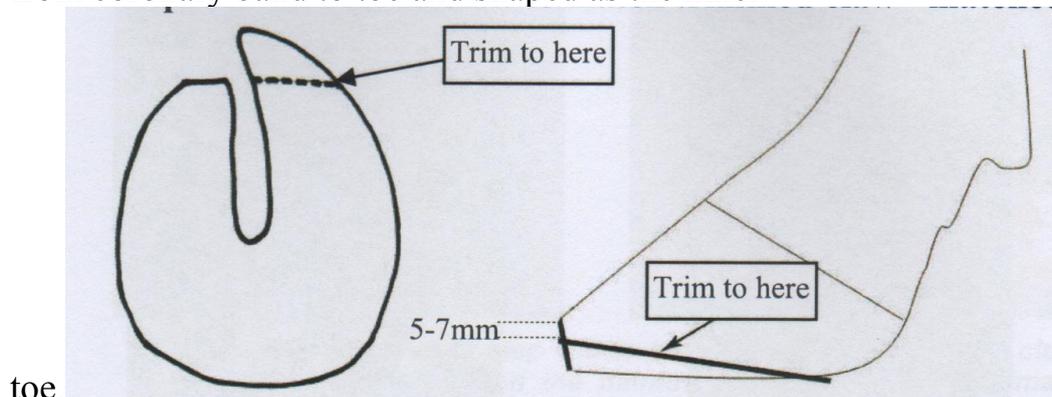
Step 1

In the hind feet we use the inner toe as the template for trimming. The distance from the coronary band to the tip of the toe should measure 7.5-8 cms. This toe should be trimmed to this length if too long. The second cut should be made so as to leave a 5mm step at the toe (see diagram).



Step 2

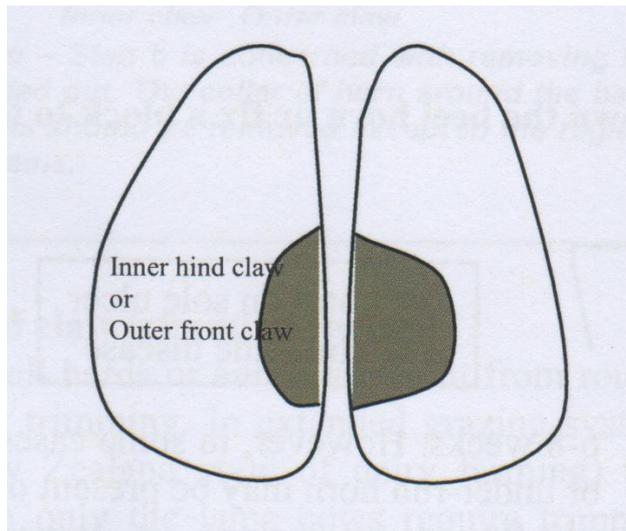
Using the inner toe as a template the outer toe should be matched for length from coronary band to toe and shaped as the inner



toe.

