

Understanding pain to make calving more comfortable

A deeper understanding of the wants and needs of cattle, and the potential magnitude of pain during parturition, is key for making calving more comfortable in the long-term.

This was the key message at the 14th edition of the Boehringer Ingelheim Expert Forum on Farm Animal Well-Being, which saw 70 delegates from 15 countries gather in the riverside city of Porto in Portugal.

This year, the event homed in specifically on the event of calving and saw delegates consider the many different aspects involved in making the event more comfortable for both the cow and calf.

The evolving role of the veterinarian

To set the scene, Dr Michael W. Brunt from the University of Guelph in Canada gave an insight into the changing role and requirements of modern-day veterinary practice.

While practice has traditionally focused on the diagnosis and treatment of disease and other animal health issues – in order to mitigate negative experiences – a wealth of research over the past 15 years has shown that cattle have the capacity to enjoy positive experiences too.

This is a concept Dr Brunt has explored through his research work, most recently asking veterinarians and veterinary students in Canada how important they deemed the role of the veterinarian to be with regards to promoting positive experiences on farm.

“One participant said: ‘our role is to promote welfare in our animal patients, and I think morally it is the right thing to do to ensure that these animals live as good a life as possible.’

However, this research had also shown that veterinarians are uncertain of the ability to influence change to current producer practices, alluding to the need for more cross-sector work in this area.

Pre-calving preparations

To ensure a smooth, comfortable process during calving, preparations start long before labour begins, explained Irish vet Donal Lynch.

In fact, it is a lifelong process. “As a farm vet dealing with cows calving, our aim is to produce a live, healthy, vigorous calf – from a healthy cow – in a positive welfare manner to allow both cow and calf to be the best they can be,” said Mr Lynch.

During calving itself, how the maternity pen is designed could also significantly impact welfare, as explained by Dr Katherine Creutzinger from the University of Wisconsin-River Falls. Dr Creutzinger told the Forum that cows are able to tell humans what they want and/or need via the display of natural behaviours, preference and motivation tests and biological and behavioural responses.

Her work has capitalised on this and has studied the preferred environment for calving cows, in order to optimise their welfare.

Key observations from this work have concluded that cows prefer calving in covered or sheltered areas, as these were the areas they naturally chose to labour in when given the choice. “Even in commercial systems, cows still perform natural behaviours at calving, including seeking cover and moving away from other cows. By providing opportunities for choice and control in the calving pen we can really give cows individual comfort.”

In keeping with the theme of exhibiting natural behaviour, Emma Hvidtfeldt Jensen from Aarhus University explored the concept of prolonging cow-calf contact. In many commercial systems, it is common practice for the mother and calf to be separated for a number of reasons, including preventing disease transmission, increasing saleable milk yield and to decrease stress at separation when the calf is older.

However, this could also be having negative impact on cow and behaviour, said Ms Hvidtfeldt. Through her research

work, she has investigated whether part-time cow-calf contact could be a compromise and looked at the differences in behaviour between cows who had 23 hours contact a day, 10 hours contact a day and no contact at all with their calves. She concluded that full-time contact cows spent more time on maternal behaviours, however, there was no difference in bond strength between full-time and part-time contact cows.

Assisting and pain management

Though pain is commonly associated with labour and birth in the human world, it is perhaps somewhat overlooked in cattle.

Dr Claire Windeyer from the University of Calgary shared insights from her research into the exertion of force during assisted calvings to try and bring some context to how painful the event can be. In her ‘pulled beef’ study, Dr Windeyer was able to conclude that mechanical pulls in particular can exert extreme amounts of force, so calving jacks should be used with caution. In some scenarios, this force has been estimated to be equivalent to a human being sat on by a 380kg cow for one minute, explained Dr Windeyer. “We have made improvements to calving ease, but the amount of force potentially exerted during calving is something we need to be really aware of.”

Dr Windeyer’s research also concluded that pain mitigation could therefore improve the well-being of the cow during this painful event – a topic which was explored in further detail by Boehringer Ingelheim’s Dr Laurent Goby. “There are physiological, behavioural and economic consequences of calving pain. Providing pain relief in labour can help mitigate the consequences of the inflammatory cascade, prevent the undesirable consequences of the catecholamine-mediated stress response and improve comfort and maternal performance.”

What about the calf?

Though it is perhaps somewhat obvious that calving is painful for the dam, the Forum also raised questions on the impact of the event for the calf – with a vast body of recent evidence now suggesting pain and discomfort is felt by the calf too.

Cathy Dwyer from SRUC led the conversation, explaining in more detail both the short- and longer-term impacts on the calf after a difficult birth process.

Interestingly, this can start as early as in utero, she said, with prenatal exposure of foetal calves to maternal conditions – such as pain, stress and undernutrition – thought to affect the calf. “Difficult births increase the risk of calf mortality and reduces calf vigour at birth, as well as being associated with increased cortisol and reduced transfer of passive immunity,” said Ms Dwyer.

To better prepare for cases of difficult calvings, Dr Monica Probo from the University of Milan advocated for the use of clinical scoring systems for newborn calves post-birth. Though there are a number of different scoring systems available – such as



APGAR and VIGOR – Dr Probo said at present they are vastly underutilised although they can reduce morbidity in calves.

Looking in more detail at the consequences of a difficult calving on the calf, George Stilwell from the University of Lisbon detailed how veterinarians can provide special care for the dystocia calf, which are more prone to develop health issues including hypoxia, respiratory and metabolic acidosis and broken bones.

Dr Windeyer wrapped up the Forum in an address looking at the importance and effects of providing pain relief to calves to improve well-being and performance. “When we looked at behaviour, something we found was that meloxicam treated calves played more – a calf who is in pain, or a negative welfare state, is not going to play.”

Take home messages

From the research presented, it was made clear that both veterinarians and farmers have huge scope to improve comfort during calving – for both the cow and the calf.

Dr Laurent Goby concluded: “Regardless of whether it is a natural birth or assisted, we know that all calvings are painful and is something that happens on all cattle farms. There are many scientifically backed measures which can be put in place to help mitigate this pain where possible.

“By doing so, farmers and veterinarians are prioritising welfare which has both ethical and economic benefits.

“Farm animal well-being works, and global collaboration is vital to ensure this keeps improving.”

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