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Recognising, assessing and alleviating pain in sheep

Boehringer Ingelheim

Content

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Why manage pain?

All animals should be protected from pain

Pain is an aversive experience that diminishes the sheep's quality of life. In addition, there are economic losses for the farmer through decreased productivity and an increased susceptibility to disease.

Sources of pain

The most common sources of pain in sheep

Disease is a major source of pain in sheep. Diseases such as footrot or contagious ovine digital dermatitis (CODD) cause severe lesions on the feet and result in chronic lameness. Acute mastitis is the inflammation of the mammary gland, usually caused by bacterial infection.

Besides disease, also some husbandry procedures can cause pain. Castration and tail docking are routinely performed in many countries, while mulesing is a particularly painful procedure performed in Australia. Being able to manage the pain correctly in sheep experiencing these procedures will improve their welfare as well as speed up their recovery.

Recognising pain

Why learn to recognise pain?

Providing analgesics or NSAIDs (non-steroidal anti-inflammatory drugs) can help to alleviate the signs of pain in sheep. However, recognition of pain is the first condition to treatment. It is also important to monitor the condition and response of the animal to the medication to ensure its effectiveness.

Recognising pain

As humans, we are good at reading the faces of other humans and we can more or less identify what a human in pain looks like. Research shows that we are naturally drawn to the faces of animals when assessing their pain and that we have a good intuition about when an animal is clearly in pain. However, we are not very good at acting upon the more subtle signals or being sure about when to give pain relief. Indeed, sheep do show pain in their face.

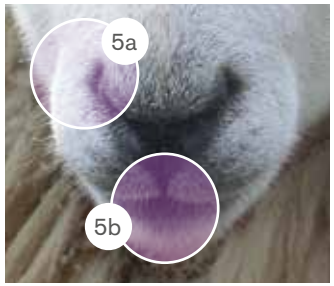
Recent research in this area has identified facial expressions of sheep that are present during painful disease. A Sheep Pain Facial Expression Scale has been developed to be used by farmers and veterinarians to help identify and assess pain in sheep. The scale has been tested for its accuracy and reliability by scientists, and after minimal training other people are able to correctly identify sheep that are, or are not, in pain.

Five facial areas to assess

There are five areas of the face which you need to become accustomed to when scoring pain in sheep: the ears, eyes, cheeks, nostrils and philtrum, and the lip and jaw profile.

1. Eyes
2. Cheek area
3. Ears
4. Lip and jaw profile

5a. Nostril
5b. Philtrum



Observing the face

Hint:

When observing the sheep, you will need to see the face from both the side view and the front view to assess each area correctly. Do not score when the animal is chewing or has food in its mouth.

Face side view

Face front view

How the scale works

For each of the five areas there are three levels of expression:

Not present = **0**

Partially present = **1**

Present = **2**

The Total Pain Score is determined by adding the scores from all five areas together. The highest score possible is 10, a score of 2 (present) given to all five areas. Pain fluctuates and so if you see changes in the score within your observation, use the highest observed score for each area to determine your total.

Tightening of the eyes

Observe the shape of the eye, the muscles around the eye, and how much the top eyelid is closed.

Not present = 0

Eyes are fully open and circular in shape.

Partially present = 1

The upper eyelid partially closes, causing the eye to narrow.

Present = 2

The eye has obviously narrowed to the extent that it is partly or completely closed. A closure of more than half the eye should be given a score of 2 ‘present’.

Cheek tightening

Observe the area of the cheek muscle that is used to chew food. Do not confuse tightening with a bolus of food in the mouth.

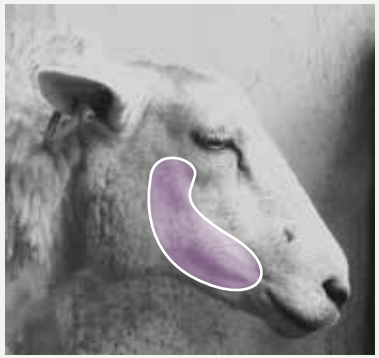
Not present = 0

The cheek area overlying the chewing muscle is flat with no tension present.

Partially present = 1

The chewing muscle is raised and there is some tension in the face appearing as a line along the jaw line.

Present = 2



A clear raised area along the jaw line and cheek area. Observe tension by the eye at the top of the cheek.

Abnormal ear position - front view

Observe the space across the head between the two ears. Sheep in pain have ears turned down and round.

Not present = 0

The ears will be held in an alert, upright position with the inner ear visible.

Partially present = 1

The ears have turned down towards the ground, increasing the space across the head between the ears. The inner part of the ear becomes less visible.

Present = 2

The ears have turned down towards the ground and moved in towards the cheek. The space across the head between the ears has increased and the inner part of the ear becomes less visible.

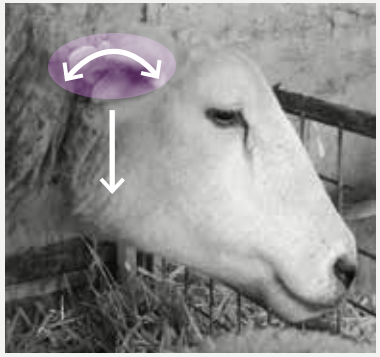
Abnormal ear position - profile view

The ears may also be held backwards, flat against the neck area when pain is present – score 2.

Not present = 0

The ears are alert and upright. The inner ear is visible.

Partially present = 1



The ears have turned down towards the ground and the inner part of the ear becomes less visible.

