

Webinar 2 – Livestock Pain Relief

Dr Andrew Whale
Livestock Logic

Dr Patrick Kluver
VFF



Pain Relief at Lamb Marking

What is the best option for your operation?

Dr Andrew Whale

Dr Lexie Leonard

Mulesing

Pain relief when mulesing [*Regulation 8(2)*] From 1 July 2020, if you are mulesing sheep in Victoria, you must administer pain relief to those animals.

This means using a pain-relieving product registered for use on sheep by the Australian Pesticides and Veterinary Medicines Authority.

Details can be found on the agriculture.vic.gov.au website - Prevention of Cruelty to Animals Legislation

Regardless of whether you are mulesing or not, marking lambs is viewed in a similar light by the public

Sheep Welfare Standards

S6.2 A person must not tail dock sheep that are more than six months old without using appropriate pain relief and haemorrhage control for the sheep.

S6.3 A person must leave a docked tail stump of a sheep with at least one palpable free joint remaining.

S6.4 A person must not castrate or use the cryptorchid method on sheep that are more than six months old without using appropriate pain relief and haemorrhage control for the sheep.

IG6.14 Tail docking and castration should be accompanied by pain relief when practical and cost-effective methods become available. Operators should seek advice on current pain minimisation strategies.

Two classes of drugs

- Local anaesthetics (Tri-solfen, Numocaine(Numnuts))
- Systemic anti-inflammatories (Buccalgesic or metacam, both contain the active ingredient meloxicam)
 - **Note: These anti-inflammatories Buccalgesic & Metacam cannot be administered together**

These work using different methods, gold standard would be to use an appropriate local anaesthetic plus a systemic anti-inflammatory for pain relief.

However, if appropriately selected, a single pain relief method can be used

Pain Relief Options

Numnuts

Provides fast acting pain relief in the first 45 minutes,
when lambs experience acute pain caused by loss of blood flow.
It is a local anaesthetic to block this pain. It lasts for about 4-6 hours
Used when ring application is used for either tails or scrotum
S4 product

Equipment:

Applicator \$385 – specialized ring application that delivers
A dose of local anaesthetic
Specialised needles \$1 each. 1 per 100 doses

Drug for 15kg animal:
Numocaine \$0.67/dose
1 dose for scrotum
1 dose for tail



Pain Relief Options

Numnuts

Pros:

Relatively easy to use

Only pain relief that impact ring application

Instant pain relief and visual results

Cons:

Equipment use requires brief practice/training

Meat Withholding Period: 0 days

ESI:

Not established

Pain Relief Options

Trisolfen

Local anaesthetic topic spray which provides instant pain relief for mulesing, surgical castration and surgical tail docking.

Its duration of action is around 4-6 hours post application.

It also contains an anti-septic agent which helps dry wounds and keep them clean.

Does not work when ring application is used.

No evidence of effectiveness with gas knife operation on tails.

OTC product

Equipment:

Applicator gun \$42

Drug for 15kg animal:

\$1.15/dose for mulesing wound only

Number of doses/lamb will depend on marking methods and where applying. Eg tail wound or scrotum

wound not included in these prices



Pain Relief Options

Trisolfen

Pro's:

Ease of application

Meat Withholding Period: 90 days

ESI: 90 days

Con's:

Easy to waste doses or use incorrectly

There is still considerable pain experienced >6 hours after mulesing and this has no effect on minimizing the pain associated.

Ideally a second product is used (Metacam or Buccalgesic) to provide pain relief from the surgical wounds in the days post surgery.

Pain Relief Options

Metacam 20

Systemically acting anti-inflammatory, which lasts for 48-72 hours.

Given via a sub-cutaneous injection

Ideally should be done 15 min prior to procedure so drug is fully absorbed

But can be given in the cradle.

S4 product

Equipment:

Vaccination gun \$56

Drug for 15kg animal:

Meloxicam \$0.70 per dose



Pain Relief Options

Metacam 20

Pro's:

Ease of application

1 application covers all surgical procedures

Longer lasting (3 days) anti-inflammatory

Meat Withholding Period: 11 days

ESI: 11 days

Con's:

Does not have instant visual change in behavior

When conveniently given in cradle there will be no pain relief until the product is absorbed, so with painful procedures such as mulesing we would advise Tri-solfen to be used simultaneously.

