Getting to grips with the issues of lameness in cattle

A SEMINAR TO LAUNCH THE CATTLE LAMENESS ACADEMY attracted around 100 delegates, including veterinary surgeons, farmers, academics and industry specialists.

The academy is one of the initiatives from RAFT Solutions Ltd (Research, Advanced Breeding, Food Futures, Training) that combines expertise available from the Bishopton Veterinary Group (Yorkshire) and Synergy Farm Health (Dorset). Support and involvement also comes from members of XLVets.

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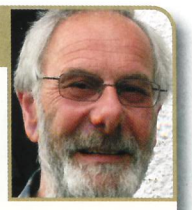

went to the inaugural meeting of the 'cattle lameness academy' which aims to provide a bridge between cutting-edge research and everyday practical work on farms

A principal sponsor was Zinpro Performance Minerals, a company that has a deep interest in lameness with a new downloadable e-book on the identity, prevention and control of claw lesions (visit zinpro.com). Also supporting were Bayer and Boehringer Ingelheim with displays highlighting anti-inflammatories for cattle. This was particularly relevant because the seminar included considerable technical information and discussion about the functionality and an increasing role for NSAIDs.

Jon Reader opened the seminar and explained that the academy brings together specialists in the field of lameness, with the aim of providing a bridge between cutting-edge research and everyday practical work on farms.

Foot trimmers are an important part of the group and the importance of the correct training for foot trimming was emphasised. It is recognised that 70% of people carrying out foot trimming have had no formal training and their work is based on their observations of others.

A series of two-day training courses in the north and the south is ongoing (www.cattlelamenessacademy.com).

Professor Jon Huxley from the University of Nottingham referred to past and present research to discuss the reality of claw horn lesions. He began by saying that "the aetiopathogenisis of the lesions caused by claw horn disruption remains relatively poorly understood", adding: "Without a greater understanding, achieving good quality control on farm will remain challenging."

Many areas of work were providing a detailed insight and the latest investigative techniques were demonstrating the role of the digital cushion and the spikey growths of the hoof bones, he said. That these elements contribute to lameness is accepted; it is the causation, prevention and management that require definition.

He pointed out that a loss of cow condition leads to a loss of digital cushion and a greater risk of lameness; a thin cow at calving is more likely to become lame and a cow lame at calving is more likely to remain lame; the fat pad does not form fully until the second lactation; back fat thickness is indicative of the digital cushion thickness in some animals. Lame cows and older cows are found with lumps on the bone leading to ulcers, due to point pressure.

Reducing inflammation is the key and anti-inflammatories can effectively be used liberally and in early cases; and reducing lameness at the herd level requires heifers to be introduced to a lameness reduction system.

Reuben Newsome, a Nottingham veterinary school student, explained that inflammation can be good, helps to fight infection and improves the perception of pain, but it also damages tissue. As well as NSAIDs for the treatment of sole ulcers, together with block and hoof trim, their use at calving for selected cows would be worthwhile.

Insulin resistance drives body condition loss and NSAIDs reduce insulin resistance. Systemic inflammation increases the risk of metabolic diseases. Where there is inflammation around a sole ulcer site, NSAIDs are expected to inhibit the development of bony growths, which are seen on all claws.

Phil Alcock introduced the on-farm applications. Measuring mobility at fortnightly intervals with 1,700 cows has provided Neil Baker (Rushywood Dairy, Somerset) with detailed graphs and information for each cow. The indications are that score one and two cows should be considered for treatment to prevent more severe lameness; however, many score two cows in the herd have walking difficulties unrelated to hoof lesions.

Reduced mobility due to injuries and conformation are of concern. Older cows in the herd may need to be scored more frequently and automated mobility scoring would be a useful development.

No perfect system

Nick Bell at the RVC has been working on automation and stated that, at present, there is no perfect system available. Camera monitoring for tracking up and back arching, pressure plates to indicate footfall, accelerometers to show how quickly the cows move out of the parlour, geolocator sensors indicating lying time, standing and feeding all have a benefit, but require careful interpretation.

