

Heather Neave: Used a cognitive test to determine if calves have feelings after a painful procedure.

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## A UBC study finds that calves experience emotional response to pain

by MELANIE EPP

IN A RECENT study headed by University of British Columbia graduate student Heather Neave, researchers found that calves experience emotions, like depression and anxiety, after painful procedures.

The study, which is the first of its kind in calves, used a cognitive test to examine emotional response to pain. The test revealed that calves show signs of pessimism after dehorning.

The purpose of the study, says Neave, was to investigate the emotional state of calves before and after dehorning, and to specifically look at how their emotional states change when they're experiencing a painful procedure.

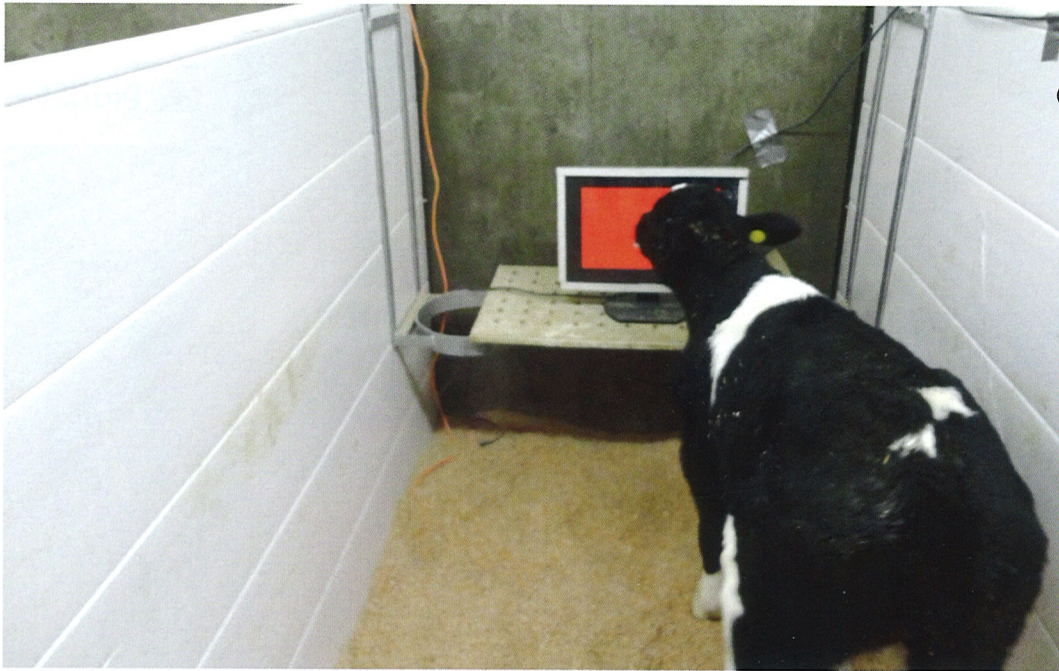
To complete the study, Neave first had to train the calves in a judgement bias task. "Depressed humans

interpret ambiguous stimuli more negatively," says Neave. "The most common example of that is the glass half-full versus the glass half-empty outlook. If we're feeling down or anxious, we're more likely to interpret that glass as half empty – so a pessimistic outlook."

Neave trained the calves to associate two different colours with positive (red) and negative (white) emotions. When the red screen appeared, calves were taught that touching it would produce a reward (milk). If the white screen appeared and they touched it they would be sent to a "time out" without reward.

"In this way, they learned really quickly what was positive and what was negative," says Neave.

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red and white screens, Neave introduced ambiguous colours that they had never seen before. Those colours – in this case, shades of pink – could be interpreted as either red or white.

At the time of the procedure, calves were given a sedative and a local anesthetic, but they were not given a post-operative analgesic because they wanted to see how the lack of analgesic affected their response. Calves were tested before dehorning, and at two different times after dehorning, at 6 hours and 22 hours.

"Six hours was chosen because in the literature that's when they're known to experience the most behavioural responses," says Neave. "The 22 hours would give us an idea of how long that response happens."

The researchers found that after dehorning, the calves approached the ambiguous pink screens less frequently. "They were less willing to take the risk that if they went they'd receive this time out, this negative event," she says.

"This response is very important," says Neave, "because even though calves were given a sedative and a local anesthetic, even up to 22 hours after the procedure took place they still experienced pain and an emotional response."

According to Ontario's new Code of Practice for the Care and Handling of Beef Cattle, to reduce animal discomfort, pain control (and bleeding control) must be used when dehorning or disbudding. The Code does warn, though, that although local anesthetics can reduce the pain caused by the procedure, they do not provide adequate post-operative pain relief.

"The most popular local anesthetic, lidocaine, is effective for two to three hours after administration," says

the Code. "The use of analgesics in addition to a local anesthetic can minimize pain and stress in the hours that follow dehorning."

While the Code seems to be fairly clear, food animal veterinarian Dr. Katharine Found says that it's open to interpretation. "It hasn't been clearly defined," she says, referring to the use of pain medication – when and how. She says on-farm decisions are made based on a per animal basis.

Found says it is important to have a good working relationship with your vet. Together, you can come up with a treatment plan based on the age of the animal, the method of dehorning used, and the handling facilities.

For the most part, Found says she recommends long-acting pain medication. "It's beneficial enough to make it worthwhile," she says. Referring to the cost, she says. "It's not pennies, but it's not extravagantly expensive either."

Some producers don't provide post-operative pain control for calves, though, but Neave's findings have them reconsidering.

"They realize that maybe they should be thinking about giving this analgesic," she says. "Given that we know that there are all these behavioural and physiological responses, and now this is showing that there's an emotional response – so I think it hits home for them."

When it comes to dehorning or disbudding, the Code of Practice for the Care and Handling of Beef Cattle recommends disbudding calves before three weeks of age. Always use the method that is most appropriate for the size and/or age of the animal, and be sure to adequately restrain the animal. Only trained persons should carry out disbudding and dehorning procedures. **D**