

## Scientific Advisory Committee on Animal Health and Welfare

**Opinion of the Committee, taking account of current practice in other jurisdictions and recognising the need to provide for necessary husbandry practices, on the scientific appropriateness of the time limits set out in the Animal Health and Welfare (Operations and Procedures) (No. 2) Regulations 2014 on i) castration of cattle and sheep, ii) dehorning/disbudding of cattle, and iii) tail docking of sheep.**

This task involves multiple variables, the Opinion is presented according to current knowledge on each of the specified husbandry procedures, according to species.

### **Castration of Cattle**

Castration of cattle is usually performed in order to prevent sexual behaviour, reduce aggression, and increase handling safety. In Ireland cattle can be castrated, other than by a veterinary practitioner, before it attains 6 months of age using a Burdizzo or before it attains 8 days of age using a rubber ring (S.I. 127 of 2014), in both cases without the use of anaesthesia and analgesia (S.I. 107 of 2014).

Numerous scientific studies have investigated acute and chronic pain, distress and performance relating to the age and method of castration. All methods of castration cause significant acute pain and distress, while castration with a rubber ring is also associated with chronic pain. The younger the calf is castrated the less stressful the procedure (Bretschneider, 2005). Castration in 6 day old calves is less painful than in 6 week old calves (Robertson et al., 1994), while castration by Burdizzo is less stressful and less painful in calves 6-8 weeks old than in calves 5.5-6 months old (Ting et al., 2005; Dockweiler et al., 2013). Ting et al. (2005) also found that there was no effect of castration on the overall 42-day growth trends of calves in the study groups (1.5-5.5 months).

Calves castrated at or close to birth reach the same live weight at weaning as calves castrated at weaning (Bretschneider, 2005). Counter to current beliefs, castration-associated weight loss increases with age of calf. Therefore castration after puberty does not confer a benefit on performance related to the anabolic properties of testosterone (Bretschneider, 2005).

Pain relief is recommended, although opinions vary on the efficacy of local anaesthetic (LA) alone and in combination with analgesia (ketoprofen). One study found that ketoprofen alone was more effective in minimising acute stress and behavioural responses to pain (Ting et al., 2003).

Legal provisions from other jurisdictions vary in the requirements relating to castration; however most of those surveyed required LA in all ages. Where there was a requirement for LA for all ages, some jurisdictions did not apply an upper age limit for carrying out the procedure but restricted it to a veterinary procedure (Sweden, Norway), while other competent authorities stipulated age restrictions (2-4 weeks), training requirements, and veterinary involvement (Denmark, Switzerland). In the United Kingdom, castration is permitted by rubber ring up to 7 days and Burdizzo up to 2 months without a requirement for LA, while in New Zealand, castration without pain relief is permitted up to 6 months of age (except where high tension bands are used).

## Key Issues

- Regulations from other European jurisdictions with high welfare standards require the administration of pain relief for castration, irrespective of the age of the calf.
- Castration is a painful procedure causing acute pain and distress, but LA and analgesia is not currently required in Ireland for castration of calves by rubber ring at less than 8 days of age and by Burdizzo before it attains 6 months.
- Some methods such as the rubber ring are also associated with chronic pain.
- Given the research pertaining to weights achieved at weaning for calves castrated at different ages, there is no benefit in delaying castration from birth or close to birth until weaning.
- Castration is more painful and stressful in older calves than in younger calves.
- While there are recognised pharmacological methods for the elimination of acute pain following castration, the cost and availability of these products may be problematic.
- One local anaesthetic product, Adrenacaine, and 28 NSAIDs, authorised for use in cattle in Ireland, are suitable for the management of pain associated with the disruption of sensitive tissues. All products are designated Prescription Only Medicines (POM) and as such may be administered by a farmer but only in accordance with a veterinary prescription. Adrenacaine and 24 of the NSAIDs are injectable products and thus require training in terms of administration. Additionally it may be that not all authorised products are marketed in Ireland at any point in time.
- Given experiences surrounding the use of LA for disbudding of calves, farmers may be reluctant and lack the requisite knowledge to use LA for castrating calves.

## Recommendations

- Taking into account that younger calves experience less acute responses than older calves, calves castrated by Burdizzo without the use of anaesthetic should be castrated as young as possible.
- Recognising the need to provide for necessary husbandry practices, and taking into account practices in other jurisdictions, it is recommended that the upper age limit for castration of a bull using a Burdizzo without the use of LA be reduced from the current position of 6 months to as close as possible to 2 months. Such a proposed reduction in the upper age limit should be preceded by a communication and education campaign informing farmers of the benefits and justification for earlier castration of calves.
- The age limit for non-surgical castration of a bull using a rubber ring should remain unchanged

- The use of analgesia (i.e. NSAIDs) at castration is recommended for all ages.
- The Farm Animal Welfare Advisory Council should be requested to develop detailed guidelines on the castration of calves, taking into account these recommendations (e.g. effects of castration on stress and pain responses and growth rates, the justification for earlier castration, recommendations for pain relief, appropriate handling and castration techniques).

