Is **Pain Relief** just another pain for graziers?

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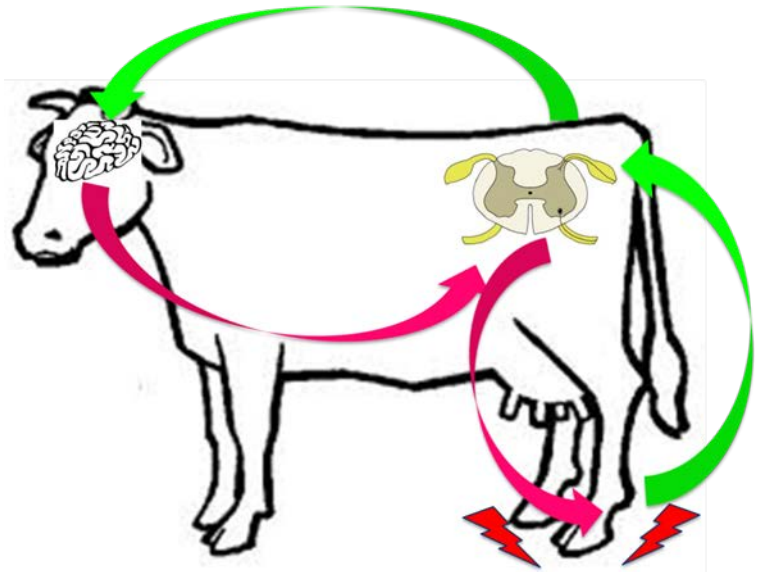
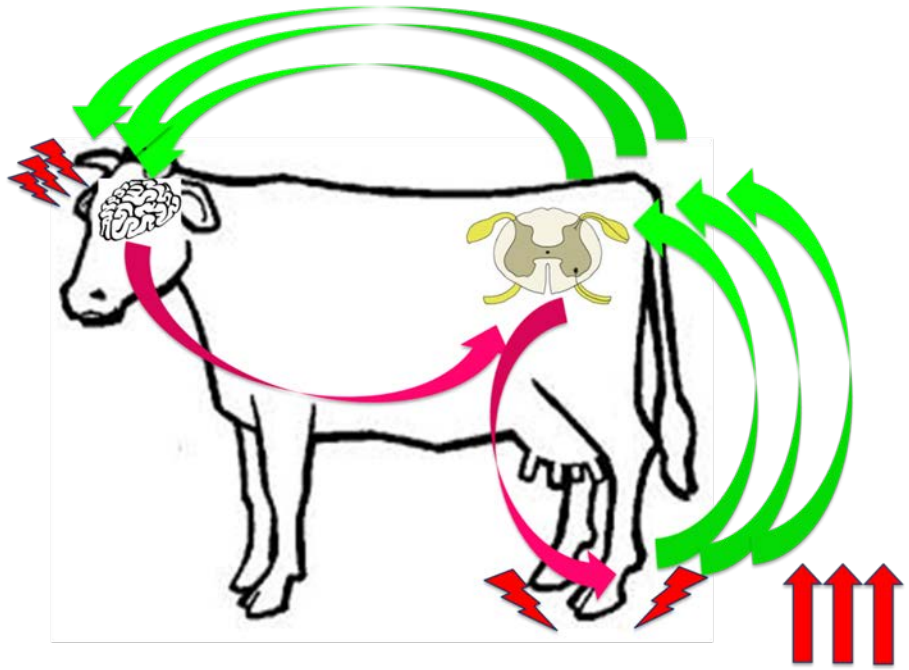
Poll question 1

