



PROPOSED AUSTRALIAN ANIMAL WELFARE STANDARDS AND GUIDELINES

SHEEP

Decision Regulation Impact Statement

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Foreword

Animal Health Australia is a not-for-profit public company established by the Australian, state and territory governments and major national livestock industry organisations. The company is a dynamic partnership of governments and livestock industries that strengthens Australia's animal health status and reinforces confidence in the safety and quality of our livestock products in domestic and overseas markets. The partnership initiates and manages collaborative programs that improve animal and human health, food safety and quality, market access, livestock productivity, national biosecurity and livestock welfare.

The *Australian Animal Welfare Standards and Guidelines for Sheep* are an important component of the Australian Animal Welfare Strategy (AAWS) — a previous Australian Government initiative that guides the development of new, nationally consistent policies to enhance animal welfare arrangements in all Australian states and territories. The development process began in 2009 and has been supported and funded by all Governments, WoolProducers Australia and the Sheepmeat Council of Australia.

This Regulatory Impact Statement assesses the proposed standards, incorporates public consultation feedback and changes agreed by the majority of the Reference Group. This independently chaired committee comprised government representatives, industry council representatives from all relevant sectors, researchers and animal welfare organisations.

The proposed standards are intended to replace the Model Codes of Practice for the Welfare of Animals: Sheep, 2nd edition, PISC Report 89, CSIRO Publishing, 1991 (revised 2006). The standards are intended to be used as the basis for developing consistent legislation and enforcement across Australia which is the responsibility of jurisdictional (state) governments. They are based on scientific knowledge, recommended industry practice and community expectations.

The standards will apply to all people responsible for the care and management of sheep in Australia. 'Sheep' includes a single ovine animal.

Extensive consultations and collaborations have been conducted during development under the guidance of the Reference Group. A five month period of public consultation has also been conducted which has served to highlight ethical and practical issues and contributed to the development of a better document.

Animal Health Australia has considered all stakeholder responses in developing the final standards and guidelines for recommendation by the Reference Group to the government Animal Welfare Task Group (formerly Animal Welfare Committee) and sheep industry councils. On behalf of Reference Group members I would like to thank all those who took the time and effort to provide input into the development of this important livestock welfare policy reform.

Kathleen Plowman
CEO Animal Health Australia.

Summary

Introduction

This Regulation Impact Statement (RIS) assesses the proposed *Australian Animal Welfare Standards and Guidelines - Sheep* ('the proposed standards'). The proposed standards have been prepared under a system endorsed by all state and territory governments.

The proposed standards are intended to provide direction for all people responsible for the care and management of sheep, including those in both the wool and sheep meat industries. The standards provide the basis for developing and implementing consistent legislation and enforcement across Australia. They reflect available scientific knowledge, current practice and community expectations. It is intended that the proposed standards will replace the existing *Model Code of Practice for the Welfare of Animals – Sheep* ('the existing MCOP') and other relevant existing standards, if and when endorsed by the Agriculture Ministers Forum (AGMIN).

Under constitutional arrangements, the primary responsibility for animal welfare within Australia rests with individual states and territories, which exercise legislative control through 'prevention of cruelty to animals Acts' and other legislation as outlined in Appendix 4 of this RIS.

The Australian Government is responsible for export policy and government-to-government trade facilitation including treaties; the regulation of the livestock export industry, including licensing livestock exporters, and issuing export permits and health certificates certifying that livestock meet importing country requirements.

Problems and policy objective

The proposed national standards are not starting from a zero base. There are already some nationally inconsistent regulations in place for sheep. However, there are also inadequate, confusing and inconsistent existing statements in the existing MCOP.

The main problems underlying the development of the proposed national standards are those relating to:

- *Risks to the welfare of sheep* due to deficiencies in the existing MCOP for the welfare of sheep; and to a lesser extent
- *Uncertainty for industry* due to a lack of clear and verifiable standards; and
- *Excess regulatory burden* arising from a lack of national consistency and unnecessary standards.

The following overarching policy objective is identified:

To minimise risks to sheep welfare and to reduce regulatory burden in a way that is practical for implementation and industry compliance.

Policy development process

Extensive consultation has taken place over the last three years with government agencies, researchers, industry and animal welfare organisations in the development of the proposed standards. The proposed standards were developed under the auspices of the former Animal Welfare Committee (AWC), which previously reported to the former Standing Council on Primary Industries (SCoPI). Membership of AWC at that stage comprised representatives from each of the State and Territory departments with responsibility for animal welfare, CSIRO, and the Australian Government Department of Agriculture.

Development of the proposed standards and guidelines was initially undertaken by a small writing group comprising research, government and industry representatives; supported by a widely representative Standards Reference Group (SRG). The SRG comprises representatives of national organisations representing the livestock transport industry; the production, saleyard, feedlot and processing sectors of the sheep industry; animal welfare organisations; state and federal regulators; policy specialists; and technical experts. These industry organisations are the key connection with livestock owners and managers at the enterprise level. The professional industry networks are vital to the standards development consultation and communication efforts.

