Some 450 delegates attended a programme of 36 presentations over two days at the Total Dairy Seminar on 19 and 20 June 2019. The various parts of the dairy industry attended with an active exhibition area and posters covering a wide range of research and analysis. Veterinary surgeons were able to discuss aspects of cow management and nutrition beyond the obvious areas of veterinary involvement and there was a positive buzz of activity throughout the event.

Recognising pain
Chris Hudson, Clinical Associate Professor in Dairy Health and Production at the University of Nottingham, reviewed the changes that have taken place in the recognition of pain with cattle herds. There was interaction with the audience throughout, with responses to key questions recorded on screen and compared to other group observations. In general, the groups of veterinary surgeons, farmers, industry representatives and mixed workshops demonstrated a level of agreement. Fundamentally, cows and calves do feel pain; pain does increase the period of recovery; and reducing pain speeds up recovery. However, it is difficult to demonstrate the benefits of pain relief in commercial terms.

With calf disbudding, it is accepted that the farmer now feels better after using non-steroidal anti-inflammatories (NSAIDs) and sees their use as an improvement in animal welfare. This approach has changed considerably over the years and administering NSAIDs before disbudding is now considered common practice.

Studies with clinical mastitis indicate that controlling pain, together with antibiotics, has not only led to a more rapid recovery but tangible benefits including reduced cell count, less culling and improved conception rate. It has been shown that using NSAIDs in cows with mastitis can lead to the cow behaving subsequently as though she never had the disease.

It was also mentioned that NSAIDs have a short duration of activity and cases of lameness often persist for weeks. The combination of hoof trim, hoof block and pain relief has been shown to be more beneficial than any one procedure alone.

Considering welfare with mastitis
Jim Reynolds, a professor in large animal medicine at Western University California, explained the factors related to the welfare aspects of bovine mastitis. When using NSAIDs, tissue damage releases prostaglandins, which are potent activators of inflammation and lead to lower pain receptor thresholds. NSAIDs block prostaglandin production in tissues; inflammation is reduced and blood flow activity is normalised; white blood cell activity is maintained; and pain receptor thresholds return to normal.

With experimental E. coli infections, NSAIDs have been shown to reduce fever, reduce heart and respiratory rates and improve rumen function. Lipopolysaccharides in the cell walls of Gram-negative bacteria are extremely immunogenic and stimulate a strong immune response in local tissues, with a reaction from the cow delivering a massive white blood cell release into the mammary gland. The white blood cells release immunochemicals that damage tissue and affect blood flow. The amount of lipopolysaccharide released from the bacteria determines the severity of toxic shock that is experienced, from mild to fatal. Vaccinated cows have been shown to react to Gram-negative infections more rapidly and the bacteria are killed before effective volumes of endotoxin are produced, but can be overwhelmed by a large infectious dose.

Jim emphasised the benefits of handling cows so as to reduce stress. Cows need to be calm. Noise or quick movements can scare cows and stop the production of oxytocin, due to the release of epinephrine when a cow is nervous. Blocking the production of oxytocin decreases the immune system, inhibits milk let-down and increases the risk of mastitis.

Behavioural changes are noted with cattle in pain, including: inappetence, decreased water consumption, decreased milk production, depression with increased lying and vocalisation. Cattle are stoic and do not show the impact of pain readily, so when signs are noted, action needs to be taken to reduce the pain at the earliest opportunity.