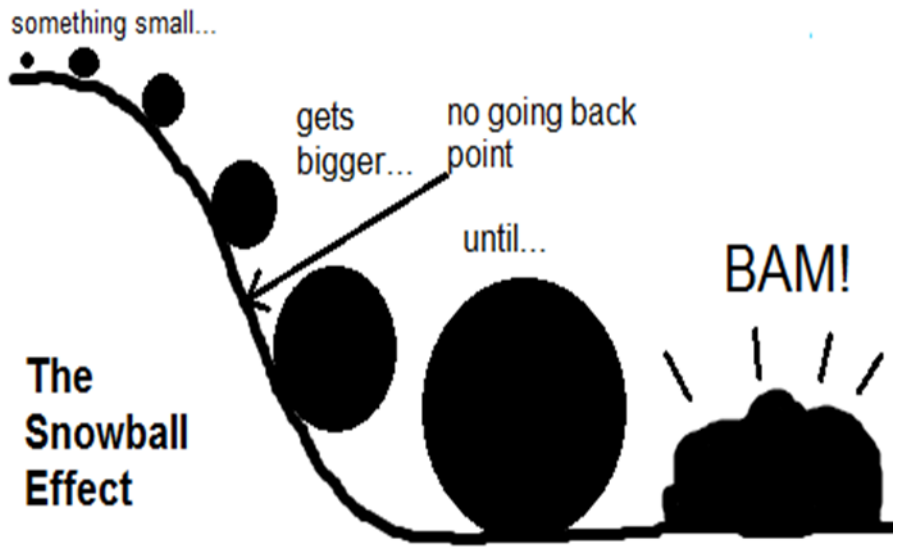
What is pain?

- Pain is both physiological and pathological
- Physiological
  - What the animal feels as a direct result of a conditions, procedure or injury
  - Provides a warning to prevent further pain
  - No tissue damages so no further pain messages
- Pathological
  - Caused by tissue damage – i.e. dehorning and branding
  - Tissue damage -> inflammation and ongoing pain messages -> continuous pain -> pain wind up
- Also psychological/emotional
  - Conscious perception of pain and the longer term effects that the painful incident has on the animal
  - E.g. not eating because the animal does not want to walk to the feed trough because walking is painful



INJURY





AMPLIFICATION OF PAIN MESSAGES

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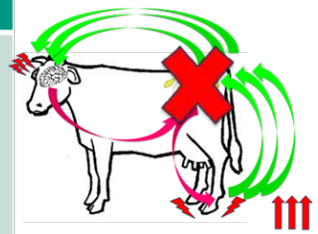
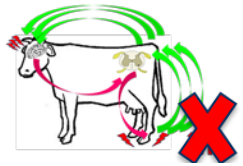
How do we stop pain wind up

Pain relief	Effect
local anaesthetic	• Stops detection of pain messages • By blocking transmission But - messages build up while blocked → Still have wind-up after block wears off
Anti-inflammatory	Reduces the amount of pain messages - By reducing inflammation - Less pain messages = less pain wind up
timing	Greatest effect = pre procedure Drug is working when procedure is started





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Inflammation

- Inflammation is a localised protective response stimulated by injury, which serves to destroy, dilute, or wall off both the injurious agent and the injured tissue.
- The inflammatory response can be provoked by physical, chemical, and biological agents, including mechanical trauma or infectious agents.
- Infection and inflammation do not always come hand in hand.
- The classic signs of inflammation are heat, redness, swelling, pain, and loss of function.

How do animals experience pain

- As a result of diseases present on farm
  - Lameness
  - Bovine Ephemeral Fever
  - Joint/navel ill
  - Eye problems
  - Pneumonia
  - Etc. etc.
- As a result of procedures imposed on animals as part of day to day farm management
  - Disbudding/dehorning
  - Tail docking
  - Castration
  - Caesareans/abdominal surgery
  - Assisted births

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Poll question 2

Indications for Pain relief

Indications

Surgical pain	For the reduction of pain associated with surgery. For reduction in pain and inflammation associated with surgery administer subcutaneously 10 minutes before the painful procedure. Best practice animal welfare and management of surgical pain in cattle involves pre-emptive analgesia, using a multimodal approach with Metacam® and an appropriate local anaesthetic.
Diarrhoea	For use in diarrhoea in combination with appropriate antibiotic therapy to reduce clinical symptoms in calves and young cattle.
Dehorning	For use to assist in the control of pain following the dehorning of cattle particularly that following heat cautery of young cattle. It is recommended that the injection be administered approximately 10 minutes before dehorning and be accompanied by a cornual nerve block anaesthesia.
Acute respiratory infection	For use in acute respiratory infection in combination with appropriate antibiotic therapy to reduce clinical symptoms in calves and young cattle.
Acute mastitis	For use in acute mastitis in combination with antibiotic therapy as appropriate to reduce clinical symptoms in lactating cows.