## **Disbudding of Calves**

Disbudding is performed for economic and practical reasons: to prevent bullying and injury to other animals (with implications for productivity and carcass damage respectively) and human safety during handling. There are three techniques used: cautery, surgical and caustic paste. Cautery is recommended by the European Food Safety Authority (EFSA) and other authority organisations, and is the only method of disbudding allowed in Ireland under S.I. 127 of 2014, which permits disbudding of calves up to 28 days old by thermal cauterisation. Either local anaesthetic (LA) or analgesia is required for disbudding on calves that have attained the age of 15 days.

There is variation in the suggested upper age limits for disbudding of calves ranging from 6 to 8 weeks of age. These age limits are not based on empirical evidence, but rather on opinion related to the physical development of horns in calves and that the horn buds become attached to the underlying periosteum at approximately 2 months of age. It is stated that the development of horns in some beef breeds occurs much later than in dairy herds but there are no empirical data to support this. The degree of tissue damage associated with disbudding is determined by the stage of development of the horn bud e.g. in younger calves the burning of the vessels surrounding the horn bud is sufficient, whereas the whole bud needs to be removed (by levering it out from the side) when the horn is further developed.

Disbudding is painful and stressful, but is less painful than dehorning. Pain relief is recommended in all ages.

Research by Dwane et al. (2013) using focus groups reported that some Irish beef farmers were reluctant to use LA and opted to disbud calves less than 14 days old in order to avoid using it, even when the horn bud had not erupted. This may indicate a lack of knowledge concerning aspects of the disbudding procedure and the application of LA.

Legal provisions in other jurisdictions show a range of age limits set for disbudding and the administration of LA (Table 2; ALCASDE, 2009). These age limits, where specified, range from 3 weeks to 6 months. In accordance with EFSA opinion, many countries surveyed now require the use of LA for disbudding, irrespective of age. However, almost as many other countries allow disbudding without LA for some of or the entire allowable age limit. Switzerland provides specific training on pain management and licences farmers to administer LA.

## Key Issues

- Regulations from other European jurisdictions with high welfare standards require the administration of anaesthesia for disbudding, irrespective of the age of the calf.
- Lack of consensus over the appropriate upper age limit for disbudding of calves.
- Lack of empirical data regarding the possible later development of horn buds in certain breeds of cattle.
- Both disbudding and dehorning are painful procedures, irrespective of the age of the animal. However there is a wide variation in the legislative requirements in other countries.
- Adequacy of current training of farmers in administering LA for the purpose of disbudding.
- Disbudding prior to development of the horn buds to avoid use of LA.
- Disbudding late, once the horns have attached to the underlying periosteum.
- One local anaesthetic product, Adrenacaine, and 28 NSAIDs, authorised for use in cattle in Ireland, are suitable for the management of pain associated with the disruption of sensitive tissues. All products are designated Prescription Only Medicines (POM) and as such may be administered by a farmer but only in accordance with a veterinary prescription. Adrenacaine and 24 of the NSAIDs are injectable products and thus require training in terms of administration. Additionally it may be that not all authorised products are marketed in Ireland at any point in time.

## Recommendations

- The upper age limit of disbudding of a bovine should remain unchanged at 28 days subject to research on the development of the horn bud in different breeds and genetic lines.
- Pain relief is recommended for all ages.
- The Farm Animal Welfare Advisory Council should be requested to develop detailed guidelines on the disbudding of calves (e.g. justification, anatomy, physiology, behaviour, pain, handling, techniques for disbudding and LA use, equipment).
- Training in the use of local anaesthetic for disbudding should be included in the curriculum of agriculture and animal science education programmes.
- SACAHAW recommends that breeding for polledness should be included as part of holistic breeding programs taking into account other economically important traits.
- SACAHAW recommends that research be carried out –
  - to determine the age range in the development of horn buds for different breeds and genetic lines of cattle.
  - into alternative methods of cauterly disbudding.

## **Tail docking of Sheep**

Tail docking is performed to prevent the accumulation of faeces on the tail and anogenital area and thus to reduce the risk of fly strike and cutaneous myiasis. It is also performed for management of ewes at mating and lambing. The risk of fly strike depends on climatic conditions, sheep breed and the production system. For example, early lambs are not tail docked because they are born in winter and slaughtered in the spring, before fly strike emerges. The relationship between tail docking and faecal build-up is unclear, as is the relationship between cleanliness and fly strike. In Ireland tail docking of sheep, without the use of anaesthesia/analgesia, is permitted in sheep that have not attained the age of eight days using a rubber ring to constrict the flow of blood to the tail.

