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### **Submission to the Australian Animal Welfare Standards and Guidelines Public Consultation Process**

I am pleased to be able to offer the following comments for consideration when reviewing the draft S&Gs for Sheep Welfare. An issue for consideration throughout the document is the specificity of age of animals in relation to aversive husbandry procedures. There is little evidence that supports the notion that animals at an early age suffer less than those that are older or adult and the studies that have been done are generally inconclusive. The widespread practice of early intervention with aversive husbandry procedures is probably derived from ease of restraint rather than a better welfare outcome, or from ideas that an animal with a less developed nervous system may experience less pain than an older animal. Whilst this may have some relevance in atricial species it is hardly relevant to precocial species such as ruminants where the central nervous system is 50% myelinated at birth and the animal are ambulatory and very responsive to noxious stimuli.

As in surgical procedures in humans and other animals, it is generally the manner in which the procedure is performed rather than the age of the animal that is relevant to the question of welfare. Of relevance is that the availability of farmer applied topical pain relief (Tri-Solfen®) for mulesing and potentially other interventions (eg castration, tail-docking, ear notching) suggests the question of age for interventions needs revision. We are currently conducting research in this area with support from AWI. We have their permission to provide some preliminary evidence below that suggests that the mulesing operation with pain management for example, may be more appropriately performed in older animals (eg hoggets and adults) than in young lambs already subjected to a significant number of interventions at lamb marking. Some comments relating to euthanasia are also offered.

#### **Comments relating to age of interventions**

Guideline 3.16. This implies clips and unspecified appropriate new technologies are effective in flystrike control and mulesing is (?only) for lambs, with no mention of pain relief. Clips appear to have been a market failure and when used are far less ineffective in creating a bare perineal area compared to mulesing and possibly represent a greater welfare burden (due to pain of ischaemia) than surgical mulesing with pain relief.

Guideline 6.3. This ignores the frequent finding in large flocks of lambs that have missed being marked and may be well over 12 weeks when available for marking. Pain relief should be used for such animals.

Guideline 6.17. We have published evidence (Lomax et al, 2010) that ring castration is more painful than surgical castration with pain relief. In no other species is ring castration used as widely as sheep and this is more about a bloodless procedure, at a cost of significant pain for 2hrs and higher risk of

induced cryptorchidism and post-procedural infections including tetanus. The note that the preference for rings is under research review is appreciated.

Standard 7.2. This aims to prohibit mulesing after 12 months but this prevents those that try to attain Ceased Mulesing status but then find fly strike & dag management too difficult. As crutching sheep with severe dag is itself a major welfare issue that is recurrent, some producers would consider they have no options but to mules their sheep (Windsor & Lomax, 2013). We suggest that mulesing with pain relief would be a likely preferred strategy for such flocks and thus argue that a 12 month 'cut-off' is an ambit age point and that if done well with pain relief, there is no need for an age limit.

Guideline 7.6. This promotes interventions from 2-12 wks when again, as above, if accompanied by pain relief, our gathering evidence suggests that older animals are more tolerate of such aversive procedures.

### **Recent research findings on age of mulesing**

With support from AWI, we have been examining the behavioural responses of hoggets over 6 months of age to the mulesing operation and preliminary findings are as follows, reproduced with permission AWI and excerpted from Milestone 2 of project WP420 AW.

*Brief overview of methodology:* 60 merino hogget ewes were allocated to one of 3 treatment groups: (1) unmulesed control, (2) mulesed, (3) mulesed + Tri-Solfen® topical anaesthetic. Hoggets were moved and restrained using a V-conveyor to minimize human handling and restraint. Mulesing was conducted by an accredited mulesing contractor to industry standards. Each animal was mulesed according to individual wrinkle score. Tri-Solfen® was applied to animals from group 3 immediately post-operatively as per labelled instruction. Hoggets were released into a 50m x 50m grass-covered yard with ad-lib access to dry feed (lucerne hay) and water. Behaviour was assessed immediately post-mulesing and every 30 minutes up to 8h, and at 24h using a customised numerical rating scale (Lomax et al., 2008).

*Brief overview of results:* The data is being analysed using ordinal logistic regression in AsREML and initial results indicate a significant treatment effect on behaviour ( $p < 0.005$ ). We are currently still analysing this data although the trends suggest that mulesed, Tri-Solfen® treated hoggets do not differ significantly in post-operative behaviour to unmulesed controls up to 24h post-mulesing. This observation indicates that mulesing with pain relief at an older age is well tolerated and may not have as severe an effect on animal welfare if industry best practices are applied. Further work comparing post-operative recovery and behaviour of lambs and hoggets under the same experimental conditions is warranted, although it should be noted that there are limitations to direct comparisons of behaviours of neonates and young adults due to differences in developmental of the CNS.

*Conclusion:* Progress indicates that it is very likely that a better welfare outcome for lambs at marking with mulesing can be achieved by administration of xylazine prior to surgical interventions, and further, that adjusting the age at mulesing until animals are hoggets may not necessarily immediately translate into a reduction in tissue removed compared to body surface area. Further exploration of this issue is

current with studies comparing the size of mulesing wounds in provision of perineal bare area in both lambs and hoggets planned for the next lambing season.

**Comments relating to euthanasia: Standard 10.6 and Guideline 10.14.**

This states that other methods of killing sheep are preferable to exsanguination by neck-cut which should only be used as a last resort. However there is limited evidence that any particular technique is more preferable to another in this species, with exsanguination often preferred due to ease of access to the carotids and absence of vertebral artery co-circulation to the brain meaning the animal loses conscious almost instantly. The neck cut is a standard operating procedure (SOP) on farms and it is unlikely that this S7G will be well received by most sheep farmers who are generally very skilled in the use of knives as they use this technique for preparing sheep for their own kitchen table.

Lethal injection is generally poorly performed in sheep and is rarely appropriate for use on-farm as it poses a significant risk to farm dogs and wildlife due to carcass disposal difficulties (ie fire is not always possible and buried carcasses are regularly dug up). Firearms and captive bolts are very appropriate for cattle with the latter designed for this species, but the former is dangerous if used indoors and both are cumbersome in sheep and often destructive of brain tissue, an issue of relevance if the animal is killed for a TSE exclusion examination.

**Conclusion**

For mulesing, a skilled operator using pain relief presents far less of a welfare burden to an animal that suffers skin loss during repeated crutching or continual lifetime risk of illness or death from flystrike. As producers attempt to reduce mulesing in their flocks, reversal of a decision to not mules should not be impeded by a S&G that has a n age limit attached.

For euthanasia by exsanguination, a skilled operator that is aware of the importance of immediately cutting both carotid arteries and uses very sharp equipment and good technique, is likely to be able to induce a more efficient death for a sheep than the alternative methods listed.

It is the skill of the operator in addition to the technique that is used that determines the welfare burden for the animal during an invasive procedure.

Yours sincerely,



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## References

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