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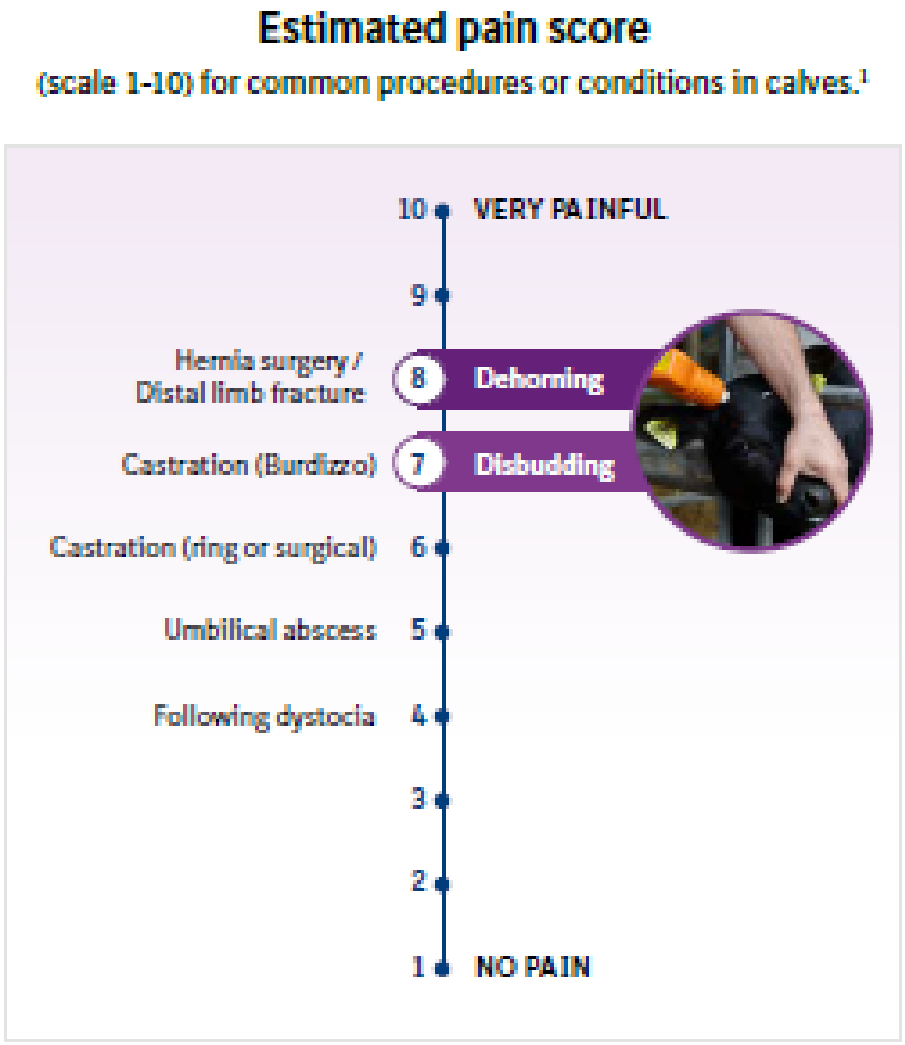
Estimated pain score



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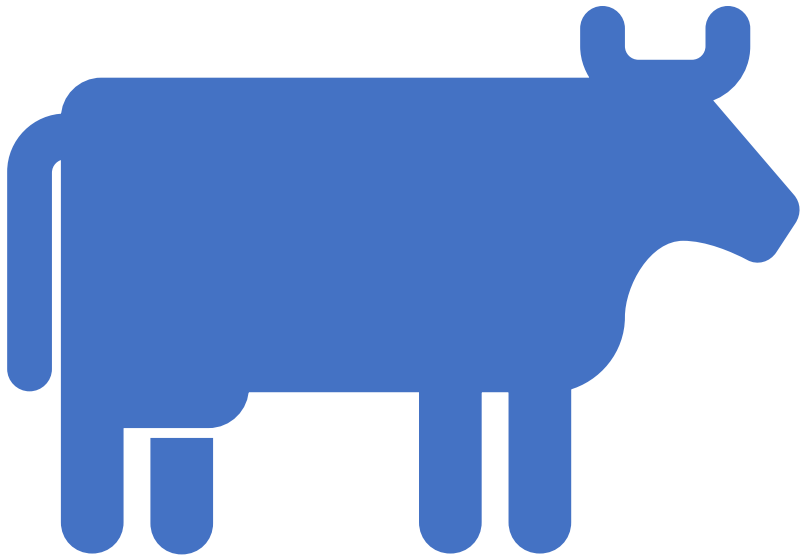

