Evidence-based claw trimming for dairy cattle

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CLAW trimming every four to six months has become a routine procedure for the majority of high yielding housed dairy cows. Various methods have been described, but the Dutch Five Step method (Toussaint Raven 1985) is probably the most widely used approach around the world and has been the basis for most research. Despite being the most commonly used protocol internationally, the Dutch Five Step method has remained largely unscrutinised and unaltered in 30 years. The five steps are intended to be used and interpreted in sequence, and involve trimming the dorsal wall toe length to the correct length (step 1); matching length and balancing weight distribution in the other claw of the foot (step 2); creating a concavity within the middle of the sole (step 3); raising a painful claw off the ground through the use of a block and/or by trimming down heel on the affected claw (step 4); and, finally, removing loose horn and ridges at problematic sites (step 5).

Claw trimming of dairy cows has the potential to redistribute weight to the most robust parts of the claw (van der Tol and others 2004), improve grip (Phillips and others 2000), improve gait (Meyer and others 2007), and aid the recovery of painful foot lesions and thereby reduce lameness prevalence, duration and severity (Manson and Leaver 1988, 1989). It can also restore anatomically correct foot shape and mediolateral claw balance to prevent future claw and digital skin disease (Manske and others 2002, Hernandez and others 2007). However, iatrogenic lameness through over-zealous foot trimming has been raised as a concern (Burgi and Cook 2009, van Hertem and others 2014), with lameness due to thin soles (van Amstel and others 2002), toe ulcers and necrotic claw lesions (Kofler 1999) being at times attributed to over-trimming. An apparent rise in incidence or awareness of lesions considered iatrogenic has naturally prompted calls for improved claw trimming standards.

Recently, some details of the Dutch Five Step method have received scientific scrutiny. The rebalancing of claws to achieve equal weight-bearing during step 2 of trimming was initially challenged by Nuss and Paulus (2006), who examined feet postmortem from slaughtered German Simmental cattle to determine optimal parameters for claw trimming. When sole depth was optimised, mean dorsal wall lengths were 76.8 mm and 77.1 mm for medial and lateral claws, respectively, but when claws were trimmed to achieve balance, mean sole thickness in the lateral hind claw was measured at 2.71 mm in the toe and 4.9 mm at the heel – significantly less than the sole depth in the medial claw and inadequate for protection of the corium. This work has yet to be repeated in the common dairy breeds, such as Holsteins, but it serves to caution claw trimmers looking to achieve equal weight distribution between claws during step 2.

Ouweltjes and others (2009) examined the potential benefit of introducing more sole concavity in step 3 to redistribute more weight onto the walls from the sole when
The dorsal wall claw length is assessed, often estimated, in step 1 of the Dutch Five Step method. Toussaint Raven’s recommendation of ‘a good 7.5 cm’ for Friesians has been widely adopted as standard for all dairy cows, but is this actually correct?

age, breed, size and pre-existing pathology and risks over-trimming a proportion of cows. While Toussaint Raven (1985) was careful to use the phrase ‘a good 7.5 cm’ as a guide for Friesians, this dimension has become widely adopted as standard by many trimmers for use on all dairy cows and for most training courses. When measured from the most proximal aspect of the claw capsule, measured from the most proximal aspect of PIII, dorsal wall length for Holstein Friesians when the toe is trimmed to a point (as advocated by Blowey 1993) or 85 mm if a 5 mm step at the toe is left as described in the Dutch Five Step method. Establishing a consistent and easily identifiable anatomical landmark from which to measure in practice remains a crucial detail left to the reader to interpret.

For instance, a commonly used landmark for training the Dutch Five Step method is the top of the claw capsule becomes unyielding to pressure, which is likely to be several millimetres distal to the point used in this study. With levels of lameness being inversely correlated with levels of knowledge, training and awareness of farmers to foot health challenges (Mill and Ward 1994), these findings may have a significant and lasting impact on the ability of farmers, veterinarians and professional claw trimmers to manage and prevent lameness in dairy cows.

References


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