

UNANSWERED QUESTIONS AT LAMENESS CONFERENCE

THE opening sentence of the winning poster at the 2015 Cattle Lameness Conference really summed up the whole event: “The digital cushion is thought to be important in the formation of claw horn lesions, yet its exact role is unclear.”

Presentation of the trophy to Reuben Newsome (University of Nottingham in collaboration with Green and Huxley) for “The Digital Cushion Story: How does body condition loss lead to claw horn lesions?” came at the end of a thought-provoking conference.

In the fullness of time, all associated with cattle feet will have the opportunity to more clearly understand

lameness in dairy cows, if the current research projects fulfil their potential.

Other posters highlighted work on wireless sensors to detect lameness (combined studies by five universities in Japan), local positioning technology (four institutions in the UK), low body

RICHARD GARD reports on papers and posters presented at the 2015 Cattle Lameness Conference held in April which looked at many of the factors involved in achieving optimum foot health

condition predisposing to lameness (three UK universities). From many of the conference presentations various aspects were glimpsed, with the possibility of a clear view to follow.

Steve Paul updated delegates on the activities and training associated with NACFT (National Association of Cattle Foot Trimmers). Other hoof trimmers attending were involved in the detail at various points.

The Dutch Method forms the basis of training during a four-day course and registered members are updated in their technique every two years as “foot trimmers need to be qualified to pick up cows’ feet”.

Other methods of trimming are recognised but Steve concludes that all methods are 90% the same principle with 10% variation. There is a shortage of trimmers and DEFRA is being urged to have regulation to maintain a quality service and promote “the best possible outcome for the cow’s foot”.

Emphasis was placed on the need to assess each hoof and not to rely on standard measurements. The bone length is variable and so the horn length needs to match and the trimmer not to assume that 750mm as a standard measure is adequate. If the standard is adopted it is likely that 50% of cows will be over-trimmed.

Measuring from the coronary

band is also unreliable as this is a variable point. More evidence, not opinion, is needed to achieve the best outcomes. The foot trimmer produces a computerised report for the farmer, which records hoof lesions and any hoof blocks that are put on to relieve pressure on the affected claw.

Normally, the attending veterinary surgeon would receive information directly from the farmer but liaison between trimmers and veterinary practices is becoming more common.

Internal structure

Jon Huxley (University of Nottingham) delights in showing striking images of the internal structure of the hoof or, more correctly, “reconstructed computed tomography images showing bones of the foot and fat pads of the digital cushion”.

Unfortunately, these are not yet available for general publication but we will all become increasingly familiar with layers of yellowing fat around the hoof bones.

Jon describes the digital cushion as



Jon Huxley with Rueben Newsome and Laura Randall.

“a pad of connective tissue and fat under the distal phalanx”, making the point that this cushion may play a key role in protecting the foot against the development of claw horn lesion.

Furthermore, the thickness of the digital cushion is related to body condition. Recent studies have shown that a loss of body condition score precedes cows being identified or treated for lameness.

The speaker suggested that managing the rate and extent of body condition score loss may be a key lameness strategy. Thinner cows have thinner cushions; higher yielding cows are more likely to be lame; lameness equates to pain; lame cows become thin.

If thin cows become lame, then body condition score management becomes an important lameness prevention approach.

A body condition score (BCS) below 2.5 is an increased risk for lameness, due to sole ulcer and white line disease, in the following 2-4 months. Animals with a low BCS at calving have been found to have a higher probability of becoming lame and if they were already lame they were less likely to recover.

Loss of condition led to more lameness and an increase in BCS, from calving, is associated with a lower probability of becoming lame and these cows are more likely to recover.

A large study involving nearly 80,000 observations over eight years has shown that a low BCS three weeks prior to a repeat lameness event was associated with a significantly increased risk of lameness, with BCS 2 being a pivot point. Heifers do not develop the digital cushion fully so these observations apply to second lactation animals or older.

The effective management of body condition score is therefore the next area of lameness activity, with the anticipation of fewer lameness incidents to follow.

Genetic influence

The influence of genetics on lameness was addressed by Marco Winters of DairyCo, who recognises that gains in selection for conformation traits have not led to a reduction in lameness levels on farm.

Visual assessment, leading to dam and bull selection, is to be replaced by DNA marker technology. Improving genetics would provide a long-term solution, is cumulative and cost-effective, he said. The cost to test the genetics of a cow is now around £30 per animal and includes production, health and fitness traits. The young sires now available in the UK have a higher proven genetic merit.

He recommended that chronically lame cows and those with a mobility problem should not be used for breeding milking herd replacements. It has been demonstrated that the genetic index with the strongest correlation to lameness is the Lifespan index and farmers are advised to only use bulls with an above average lifespan.

DairyCo is looking to pool available data from breed societies on conformation and digital dermatitis, milk recording organisations with mobility scores and claw health records, foot trimmers with claw health information and vets' claw treatments. The aim is to encourage greater recording of lameness to enhance genetic and benchmarking information.

Effect of foot trimming

The effects on production and fertility from foot trimming heifers 50-80 days post-calving were evaluated by Oliver Maxwell (University of Nottingham). A surprising numbers of lesions were found in those animals with sole bruising in 95% of the heifers examined.

Half the animals were trimmed and half untrimmed. The trial appeared to show that lame and trimmed heifers gave more milk but were less likely to get in-calf by 100 days after calving. Early detection of lameness in heifers is indicated.

Although the work is not yet completed, some important indications were highlighted by Sophie Mahendran (RVC) on the value of trimming heifers three weeks before calving. There was considerable difference in lameness incidence between herds and a need for individual farm assessments before

implementing a foot trimming regime.

The extent and number of interventions required to achieve optimal foot health is strongly associated with the level of claw wear experienced on the unit. Overstocking, poor cubicle comfort, reduced feed space and extending milking group times are all relevant. Pre-calving foot trims will have more benefit on units with raised standing times and suboptimal cow comfort, she said.

Removing claws

A detailed explanation of surgery to remove claws due to severe disorders was presented by Alexander Starke (Leipzig University). Cows requiring distal interphalangeal joint resection or digital amputation can have the same life expectancy as herd-mates.

Close observation is required for new claw diseases in the partner claws, or claws of the contralateral limb. Daily or weekly locomotion scoring as the cow enters or leaves the milking parlour forms part of long-term care.

Practice programme

Phil Alcock (Bishopton Veterinary Group) explained that within the practice veterinary surgeons recognise the need not only to advise on health management but also to develop the practical skills associated with foot

trimming and lameness treatment.

Foot trimmers employed by the practice refer the following cases to the vet: any claw horn lesion that has been treated twice by the foot trimmer or herdsman, all non-healing lesions, wall ulcers, complicated sole ulcers, toe necrosis, deformed claws and corkscrew claws.

There are considerable benefits to the practice and clients from developing a team approach with vets and paraprofessionals offering a complete lameness service.

Photographs of cases are shared and reviewed by all concerned using mobile phone technology and an organisational app called Evernote. The photographs have improved the consistency of the recording of lesions, monitoring healing and the success of treatment, and empowered staff to highlight the nature of problems and support training by allowing discussion around cases without the need to have everyone cow-side.

This high level of technical competence indicates a clear role for the vet in improving the mobility and welfare of dairy cows.

- The conference was organised by the RVC, The Dairy Group and the Nottingham veterinary school and held at Worcester Rugby Club on 22nd April.



At the cattle lameness conference (from left): Alex Starke, Jon Huxley, Marco Winter, Oliver Maxwell, Sophie Mahendran, Phil Alcock and Brian Pocknee.