How do we assess pain in livestock

- Abnormal head position or shaking
- Abnormal ear position or twitching
- Abnormal facial expression
- Vocalisation
- Lameness or difficulty getting up/lying down
- Arched back
- Kicking/rolling/restlessness
- Swelling/bruising/redness/injury
- Dullness
- Tooth-grinding/salivation
- Tail swishing
- Lack of appetite
- Declining body condition
- Decreased productivity e.g. milk yields, liveweight gain

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Why is less pain more important?

Physiological	Behavioural
Elevated blood cortisol concentrations for approx. 2 days	Mis-mothering
Tissue inflammation	Slow to move – shuffling gait
Suppression of immune function	Abnormal body position (head down, hunched, not lying down)
	Less play or social interaction

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What are the negative impacts of pain for farm animals

- The impacts of pain can still be seen 90 days post procedure
  - Reduced feed intakes
  - Reduced growth rates
  - Poorer carcass traits
- More likely to record a health event in the weeks following castration
- Longer to get onto feed
- Longer recovery from illness and chronic lesions

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Treating pain in production animals has benefits beyond the ethical debate

- Pain management objectives
  - Alleviate acute pain from the procedure
  - Minimise chronic pain post procedure
  - Provide a practical means for pain relief

We want to regain normal body functions as soon as possible

Best practice pain relief

- Provides lifetime benefits for the welfare of the animal
- Maintains access to high value markets for producers
- Helps meet the industry's strategic goals on improving animal-welfare standards

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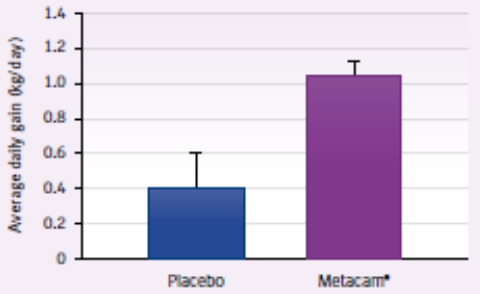
Effective pain management can improve growth rates

Effective pain management can improve growth rates

Various studies demonstrate that providing effective pain relief around the time of disbudding not only delivers better animal welfare, but also performance gains.

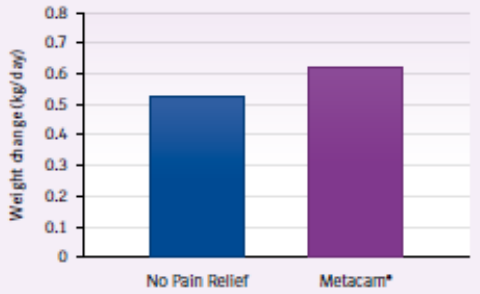
Average daily weight gain over 10 days after disbudding[18]



Conclusion

Treated calves gained an additional 650 g per day more over the 10 days post procedure than those that did not receive pain relief.[19]

Daily weight gain of 3-6 week old calves for 15 days after disbudding[16]



Conclusion

Calves receiving effective pain relief achieved greater weight gain over 30 days than untreated calves.[16]

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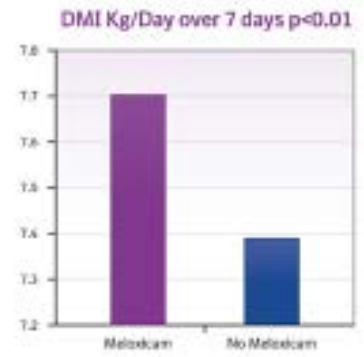
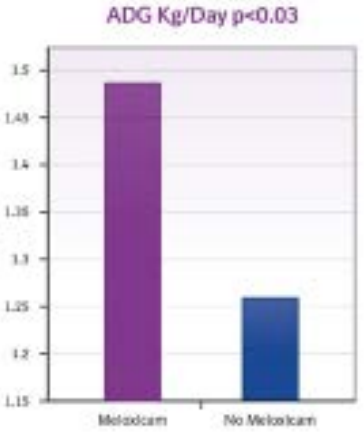
Managing transport stress improves feedlot performance





STUDY DESIGN

N = 84

Steers were transported 1,440km and then received into feedlot for 21 days

Half were given meloxicam prior to transport and again at receiving

- Steers receiving meloxicam had greater intake in the first week on the feedlot
- Steers receiving meloxicam had greater ADG over the 21 day period
- Managing transport stress can improve recovery from transport
  - Back on feed faster
  - Improved ADG

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What pain relief should you use and when?