There is a need, he said, for a team approach, including mathematicians, to develop commercially applicable automatic monitoring products to stop early foot lesion development, possibly by 2030.

Mark Burnell described the operation of a team of veterinary technicians within a veterinary practice to have high standards of hoof trimming and to recognise cows requiring further treatment. Communication between the farmer, technician and veterinary surgeon is essential to deliver effective lameness control for each client herd, he said.

The application of preventive trimming, footbath protocols for infectious disease, mobility scoring, veterinary student and farmer training forms a complete service. This approach also enables the team to work closely with academic institutions to measure the impact of research outcomes.

Keith Cutler of the Endell Veterinary Group put the case for lameness control in beef herds. The need is apparent to prevent lameness and a lame beef bull can be an economic disaster. Bulls having to serve too many cows, or slamming back down onto concrete after mating, can lead to the same bull repeatedly going lame.

Young bulls outgrow their joints, indicating the need to regulate feeding programmes. Legs too straight indicate poor conformation and the requirement for a review of the genetics of the herd.

Beef animals often graze rough ground and pick up injuries from foreign bodies, so tidying up the pasture is often worthwhile, he said.

Hygiene for calves to prevent joint ill and adequate colostral transfer were mentioned as examples of "getting the basics right". The risks from congested housing, with infections from wet and dirty bedding, are a management issue along with keeping lame animals until fit for slaughter.

The introduction of annual bTB testing has improved handling conditions on many beef farms, he continued. It is essential to prevent lameness and although the conditions and lesions are different between the dairy herd and the beef herd, there are many more beef herds and their requirements should not be overlooked.

Lame cows have a lower likelihood of conception due to an earlier start to standing to be mounted, said Mike Kirby of the Delaware Veterinary Group, who outlined his experiences with lameness and fertility in practice.

Research indicates that lame, non-ovulating cows have a lower luteinising hormone pulse frequency. The effect of pain may be determined by the stage of the oestrus cycle. Where the stage of the oestrus cycle is known, lame animals will be successfully served following strategic hormonal interventions. There is a view that lameness incidence is not directly related to fertility at the herd level and the emphasis is on assessment of the individual cow.

Professor Stuart Carter of the

Speakers at the Cattle Lameness Academy (from left:): Reuben Newsome, Nick Bell, Stuart Carter, Keith Cutler, Mark Burnell, Mike Kirby, Jon Reader, Jon Huxley, Neil Baker and Phil Alcock.

University of Liverpool emphasised that treponemes are widespread and being identified in many more clinical situations than initially thought. The organism passes through the hair follicles and always lives on the animal.

Digital dermatitis treponemes can be a source of primary and secondary infection and survive for 24 hours in slurry. Following hoof trimming of a cow with digital dermatitis, two thirds of the blades, power tools, gloves and crushes yielded the organism, even after disinfection.

Initially it was thought that the organism was anaerobic but it has now been shown to be aerotolerant and this is why it is so easily transmitted between animals and between farms.

Cases of ischaemic teat necrosis have yielded DD treponemes in all lesions. With pressure sores and hock lesions the organism is probably a secondary infection. Human and animal treponemes are different organisms but the same organism is found across all the animal species.

At Liverpool, 120 pure isolates have undergone genome sequencing and work is continuing to develop a vaccine. The initial indications are encouraging, he said, and it is hoped to start clinical trials as soon as is practical. There is a considerable need to limit the spread of this organism that was first of concern in 1974 and has spread worldwide into cattle, sheep, goats, elk, pigs and horses. Current treatment is targeting other secondary bacteria and improving biosecurity.

Jon Reader concluded the session with an overview of digital dermatitis lesions and the need for individual treatment of open raw lesions and a herd approach to scabby lesions. The advice is to keep slurry off the feet and to keep secondary invaders at bay. Footbaths for secondary infections need careful location and design to allow all four feet to be bathed in chemical. Examples of effective and ineffective installations were shown and discussed.

A five-point plan for the control of digital dermatitis in cattle has been developed by a European panel and this is to be presented at the forthcoming UK Lameness Conference.