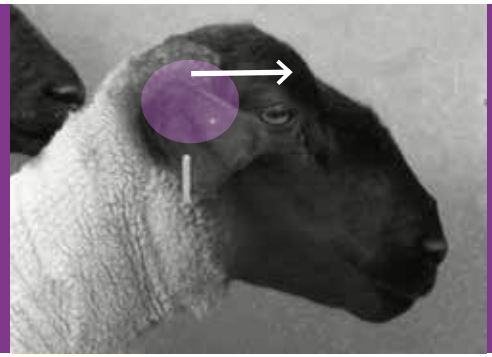
Present = 2

The ears have been pulled back to lye flat on the neck or may be flat against the cheek area. Note that the edges of the ear are closing in together, making the inner ear less visible.

Abnormal ear position - profile view

Breeds with naturally low hanging ears show the same ear movements when moving from normal to abnormal, with rotation down towards the ground and backwards towards the neck.

Not present = 0

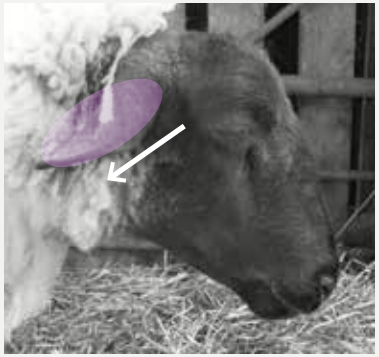


The ears are alert and upright. The inner ear is visible.

Partially present = 1

The ears have turned down towards the ground and the inner part of the ear becomes less visible.

Present = 2



The ears have been pulled back to lye flat on the neck or may be flat against the cheek area. Note that the edges of the ear are closing in together, making the inner ear less visible.

Abnormal lip and jaw profile

The lower lip will be drawn towards the body, reducing the chin and flattening the jaw profile. When present, there is less of a 'smile' feature.

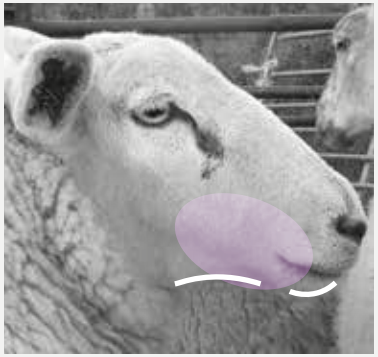
Not present = 0

The jaw line and chin are rounded in shape. The lip line has a curved appearance with a 'smile' at the corner.

Partially present = 1

The lower lip is drawn towards the body as tension increases. The jaw line becomes flatter, as does the chin. The corner of the mouth begins to flatten.

Present = 2



The lower lip is drawn further backwards and tightened. The jaw line now appears turned inwards. The corner of the mouth is flattened and there is no longer a 'smile' like feature.

Abnormal nostril and philtrum shape

The muzzle will mimic the same shape as the nose.

Not present = 0

A shallow 'U' shape is present between the two nostrils and the surrounding nose area mimics this shape. The area joining the nose and lip is elongated and wide.

Partially present = 1

The 'U' shape becomes more pronounced as the nostrils are drawn upwards. The area joining the nose and lip shortens as the top lip profile becomes more tense.

Present = 2

The area between the nose and lip is shortened and narrowed increasing further and the nose becomes more 'V' shaped with the muzzle mimicking this.

Regular monitoring

Regular monitoring of the sheep should start from initial signs of a change in facial expression within at least one of the five areas. Observations should be carried out as discretely as possible to avoid the 'hiding' of pain, and should be repeated every half hour. Observations should last for a few minutes to monitor the fluctuating nature of pain

On the day of diagnosis

The same sheep 40 days later, after recovery

Regular monitoring

Date	Time	Sheep ID	Total Pain Score			Details of pain relief given	Other behaviours of note	Signs of disease
			Time point 1	Eye				
				Cheek				
				Ear				
				Lip				
				Nose				
				Total				
			Time point 2	Eye				
				Cheek				
				Ear				
				Lip				
				Nose				
				Total				

If pain relief is provided the facial expression score should be noted before treatment and again 12-24 hours later so that the effectiveness of the treatment can be assessed. More treatment may be required and the facial expression should be reassessed.

Sheep with severe footrot often avoid bearing weight on the affected limbs, resulting in increased lying time or grazing on the front knees.

When to provide pain relief

- If a sheep scores more than a total pain score of 5, it is recommended that pain relief be considered. You may wish to discuss this with your vet.
- If pain relief is administered monitor the animal over the next few hours to assess for its effectiveness. Reassess the facial expression 24 hours later.

Conclusions

The negative consequences of pain in sheep impacts upon welfare and productivity. Simply being able to recognise when pain is present will enable you to intervene early and prevent any further suffering. Managing pain effectively by monitoring changes in facial expression will lead to better overall flock health and well-being.

To find out more information on how to use to facial expression when assessing pain in sheep, please visit the training tool at www.animalwelfarehub.com

This booklet is intended to help you take appropriate action when it matters most.

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Krista McLennan is the author of this booklet. She developed the Sheep Pain Facial Expression Scale as part of the European funded Animal Welfare Indicators project (AWIN). She was the postdoctoral researcher at the University of Cambridge leading the team through the project.

The work has been published in an internationally recognised journal, Applied Animal Behaviour Science and has been presented at both national and international conferences. The training tool developed alongside the scale is freely available for use from the Animal Welfare Science Hub (www.animalwelfarehub.com).

McLennan, K.M., Rebelo, C.J.R., Corke, M.J, Holmes, M.A., Leach, M.C., and Constantino-Casas, F., Development of a facial expression scale using footrot and mastitis as models of pain in sheep. (2016). Applied Animal Behaviour Science. Vol 176, pp. 19- 26
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