- Research has shown acute pain from marking persists for at least 48 hours
- Ideally, pain relief should outlast the acute pain from marking procedures
- Local anaesthetic typically only lasts for 2-3 hours, calves show significant pain as the local anaesthetic wears off

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Differences between NSAIDs and Local Anaesthetics

Pain relief	Effect
Local Anaesthetic	Stops detection or intensity of pain By interfering with pain message transmission Messages are still being sent, just not getting through → Still wind-up after it wears off
Anti-inflammatory	Reduces the sending of pain messages By reducing production of inflammatory mediators → = reduced amplification

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Poll question 3

Options available

	Trisolfen	Buccalgesic	Metacam
Contains	Local anaesthetic Adrenalin Antiseptic	Meloxicam	Meloxicam
Adminstration	Topical	By Mouth - Buccal cavity	injectable
Available from	Rural reseller	S4 – Vet	S4 - Vet
Duration of action	24 hours	48 hours	72 hours
Starts to work	10mins	15-20mins?	5 – 10 mins
WHP Sheep:	Meat: 90 days Milk: not for lactating animals ESI: 90 days	Meat: 10 days Milk: not within 10 days of lambing ESI: 10 days	**Metacam 20:** Meat: 11 days Milk: not within 10 days of lambing ESI: 11 days
Cattle	Meat: 90 days Milk: not for lactating animals ESI: 90 days	Meat: 14 days Milk: not for lactating animals ESI: 21 days	**Metacam 40:** Meat: 11 days Milk: 12 milkings ESI: 17 days

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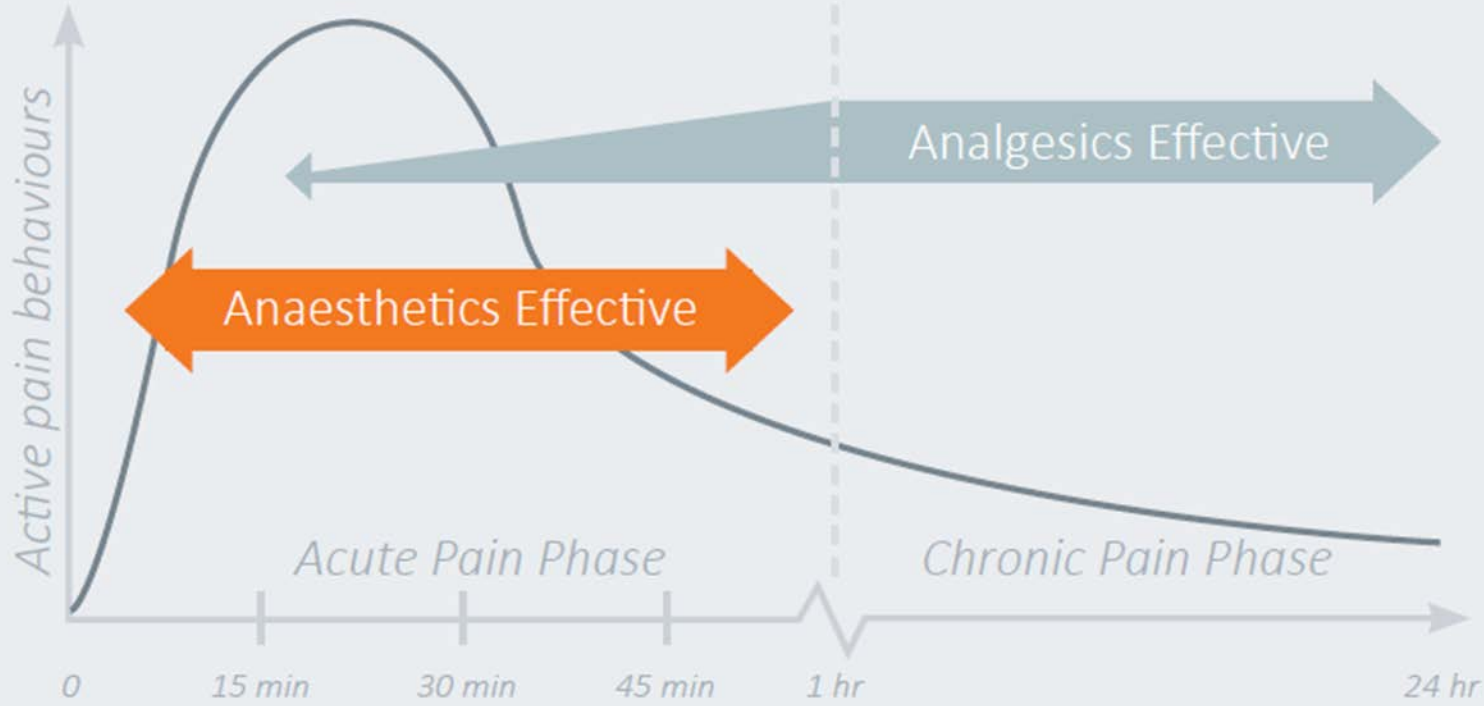
Illustration showing Anaesthetics and Analgesics alleviating the Ischemic Pain from rubber ring over time.



