

# UNDERSTANDING HOOF CARE TECHNIQUES IN LARGE ANIMALS

**THE foundation most vets' foot trimming approach was initially based on the Dutch foot trimming technique, as developed by Toussaint Raven and, more recently, on the Comfort Hoof Care approach by Karl Burgi.**

Bearing in mind a cow's normal weight distribution, 60 per cent bodyweight falls on the front feet, with the remainder on the back. For a 700kg cow, each front claw will bear 100kg (equal to four bags of calf feed), while each rear claw will bear 75kg (or three bags of calf feed).

In reality, the claw that overgrows the most is the lateral for the rear legs and the medial for the front ones. Our "model" cow bears weight evenly between the medial and lateral claws of each foot (50:50 weight distribution). Also, while walking, the tips of its claws are pointing forwards and not splayed to the side.

Our efforts to reshape the hooves are based on transferring weight from the heels to the toes and from the lateral to the medial claw (rear legs) or the medial to the lateral one (front legs). This would allow, where possible, 50:50 weight distribution, but, ultimately, would allow a 7mm thick solar horn to effortlessly bear the equivalent of three or four calf feed bags of a cow's bodyweight.

## To grind or to cut?

There are five foot trimming steps, each of which may have up to three cuts. It is important, early on, to make the distinction between steps and cuts, but, more importantly, that not all the steps or cuts need to be applied.

Cattle vets' whole approach should be very critical and assess whether the foot we are presented with fits the model or not.

The first three steps are called curative, as they are of constant relevance at each hoof. The remaining two are optional, as they are relevant only if certain conditions are met. For instance, we may skip step four, but proceed with step five or the other way around.

The best time to trim is within 24 hours of the cow

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discusses the importance of providing correct hoof care in dairy cows, followed by a step-by-step guide on how to carry out the foot trimming procedure

★ SPOTLIGHT ★

This article is part of our regular Spotlight series of clinical and topical features aimed specifically at the large animal veterinary practitioner

going lame. Aside from emergency cases, prevention at drying off is, of course, an ideal time, then repeating at 100 days in milk.

The decision on whether we should use an angle grinder or knives depends on the training of the foot trimmer. For certain steps we should not go anywhere near an angle grinder and these should only be done with a knife (step three and possibly step five). On other steps, there is no better tool than the grinder (steps one, two and four).

So, the most important part of our critical appraisal of the foot begins. This is by asking the question: "Which foot is the cow lame on?", as we observe the patient walking into the crush.

## Resist temptation

Once the foot is picked up, cleaned and examined, we occasionally notice an obvious offending lesion. This may be a black mark along the white line or a "glaring" solar ulcer.

It is vital, at this stage, to ignore such tempting findings and instead go through the motions. The foot needs to be shaped up; the cow's posture should first be altered to fit the model, then proceed to tackle any problems (Figure 1).

This disciplined approach would allow us to address the causes that led to the offending lesion and prevent the problem happening again.

In any case, as the five steps are designed to have a therapeutic effect, going through them will also treat the evident lesion.

## One size fits all? I don't think so

The pivotal point of our model is the nomination of one of the two claws of the same foot as a template, so it is used like a matrix to shape the other one. Noteworthy is that the template claw for the rear limbs is the lateral one and for the forelimbs, the medial, as those are likely to overgrow the least.

Our assessment begins with the appraisal of the length of the template claw. Not judging the correct length of the claws is the commonest reason for failure at the Dutch Diploma in Cattle Hoof Care exams. We measure the length on the lateral/medial ridge at the dorsal aspect of the foot, starting from the coronary band.

We accept the normal length of the adult dairy claw stands at 7.5cm to 8cm – measurements that are very strictly prescribed. We reserve 7.5cm length for a small/medium size cow and 8cm for a large one.

Should we choose a length longer than normal, cows are likely to be standing on their heels and be predisposed to solar ulcers. Selecting lengths shorter than normal are likely to leave the solar horn too thin.

Beware, as what would a rule be without its exceptions? On some occasions the template claw is smaller than normal. Such possibility needs to be taken into account when assessing its length, as we shall use such length when shaping the non-template claw. The best tool for carrying out any length measurement is a gauge (Figure 2), not by using the palm of our hand.

## Horn is like gold dust

Once we have determined whether our claw needs shortening or not, we proceed to adjust the length. It is essential this is done with one clip, if possible, at right angles to the long axis of the

foot. Under no circumstances should we continue clipping axially or abaxially to the toe, as we would be removing precious weight-bearing surfaces. Once horn is removed, it cannot be put back on.

The next cut of this step concerns the solar horn thickness. Fundamentally, excess horn is removed from the toe to rebalance the spread of weight on the sole, from heel to toe. Unlike Dutch cows where a 5mm solar horn thickness is acceptable, in the UK most cattle vets aim for 7mm thickness. This is because our dairy cows stand on concrete a lot longer and also have to walk on long footpaths in the summer.

One should be reminded of the "domino effect", which materialises when the length of the claw is assessed incorrectly and, subsequently, cut too short. It is very likely the quick will be struck while adjustment of the solar horn thickness takes place. This brings disastrous consequences, as a toe ulcer bears poor prognosis.

The foot gauge in Figure 2 can also be used to assess the thickness of the claw – particularly as it is calibrated for 7mm. There is no need to aim to "expose the white line" at the toe, as the 7mm thickness may occur before such exposure takes place.

All these cuts are repeated on the non-template claw, which is shaped as a replica of the template one, when possible. Most of the time, the non-template claw needs a reduction of its height (this refers to the height of the heel) to ensure 50:50 weight distribution. The rear third of the template claw is out of bounds – we usually do not trim there as we need to ensure the transfer of weight bearing from heel to toe.

## Is it lame on that foot?

The final curative step is the modelling or dishing, where a concave area is shaped in the axial part of the rear two-thirds of the sole.

It is critical such modelling does not extend in the front third of the axial surface of the sole – especially where the white line curves in. This axial part of the white line is weight-bearing surface and the removal of it will encourage the pathological rotation of the claws.

The second purpose of modelling is to expose the "typical site"; that is, the area where solar ulcers most commonly appear. Should we identify such an ulcer,



**Figure 1.** To ensure success, it is important the foot trimmer takes a step back and ignores the obvious before commencing shaping of the claw.



**Figure 2.** A foot trimming gauge to measure claw length.

now is the time to treat it. It is simply done by removing further horn from the affected claw, so the weight distribution will alter to 60:40, away from the diseased claw.

As the heel is the first part of the foot to touch the floor when a cow walks, trimming it too thin will result in a cow becoming very sensitive while it is walking. This structure mostly consists of fat that acts as a shock absorber when a cow puts its feet on the ground. Overgenerous trimming in this area will make animals more lame.

The ultimate step of our appraisal of the foot is the removal of impacted horn and, very often here, horn is unnecessarily removed. The white line of the sole is a weak point in the foot's construction – an area where the sole fuses to the wall of the claw. Very often, dirt or manure will compress there, potentially leading to full disruption of the white line.

Again, there are exceptions as, on some cows, the white line is loose, but

not disintegrated. Horn removal from these areas must very much depend on the answer to the question: "Is it lame on that foot?"

## Epilogue

Large animal hoof care is a well-documented technique that requires adequate training and continuous critical assessment on the part of the foot trimmer. Shaping the claws so a cow's normal posture is restored is the prerequisite to preventing foot problems.

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