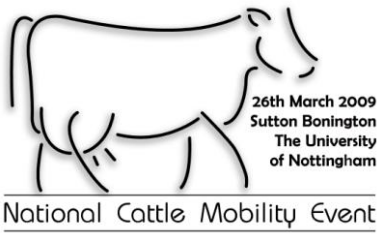
Lameness and Cow Comfort in Modern Dairy Herds



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Lameness is one of the most important diseases currently facing the UK (and world) dairy industries. Over the last ten years, the number of lame animals recorded as cases per 100 cows per year has been reported to be between 22 and 24 (Esslemont et al. 2002), 68.9 (Hedges et al. 2001), 23.7 (Whitaker et al. 2000), 24.0 (Esslemont et al. 1996) and 54.6 (Clarkson et al. 1996). The wide variation in these figures probably reflects both variations in case description and how the data was collected. Lameness is notoriously under recorded and the actually incidence is probably towards the upper end of the range reported here.

Mobility scoring is currently the most widely accepted method for identifying lame animals. Many different systems for scoring have been described (Manson et al. 1988; Tranter et al. 1991; Sprecher et al. 1997; Whay et al. 1997; Winckler et al. 2001; Huxley et al. 2006). Recently a four point scoring system was accepted as the "UK standard" at a cross industry meeting hosted by the Milk Development Council (now DairyCo). A detailed description of the system and further information can be found on the DairyCo website: (http://www.mdc.org.uk/adx/aspx/adxGetMedia.aspx?DocID=10900).

Based on the results of lameness scoring the proportion of lame cows on UK dairy farms has recently been demonstrated as 34.0% (NJ Bell, Personal communication 2008), 30.0% (Huxley 2005), 24.2% (Huxley et al. 2004), 23.1% and 20.0% (Main et al. 2003) and 25.0% (Clarkson et al. 1996) i.e. approximately 1 in 4 UK dairy cows is identifiable lame on any single day of assessment.

Lameness has serious financial and welfare implications. It has been calculated that the average case currently costs the UK dairy industry £172 (Esslemont 2005). Recently the impact of a case of lameness on future milk yield during that lactation has been investigated. The total mean estimated reduction per 305 day lactation was calculated as 390Kg (Green *et al.* 2002). Further

analysis has demonstrated that the effects on production are influenced by the cause of the lameness. Lameness caused by a sole ulcer led to a mean reduction of 570Kg and a case of white line disease by 130Kg; digital dermatitis caused no reduction in yield (Amory *et al.* 2006). Interestingly, an animals that suffered a case of sole ulcer or white line disease had a reduction in yield for up to two months prior to the lesion being treated and animals that developed a sole ulcer initially produced more milk than unaffected cows (+1.5Kg / day) (Green *et al.* 2002).

The effects of lameness on fertility are also profound. Studies from countries around the world have investigated and demonstrated links between lameness and infertility. It has been demonstrated that lame cows suffer from delayed cyclicity (Garbarino et al. 2004); are more likely to receive treatment for anoestrus (Hultgren et al. 2004) and more likely to suffer from cystic ovarian disease (Melendez et al. 2003). Once animals start to cycle, lame cows demonstrate a lower frequency of standing to be mounted compared to their sound herd mates (Sood et al. 2006). Lame cows which are served are less likely to conceive (Hernandez et al. 2001, Hultgren et al. 2004, Harman et al. 1996); have a lower conception rate (Melendez et al. 2003, Suriyasathaporn et al. 1998, Lucey et al. 1986, Collick et al. 1989); an increased risk of conception failure (Hernandez et al. 2005) and require more services per pregnancy (Sprecher et al. 1997, Collick et al. 1989).

Unsurprisingly, as a result many papers have demonstrated that lame animals suffer extensions to the calving to first service interval (Barkema et al. 1994, Sprecher et al. 1997, Lucey et al. 1986, Collick et al. 1989); calving to conception interval (ArgaezRodriguez et al. 1997, Hernandez et al. 2001, Hernandez et al. 2005, Barkema et al. 1994, Lucey et al. 1986, Collick et al. 1989); number of days open (ArgaezRodriguez et al. 1997), and calving interval (Enting et al. 1997, Hultgren et al. 2004) compared to their healthy herd mates.

As an industry, it is vital we start to tackle this extremely important and costly disease. Solving this multi-causal, multi-factorial problem will not be an easy task; nor will there be any quick fix solutions. We must start by devising and implement control strategies which deliver cost effective improvements.