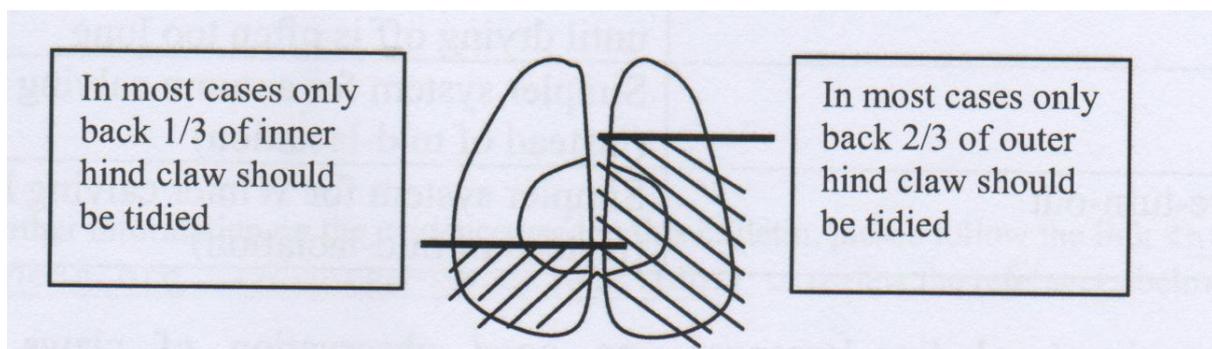
Step 3

This cut is called modelling the soles and it is a cut that removes solar horn from the “ulcer sites”. It is important to remember at this stage where the wall of the hoof finishes on the inner side of the outside hoof. This part of the wall must not be removed as this will provide a degree of instability to the foot.



Step 4

Look at the foot for any causes of lameness and remove the weight from the affected areas. There is usually a build up of excessive horn around the back 2/3rds of the outside claw. This can be removed safely until there is a slight “give” in the sole to digital pressure. In the summer it may be beneficial to leave the sole slightly thicker if cows are to walk along stony tracks.



Step 5

Remove excess horn at the heels in the case of slurry heel etc. or hard ridges and any under-run horn.

Lameness problems

Lameness in every dairy herd can be split into three main categories;

Affected area	Nature of lameness
Claw Horn (Hoof) Lesions	Solar ulceration White line disease White line abscess Thin soles
Skin Lesions	Digital dermatitis Foul in the foot Interdigital growths
Non-foot lameness	Bone, muscle and joint damage Cubicle injuries Cubicle hock Calving injuries

Controlling risk factors for claw horn disease

- **Management around calving**

Hormonal, metabolic and management changes occurring around the time of calving have an effect on the structural anatomy of the foot. This can increase the risk of foot lesions some three to four months after calving. Research work done shows that there is a beneficial effect on lameness when cows are kept on a straw yard for a period of time after calving. The downside to this is that there is an increased risk of mastitis.

- **Heifer management and introduction into the main herd**

If a heifer goes lame in her first lactation then she is three times more likely to be lame in her second lactation. Looking after heifers pre-calving and ensuring that they are cubicle trained will help to reduce overall lameness problems. There have been major beneficial effects of keeping a separate heifer group post calving not only on the effects of lameness but also on milk production, growth rates etc.

The time to foot-trim first lactation cows needs to be considered carefully. Most heifers will not be trimmed during the rearing period. If left to drying off at the end of their first lactation they will have significantly overgrown feet.

- **Improving lying times**

Ideally a cow should spend between 12-14 hours per day lying down. This will literally take the weight off her feet and improve circulation in the corium. Cows will rarely remain recumbent for longer than one hour. To ensure that the lying time is maximized, comfort bedding is essential with adequate lying space. Cubicles should outnumber cows by 5-10% and should be well bedded.

Slurry management in cubicle houses is also important and passages should be scraped out at least twice daily. Where automatic scrapers are being used it has been suggested that the run should be no longer than 25m as a wave of slurry will build up in front of the scraper and cows will rarely step over the blades of the scraper until the last moment. This will result in soiling of the lower limb and keeping the horn wet which will result in increased risk of

infection, especially where digital dermatitis is prevalent, or result in excessive wear of the hoof.

- **Improving walking surfaces**

The walking surface must be clean and non slip. Rubber matting has been used to try and reduce concussive forces on cows especially whilst standing in collecting yards.

Attention must also be paid to cattle tracks during the summer months. Ideally tracks should be free draining, free from stones and only be used by cows. Gateways and the areas around water troughs should also be cow friendly.

- **Nutrition**

Much has been written about the effects of ruminal acidosis, or protein excesses on the health of the feet. It is important that the cow is fed a good balanced diet and she will benefit in more ways than improved foot health. There has been work done to show that the addition of biotin to the ration will help with hoof horn quality.

The 4 essential components of a lameness control program include:

1. Reduce infection pressures
2. Maintain good hoof shape and improve horn quality
3. Reduce forces on the feet; a) Good cow comfort
b) Good cow flow
4. Early detection and prompt effective treatment