Pain Relief Options

Buccalgesic

Systemically acting anti-inflammatory which lasts for 48-72 hours.
Ideally is given 15 minutes prior to procedure but can be given in the cradle.
Given via a oral gel in the side of the cheek
S4 product

Equipment:

Buccalgesic gun \$35

Drug for 15kg animal:

Meloxicam \$0.70 per dose



Pain Relief Options

Buccalgesic

Pro's:

Ease of application

1 application covers all surgical procedures

Longer lasting (3 days) anti-inflammatory

Meat Withholding Period: 10 days

ESI: 10 days

Con's:

Gel can be difficult to administer on cold days as it is very thick

I find a subcut injection easier to administer than placing Buccalgesic (but people have their own preferences on which is easier to administer)

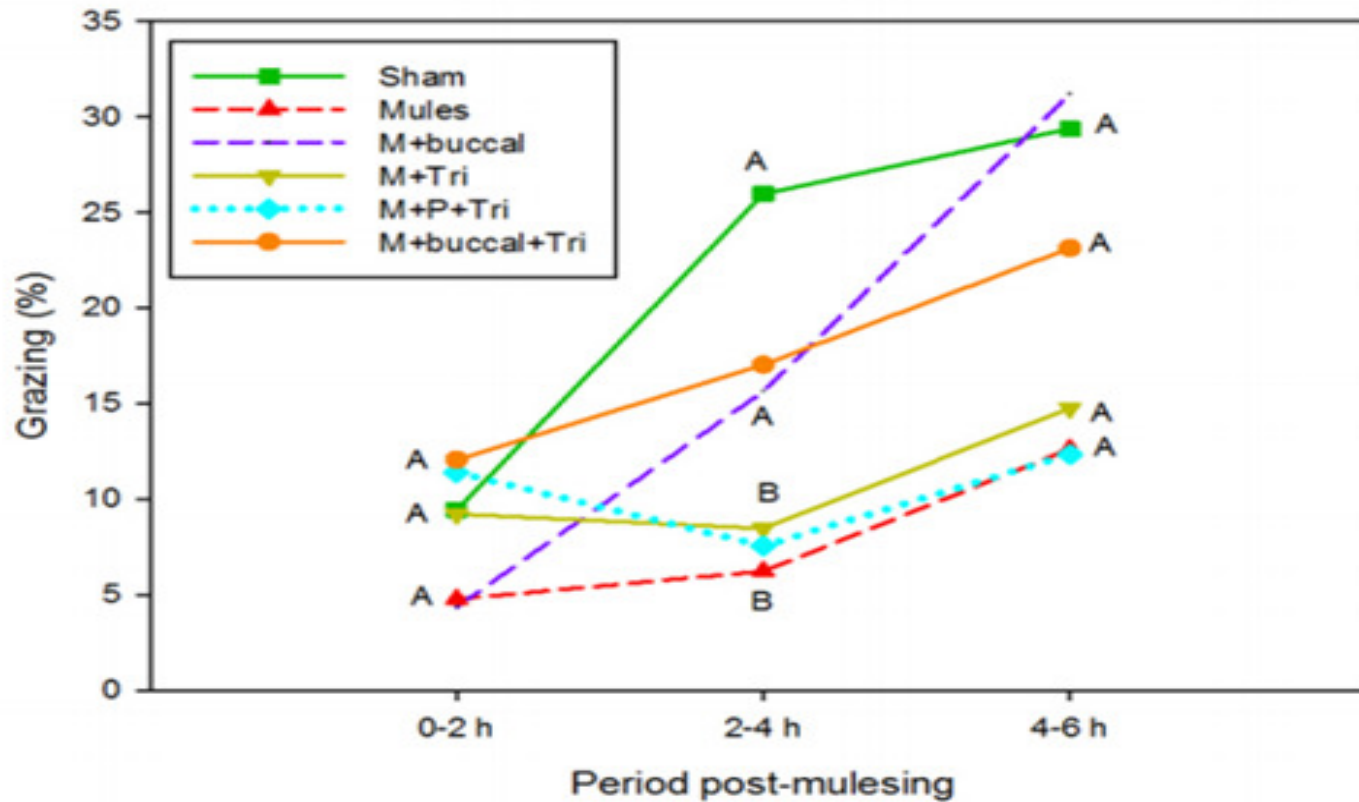
Does not have instant visual change in behavior

When conveniently given in cradle there will be no pain relief until the product is absorbed, so with painful procedures such as mulesing we would advise Tri-solfen to be used simultaneously.

Pharmacology

One Dose	Flunixin	Key	Tolfidine	Buccalgesic	M20 (CATTLE)	M20 SHEEP
Plasma Half life	6.0h	3.4h	8.0h		27h	12.0
Cmax Ug/ml	2.7	6.15	2.0	"slightly lower"	16.5	10.6
Tmax min	33mins	50min	45min	2.6 hours	19min	60min
AUC ug/hr/ml	7.9	17	8.66	"similar area under curve"	78	121

