

# Milk Quality Academy Review

## Catherine Carty MVB and Lucy Metcalfe BVSc DipECEIM GCertVPM MRCVS review the recent inaugural Milk Quality Academy meeting

The recent inaugural meeting of the Boehringer Ingelheim Milk Quality Academy (MQA) played host to practitioners, academics and opinion leaders from across Europe. Formed as a group to share learnings and the latest research, the MQA was attended by Catherine Carty, herd health resident at UCD Veterinary Hospital Dublin. Here, the authors review the talks and outline some key take-home messages for practitioners.

Three quarters of current mastitis cases are the result of environmental infections, compared to just 10% in 1967, according to vet Dr Andrew Bradley. Dr Bradley said this change in the cause of mastitis cases highlighted the need for more care and attention to be paid to reducing the chances of infection being picked up from bedding or other potential environmental sources.

Dr Bradley maintains that the highest risk time for new infections is the transition period. Added to this, it is often the case that dry cow and transition cow housing isn't given the same attention as that of the milking herd. Transition cow accommodation, whether straw yards or cubicles, should be kept as clean and as fresh as that of the milking herd to minimise the chances of environmental pathogens causing mastitis.

There is a small peak of infections picked up in the early dry period, but good dry-cow management can go a long way to reducing the chances of these infections occurring, Dr Bradley told the meeting, which aimed to collect together some of the latest research and findings for vets in practice. He pointed out that two thirds of all cases of clinical mastitis occurring in the first month post-calving, originate in the dry period, with some cases originating in the dry period not being seen until eight months into lactation. It is often difficult to convince farmers that this is the case, particularly if the cause is poor hygiene when using dry cow therapy. Furthermore, as expected, the risk factors for new mastitis infections, picked up in the dry period, are quite farm specific; a study of 522 cows across six countries, all given antibiotic dry cow therapies, showed a large variation in the number of quarters acquiring new infections in the dry period.

Meanwhile, Dutch vet and recognised mastitis expert Dr Ynte Schukken said the rate of inflammatory response seen in mastitis cases varies depending on the causative pathogen, in addition to cow specific factors. The inflammatory response to *Escherichia coli* can take just a matter of hours, whereas for both *Staphylococcus aureus* and *Streptococcus uberis* the response can be from one to five days.

The rate of inflammatory response to *E coli* influences the speed and effectiveness of a cure, with net energy balance a big predictor for a slow response. In many cases, a slow inflammatory response can be a precursor to a persistent

infection, with both pathogen and cow factors influencing whether or not an infection persists. Some *E coli* strains are better able to enter cells than others, so are more likely to cause persistent infections. During the dry period, the udder is more biased towards low inflammatory responses, which can be a factor in causing persistent *E coli* infections.

Dr Schukken went on to tell the group that where *S aureus* is the causative pathogen, it can work in a number of ways. In some herds, there may be a single strain affecting lots of cows, meaning it is a contagious infection. However, in other herds many different strains may be present. It has to be remembered that many bacterial pathogens can behave in a contagious or environmental manner.

Dr Schukken's concluding point was that looking at the rate of new infections and the duration of infections can be important in assessing the pattern of infection.



### BEDDING AS A RISK FACTOR?

The effect of bedding substrate on mastitis incidence varies from farm to farm, with even supposedly low-risk bedding materials having potential to harbour high levels of bacteria when badly managed. However, according to a recent study across 125 farms, bedding type has a limited effect on somatic cell count (SCC) or clinical mastitis levels, vet Dr Andrew Bradley told the meeting.

The study compared recycled manure solids (RMS), sand and sawdust beds managed in their normal way.<sup>1</sup> There was a large variation in bacterial counts across all bedding types, showing that management practices are generally more important than bedding type.

*Listeria spp* was found in sand bedding, despite sand beds often believed to present the lowest risk of bacterial infection. There was also no obvious correlation between bedding substrate and total bacterial count in milk, with teat preparation routine having more effect on bacterial counts. This was particularly noticeable in the impact of pre-milking teat dip on reducing *Streptococcus* counts.

Dr Bradley added that a controlled trial at Newton Rigg

College, which compared deep RMS, deep sand, shallow sawdust and shallow RMS all managed 'normally', found bacterial counts were highest in shallow RMS.<sup>1</sup> Bacterial counts were lowest in sawdust. Additionally, sawdust resulted in fewer new infections in this study. Interestingly, there was a trend towards higher clinical mastitis rates in herds bedded on RMS though this was not statistically significant due to the low overall incidence of clinical mastitis in this study.

This was a thought-provoking and interesting study to hear about in more detail, as it often seems that we switch from one fashionable bedding type to another, with no real scientific or proven reason. The fact that management is clearly half the story is important and will impact on client discussions.

### MARKETING MASTITIS MANAGEMENT SERVICES

In addition to looking at the clinical side of mastitis prevention and control, Bill May from XL Vet practice Lambert, Leonard and May said vets needed to be proactive when it comes to marketing mastitis management services to their clients. This needs to be well thought out and targeted.

With existing customers, it may be a case of familiarising them more fully with your available services and ensuring they know that you're interested in helping them, and not just selling them a service, he said.

Stressing this point, Bill argued that everything a vet does can be construed as marketing. Just showing an interest in their current mastitis infection rate, is a form of marketing, as it makes the customer aware that you're on the ball.