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Managing pain

	Metacam20	Metacam40	Illium Meloxicam	Buccalgesic	Tolfenamic Acid	Flunixin	Ketoprofen	Trisolfen
Species								
Cattle	✓	✓	✓	✓	✓	✓	✓	✓
Sheep	✓			✓				✓
Horses	✓					✓	✓	
Pigs	✓		✓		✓	✓		
Indications								
Cattle								
Reduction of pain associated with surgery	✓	✓						
- castration				✓				✓
Acute Respiratory infection*	✓	✓			✓			
Diarrhoea*	✓	✓						
Acute Mastitis*	✓	✓						
Dehorning *	✓	✓		✓	✓			✓
Sheep:								
Alleviation of pain and inflammation	✓							
- routine husbandry procedures of castration, tail docking and mulesing of lambs				✓				✓
Administration								
Cattle	IV/SC*	SC	IV/SC	Buccal	IV/IM	IV/IM	IV/IM	topical
Sheep	SC			Buccal				Topical
Witholding Periods								
Cattle								
Milk	6 days (12 milkings)	6 days (12 milkings)	6 Days	Do Not Use	12hr (1 milking)	36 hours (3 milkings)	nil	Do Not Use
Meat	8 days	11 days	8 days	14 days	10 days	7 Days	4 Days	90 days
ESI	NA	17	NA	21 days	28 Days	NA	NA	NA
Sheep								
Meat	11 days			10 days				90 days
ESI	11 days			10 days				NA

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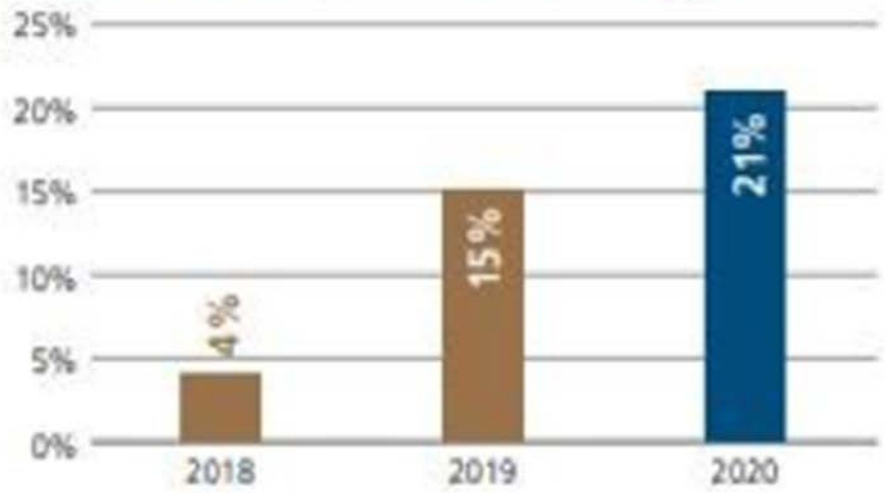
Poll question 4

Industry Adoption

The percentage of industry regularly using pain relief when undertaking aversive husbandry practices

Indicator 1.3b: The percentage of industry regularly using pain relief when undertaking aversive husbandry practices



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Poll question 5

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