



Pain Relief Guidance

Corresponds to AW3.6, AW3.9, AW3.15 and AW3.17.

Why is pain relief needed?

Management tasks such as castration are painful operations. The first question must always be whether such procedures are necessary, and the RMS standards already require that the decision to carry out injurious husbandry procedures, including castration, must be based on a welfare risk/benefit analysis rather than as a routine.

There has been a lot of research into castration looking at different ages and methods. The results vary in terms of what is considered to be the most painful method or age but there will always be some degree of pain that can be exhibited both during and after castration.

What types of pain relieving drugs are available?

Local anesthetic

Anesthesia is defined as the loss of sensation with or without the loss of consciousness. A local anesthetic is a drug that, when injected or given topically (on the skin), produces a state of local anesthesia by reversibly blocking the nerve conductors that transmit the feeling of pain from the point of administration to the brain. They are designed not to distribute widely in the body – hence the name “local”. They are easily broken down and excreted by the body. This means that the duration of action is limited. Local anesthetics are the ideal class of drug for reducing acute pain, but will not persist long enough to have an effect on long lasting or chronic pain.

Non-steroidal anti-inflammatory drugs (NSAIDs)

NSAIDs are a group of drugs that all have an anti-inflammatory mode of action as well as antipyretic (fever reducing) and analgesic effects.

NSAIDs work by reducing the production of prostaglandins. Prostaglandins are chemicals that promote inflammation, pain and fever. The enzymes that produce prostaglandins are called cyclooxygenases (COX). NSAIDs block COX enzymes and reduce production of prostaglandins. Therefore, inflammation, pain, and fever are reduced.

NSAIDs are slower to act than local anesthetics but have a longer lasting effect – up to 24 hours in some cases.

Alpha-2 adrenergic drugs

Alpha-2 adrenergic drugs include xylazine and detomidine. These drugs provide analgesia, but they also have a sedative effect. These products take a few minutes to take effect (longer if intramuscular rather than intravenous injection is used) and last as a sedative for an hour or more, but as an analgesic for around 30 minutes. The common Alpha-2 adrenergic drug xylazine is often used by vets in combination with the drug ketamine to give an anesthetic effect.



What does “suitable” mean?

The RMS standards require that for all methods of castration pain relief must be used when suitable pain relief products are available. A suitable product is defined as one that has a pain relieving effect for the method of castration that is used. Some pain relieving products act quickly for acute pain, others take longer to show an effect, but last for a greater time period. Methods of castration and tail docking similarly vary. Some methods will give acute pain at the time of the procedure (e.g. scalpel castration); others may give rise to chronic pain post-operatively (e.g. rubber ring castration). In addition, some pain relieving products are designed to be applied to a wound, and not all methods of castration leave a wound.

What does “available” mean?

Following on from defining whether a product is suitable, the next point is whether it is available. To decide this, a brief background into how veterinary drugs are licensed and used is necessary. Veterinary pharmaceuticals, including pain relieving drugs, have to be licensed for use in individual countries by the companies that produce these. Veterinary pharmaceutical companies generally operate on a global scale, but the fact that they license a particular product in one country does not automatically mean they will seek to license that product elsewhere. The process of licensing drugs for use is time consuming and expensive and companies will not license a product unless they are sure that it will be used.

Licensing will specify the animal species for which the pharmaceuticals are intended; the therapeutic indication (i.e. when the product may be used), the mode of application and the withholding period.

Some licenses require pharmaceuticals to be prescribed by a vet; others allow farmers to purchase the product “over the counter” without prescription.

In the absence of a suitable licensed product, a veterinary surgeon can use their country’s “off-label” or “extra-label” procedure to prescribe a product that is licensed for another species or another therapeutic indication. This is generally only permitted when no other product is already licensed within that country or for that species. Off-label/extra label use means that vets can access pharmaceuticals, including pain relieving drugs, that are not otherwise available. Depending on the licensing rules, such products may only be used by the vet or under the control of the vet.

It is not guaranteed that a farmer will be able to access off-label/extra label products through their vet. It will be up to the individual vet as to whether they are willing and able to facilitate this. There have been instances of attempted suicide by overdose of veterinary pain relieving drugs in the farming community, plus toxic overdose of local anesthetics such as lidocaine are a risk if dosing rates are miscalculated – as can occur with small kids. Vets may therefore be reluctant to allow all farmers access to such drugs.