Equally, make sure your customers know the full range of services you offer, he added. They will already know that you can provide dry cow therapy antibiotics and troubleshooting services. However, they may not be fully aware of the ongoing monitoring and dairy mastitis control plan work you can do with them to tackle underlying issues and limit the effects of mastitis on their herd.

It really does come down to awareness and ongoing relationships, he said.

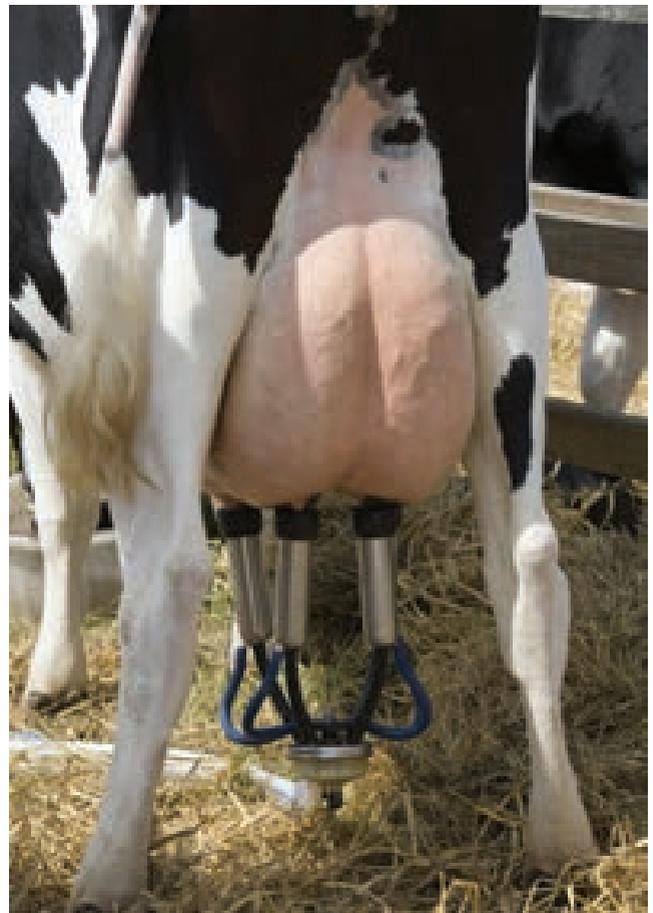
One of the main messages to incorporate into daily practitioner life is that our customers are busy people. They may not have the time to investigate the services you offer fully. Targeted marketing and communications can help both you and them in the long-term.

### THE RISK OF UNSUITABLE MILKING EQUIPMENT

Increasing herd size means farmers need to be more aware of the need to change cluster liners more frequently, according to speakers Friederike Reinecke and Ian Ohnstad. Ian told the meeting that liners should be changed every 2,500 milkings. In larger herds, that figure can come around much more frequently than would have been the case when herd size was smaller; this needs to be borne in mind when increasing herd size or moving from twice-a-day milking to three times a day milking.

Friederike Reinecke talked about robotic milking systems. She said it was vital to continually check the efficiency

and effectiveness of liner disinfection to limit cow-to-cow transmission of pathogens. There are a number of methods of doing this. Where steam disinfection is used, the temperature of the steam needs to be checked on a regular basis. Alternatively, when submersion in a disinfectant solution is the chosen method of cleaning, the concentration of the disinfectant should be checked and disinfectant solution changed as per manufacturer's recommendations. Periodically, liners should be swabbed after disinfection to assess the effectiveness of the chosen treatment. With cases of mastitis that are being treated, it may be beneficial to increase the time between milkings to allow any treatments more chance to work, she added. There is no evidence to suggest that increasing milking frequency, in order to strip out pathogens, will result in a



quicker cure. The speakers went on to discuss teat scoring as a useful method of assessing the effectiveness of both milking routine and the milking machine. While a single teat score of the herd can be helpful, the most benefit is obtained when scoring becomes a regular part of the management routine so that changes can be monitored and reacted

to in time. Regular teat condition scoring should be considered as important a management tool as regular locomotion or body condition scoring. There are limitations however, for example in robotic systems. In addition to regular scoring, additional scores can be carried out before and after major changes to the milking machine or the milking routine,

Ian told the meeting. He said there were a number of recommendations to follow when examining teats. Firstly, teat condition should always be assessed immediately after the cluster is removed – this means within 30 seconds and before the disinfectant is applied. Teats should also be observed and recorded in a regular pattern. It is often useful to use a

headtorch and dictaphone to ensure hands are kept free for teat examination. Initially, teats should be viewed without handling and any teat ends with milk residue or debris on the orifice should be wiped with a paper towel to improve the view of the orifice. To provide an adequate sample size, score the teats of at least 80 cows or 20% of the herd, he said. It is important to score a representative sample of cows from all feed and management groups, taking account of the stage of lactation and parity. All the delegates at the meeting were pleased to be reminded of some of the basics around liners and teat health. After the very informative lecture, Ian led a practical session. His advice was very much relevant to day-to-day life as a farm vet.

**REFERENCE**

1. Proceedings from the First Milk Quality Academy, Boehringer Animal Health, November 2015. An educational service from Boehringer Ingelheim Limited, Vetmedica. Further information available from Boehringer Ingelheim Limited, Vetmedica, Bracknell, Berkshire, RG12 8YS, UK. Date of preparation: June 2016. AHD9351

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