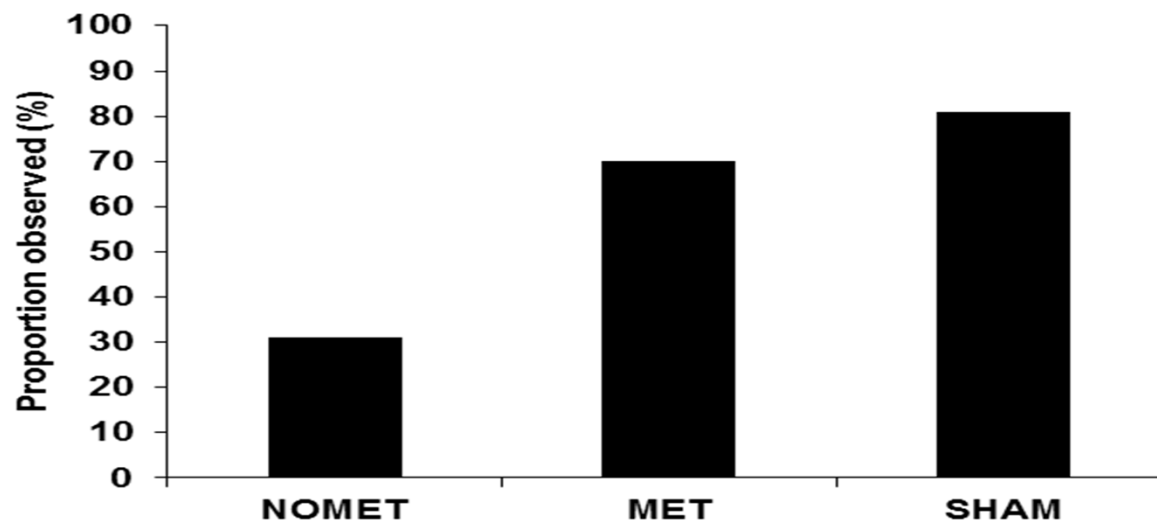
Metric	Definition
Plasma Half life	Time take for drug concentration to drop by 50%
Cmax	Max concentration reached ** >1ug/ml controls inflammation (horses & humans)
Tmax	Time take to reach Cmax
AUC	Area under the curve = graph of plasma concentration of a drug V time) <ul style="list-style-type: none"> - extent of exposure to a drug and its clearance rate - A measure of how much drug reaches the bloodstream



SHAM: placebo surgery
Mules: mulesed
M: mulesed
Buccal: Buccalgesic
Tri: Tri-Solfen
P: placebo

Alison Small CSIRO (Australian Wool Innovation Limited): Graph showing the percentage of time spent grazing in the first 6 hours post-mulesing and the different pain relief options

Metacam benefits on normal walking behaviour after surgical mulesing, castration and tail docking



NOMET: surgically mulesed, castrated and tail docked

MET: Metcam administered 15 minutes prior to surgically mulesed, castrated and tail docked

SHAM: No mulesing, castration or tail docking

Livestock Logic Trial work comparing the effectiveness of Metacam on surgically mulesed castrated and tail docked animal

Suggested Pain Relief Approach

Lamb marking method	Best pain relief option
Ring on tail and ring on scrotum	Numnuts
Ring on scrotum and surgical tail removal	Numnuts (+ systemic anti-inflammatory either Metacam or Buccalgesic)
Surgical tail removal and surgical testicle removal	Systemic anti-inflammatory, Metacam or Buccalgesic (+ Tri-Solfen)
Mulesing	Tri-solfen (+ systemic anti-inflammatory either Metacam or Buccalgesic)

Calf Marking – Castration and Dehorning

Principles of the treatments are very similar

- Tri-solfen provides wonderful topical (point of contact) pain relief for a short period
- Buccalgesic and Metacam provide longer lasting systemic (whole of body pain relief), takes >15 minutes to be absorbed
- Ideally for surgical procedures we combine the short acting benefits of Tri-solfen with the longer term benefits of Buccalgesic and Metacam

Calf Marking – Castration and Dehorning

	Pros	Cons
Metacam (subcut injection)	Systemic (whole body pain relief). If doing multiple painful operations then the same dose covers both longer lasting pain relief	For best results should be given >15 min before surgical procedure S4 product. Vet relationship is required
Buccalgesic (Administer into the cheek, buccal cavity)		
Tri-solfen for both castration and disbudding	Applied topically Immediate pain relief OTC	Short term pain relief compared to treatments above

Much like sheep, Tri-solfen provides wonderful short term pain relief but for pain relief 12-72 hours after treatment the anti-inflammatories (Metacam or Buccalgesic) are required in combination

Calf Marking – Castration and Dehorning

- Numnuts is currently not registered for use in cattle castration
- But likely to be a useful tool long term pain relief tool, currently being worked on how the gun can be altered to work for calves and appropriate dosing
- Watch this space



Questions?



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1st July 2020 pain relief for mulesing will be mandatory in Victoria

Prevention of Cruelty to Animals (POCTA) Regulations 2019:

“a person must not mules a sheep unless the sheep is administered with a pain relief product that has been registered for use on sheep by the Australian Pesticides and Veterinary Medicines Authority (APVMA).”

AGRICULTURE VICTORIA



Standard and Guidelines

Pain relief required

- Sheep > 6 months painful procedure require pain relief
- Cattle > 6 months painful procedure and up to 1 year on their first yarding
- Sheep Model Code Of Practice
 - Tail docking and castration > 6 months of age
- Cattle Model Code of practice
 - >6-8 months dehorning and castration



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Pain relief for livestock

Dr Andrew Whale