For the purposes of these standards it is therefore proposed that “available” should be defined as a product that is licensed for use by the farmer, in the relevant country, for the relevant species, for pain relief. This definition does not require the farm’s vet to make a judgement call regarding the use of off-label drugs, and the farmer does not have a reason not to get access to the appropriate product.

Other considerations – farmers certified organic under the U.S. National Organic Program (NOP)

Farmers certified as organic under the U.S. NOP are heavily restricted in terms of synthetic substances that may be used for livestock production. This is covered in CFR 205.603 of the organic regulations. Several pain relieving products are listed here including aspirin, butorphanol (an opioid analgesic), flunixin, xylazine, procaine and lidocaine. So far so good, however butorphanol and xylazine are noted as only being available for any species under ADMUCA (the U.S. system for off-label prescription) and while the rest are licensed for use in cattle in the U.S. none of them are licensed for goat.

The products listed in CFR 205.603 are the ONLY products that farmers certified under NOP may use. From the information above it can be seen that organic farmers in the U.S. do not have “available” products in any case. However, many farmers in other countries are certified to NOP standards in order to export products to the U.S. In some of those other countries – for example Australia – suitable pain relieving products are available to goat farmers, but their use would cause the loss of organic status for treated animals.

What pain relieving drugs can be used for goat?

Research has shown that several pharmaceuticals have pain relieving effects at castration and tail docking of goat. However at time of publication, all of these products are only available off-label through a vet.

This situation may change over time, and some farmers may choose to exceed the requirements of RMS and seek access to pain relieving drugs through their vets. See table on following page for details of products that are licensed for sheep and available to farmers in different countries.

What is reasonable to expect from RMS/RMS certified farmers?

If farmers are in countries where pain relieving products are licensed for use [see table below]; and the methods used by the farmer for castration match the pain relieving products that are available **pain relief must be used**. As noted above, at present there are no options for goat farmers, but there are some options for sheep.

However: if farmers are certified to NOP standards RMS cannot enforce the use of pain relieving drugs, even if these were suitable and available, as to do so would cause the farmer to



lose their organic status with the resultant disastrous economic effects that would have. A derogation to this standard must therefore be offered under these circumstances.

Pain relief for shearing injuries

Standard AW3.15.2 requires that pain relief is applied to severe shearing injuries when a suitable pain relief product is available. However, some products hold very specific licensing requirements. For example, trisolfen is licensed in Australia for castration and tail docking, but the license only extends to lambs and not older sheep. This product is therefore not suitable for use for shearing injuries in ewes. Buccalgesic – an orally applied pain relief, and Metacam – an injection do hold a license for use in sheep, but cannot be used for lactating ewes or those within 10 days of lambing. Even if a goat farmer wished to work with their vet to potentially gain access to these products off-license or extra-label, the same age or stage of production restrictions would likely apply

Note: This will require ongoing monitoring of licensing of veterinary products, for either new products or new applications of existing products: for example, there may be an option to use numnuts in conjunction with cautery blade tail docking, but this has not yet been evaluated. The chart of products will be updated on an annual basis.



Table 1. Suitable and available pain relief products

Type of product	Local anesthetic (two formulations)	Local anesthetic	NSAID	NSAID
Active ingredient and Product name	Bupivacaine & Lignocaine e.g. Trisolfen	Lignocaine e.g. Numnuts	Meloxicam e.g. Buccalgesic	Meloxicam e.g. Metacam
Countries where licensed for farmer use*	Australia, New Zealand, Registration underway in Europe, Canada, US and South America	Australia now; UK 2020, New Zealand 2020	Australia, New Zealand	Australia, New Zealand, Canada
Species licensed for use	Sheep – lambs only	Sheep	Sheep	Sheep - over 2 weeks of age only
How applied	To the wound (so not used for rubber ring castration / docking)	Injected as the rubber ring is applied	Gel, inside the cheek	Intra-muscular or sub-cutaneous injection
When applied	After the procedure	At the time of the procedure	Prior to the procedure	Prior to the procedure
When it works	30 to 60 seconds after application and lasts for 24 hours	30 to 60 seconds after injection and lasts for 60-90 minutes (the acute pain phase)	From 10 minutes after application lasting up to 24 hours	From 10 minutes after application lasting up to 24 hours
What the product does	Contains local anesthetic to deaden pain, adrenaline to stop bleeding and an antiseptic	Contains local anesthetic to deaden pain	Relieves pain by reducing inflammation	Relieves pain by reducing inflammation
Meat Withdrawal time	90 days	Nil	10 days	11 days