Tail docking is normally performed within the first 48h of birth, using a rubber ring, thermocautery or excision, retaining enough of the tail to cover the anogenital region. Ram lambs are normally castrated at the same time.

Empirical data suggest that younger lambs suffer from the same pain responses as older lambs (Dwyer, 2008) and are not less sensitive to acute pain than older lambs (Guesgen et al., 2011). These findings support the view that the current legislation which limits the use of the rubber ring to the first week of life appears to be based on the erroneous impression that lambs of this age feel less pain than older lambs (FAWC, 1994).

Local anaesthetic (LA) reduces the effects of acute pain, and may reduce the time course and behavioural responses associated with chronic pain. The combined method of Burdizzo application across the full width of the tail just proximal to and following rubber ring application also reduces the level of acute pain by crushing the afferent nerves from the tail.

In countries surveyed where tail docking of lambs is permitted, the maximum age at which a rubber ring can be applied is 7 days, with none of these countries requiring the use of LA for this procedure.

The EFSA Scientific Opinion on sheep welfare (2014) reports that experts consider painful management procedures such as tail docking to have significant welfare consequences for lambs.

### **Key Issues**

- Regulations from other European jurisdictions with high welfare standards tend to allow tail docking of lambs without the use of local anaesthesia up to 7 days of age. Tail docking is banned by both Sweden and Norway, except for therapeutic reasons.
- Tail docking is a painful procedure and ram lambs that are castrated at the same time are likely to suffer considerable acute and chronic pain.
- Research has demonstrated that young neonatal lambs show similar pain responses to older lambs following tail docking.

- Excessive docking of tails may increase the risk of rectal prolapse, while little is known about other effects of short docking.
- Limited evidence evaluating the reduction in fly strike associated with tail docking with only one of three studies demonstrating reduced strike in docked sheep.
- Lack of research about the importance of the tail in other contexts such as social communication or fly control.
- Currently there are no local anaesthetics or NSAIDs specifically authorised for use in sheep in Ireland. In practice the situation is the same as already described in cattle as the products authorised in cattle may be prescribed by veterinary practitioners under the 'cascade' arrangements, when no authorised product is available.

### **Recommendations**

- The upper age limit of tail docking by rubber ring of a lamb before it attains the age of 8 days should remain unchanged.
- Application of a Burdizzo across the width of the tail proximal to and following rubber ring application is recommended in order to reduce acute pain and accelerate healing.
- The Farm Animal Welfare Advisory Council should be requested to develop detailed guidelines on tail docking in lambs (e.g. justification, methods, pain relief, alternatives to tail docking i.e. fly control, etc.).
- SACAHAW recommends that research should be carried out on the prevalence of flystrike in Ireland and the relationship between tail-docking and the risk of flystrike.

### **Castration of sheep**

Ram lambs are castrated to prevent indiscriminate breeding, to avoid aggressiveness between males, and to improve performance. Castration is typically conducted in neonatal ram lambs at, or shortly after birth using rubber rings. It is normally conducted at the same time as tail docking. In Ireland the non-surgical castration of a ram is permitted, without the use of anaesthesia/analgesia, by use of a Burdizzo where the ram has not attained the age of 3 months, or, where a rubber ring to constrict the flow of blood to the scrotum is used, before the ram attains the age of 8 days.

Older lambs have more severe scrotal lesions and more chronic pain following castration than younger lambs.

Local anaesthetic reduces the effects of acute pain, and may reduce the time course and behavioural responses associated with chronic pain. The combined method of Burdizzo application across the scrotum after rubber ring also reduces the level of acute pain.

The EFSA Scientific Opinion on sheep welfare (2014) reports that experts consider painful management procedures such as castration to have significant welfare consequences for lambs.

### **Key Issues**

- Regulations from other European jurisdictions with high welfare standards require the administration of pain relief for castration, irrespective of the age of the lamb.
- Lack of consensus on the need to castrate.
- Some methods such as the rubber ring are associated with acute and chronic pain.
- Castration in ram lambs is typically conducted at the same time as tail docking and is likely to cause considerable acute and chronic pain.
- Currently there are no local anaesthetics or NSAIDs specifically authorised for use in sheep in Ireland. In practice the situation is the same as already described in cattle as the products authorised in cattle may be prescribed by veterinary practitioners under the 'cascade' arrangements, when no authorised product is available.

### **Recommendations**

- When castration is deemed appropriate, it should be performed in lambs as young as possible.
- The upper age limits of castration by rubber ring of a lamb before it attains the age of 8 days and of castration by Burdizzo of a lamb before it attains the age of 3 months should remain unchanged.
- Application of a Burdizzo across the width of the scrotum proximal to and following rubber ring application is recommended in order to reduce acute pain and accelerate healing.
- The Farm Animal Welfare Advisory Council should be requested to develop detailed guidelines on the castration of lambs (e.g. justification, methods, pain relief, alternatives to castration i.e. management).

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