At the SRG meetings in 2009 and 2010, alternative positions and views were expressed by governments, national industry and animal welfare organisations regarding the need to consider various practicable alternatives, resulting in a provisional list of variations to the proposed standards. This list was prioritised and narrowed to six variations by the Animal Welfare Committee, on the basis of contentious issues that might provide further improvements in animal welfare, but before the costs of such improvements had been estimated.

An extended public consultation was held prior to development of this Decision RIS, as discussed below. The SRG contributed extensively to the development of this RIS.

Options considered

The options and variations evaluated in terms of costs and benefits considered in the Consultation RIS were:

- **Option A:** converting the proposed national standards into national voluntary guidelines (the minimum intervention option);
- **Option B:** the proposed national standards as currently drafted;
- **Option C:** one or more variations of the proposed national standards as follows:
 - *Variation C1:* All mulesing with pain relief
 - *Variation C2:* Restrict mulesing age to less than 6 months of age
 - *Variation C3:* Single penning for wool production ban
 - *Variation C4:* Tethering ban

- *Variation C5*: Mandate pain relief for laparoscopic LAI and ET
- *Variation C6*: Require docked tails to have at least one free palpable joint.

Option A would be likely to lead to improved animal welfare outcomes, depending on the level of voluntary adherence to the national guidelines, through better management of risks to animal welfare in sheep farms. However, any resulting improvement over the base case is likely to be significantly less than that which would occur under mandatory compliance with enforceable, risk-based and clearly understood standards.

Option B would involve the issuing and promotion of agreed national risk-based standards once every 5 years post-endorsement by the AGMIN. Unlike Option A, these standards would become regulations and would be mandatory (i.e. compliance would be mandatory). The mandatory national standards would replace the existing model codes of practice (MCOP) and other state or territory standards under the 'base case'. Option B would lead to much improved animal welfare outcomes, through better management of risks to animal welfare in sheep farms due to mandatory compliance with enforceable risk-based standards.

As a result of the public consultation, Variations C3 and C6 have now been incorporated into the proposed standards (Option B). An additional Option C7 has been added in response to written submissions from the Sheepmeat Council of Australia (SCA) and WoolProducers Australia (WPA) during the public consultation process and as discussed with representatives of the sheep industries at the last SRG meeting. This option would omit standard S5.1b which lists various ways in which the manner of handling sheep would be considered unreasonable.

To avoid confusion, the same numbering of options has been retained in this Decision RIS. Option A is the same as in the Consultation RIS. Option B has been amended as outlined in the public consultation process below. Option C now reads:

Option C: one or more variations of the proposed national standards as follows:

- *Option C1*: All mulesing with pain relief
- *Option C2*: Restrict mulesing age to less than 6 months of age
- *Option C4*: Tethering ban
- *Option C5*: Mandate pain relief for laparoscopic LAI and ET
- *Option C7*: Omit proposed standard S5.1b (list of unreasonable sheep handling practices).

Options C1 to C7 would each involve the issuing and promotion of national standards (same as Option B), to be reviewed once every 5 years by AGMIN. These proposed national standards would become regulations and would be mandatory. Like Option B, any such variations of the mandatory national standards would also replace relevant state or territory codes of practice that currently exist under the 'base case'.

Public consultation process and feedback

The public consultation objective was to seek the views and advice of interested parties in further formulating a preferred national regulatory framework for sheep welfare.

Specifically, views from interested parties were sought about how the:

- Draft sheep welfare standards would ensure the welfare of sheep, and the
- Associated Consultation RIS demonstrates the need for the standards, and identifies the key costs and benefits for sheep producers, government and the wider community.

After some delays in 2011 and 2012, an open public consultation ran from 7 March – 5 August 2013. The Australian Government Minister for Agriculture directed that consultation be extended from the agreed 60 days for a further 90 days just before the initial closure.

Public input of information and opinions was specifically encouraged via a series of public consultation questions interspersed at appropriate points within the text of the RIS. Information was made available via a well-designed website with associated documents including discussion papers on major issues, ‘frequently asked questions’ and a comprehensive pre-formed survey.

Three categories of submission were received; 54 substantial written submissions and approximately 13,850 email letters, many in a similar format, of which the vast majority supported notions of better welfare standards. There were 965 responses (in part or whole) to the online survey, although only approximately 90 went on to answer the specific RIS questions towards the end of the survey.

The substantial written submissions are publicly available at the following web site: <http://www.animalwelfarestandards.net.au>

In general terms the 17 **animal welfare groups** supported Option C (Variations C1-C6) as presented in the Consultation RIS; in addition several suggested further variations. Most of the shorter submissions (email letters) expressed a preference for higher welfare standards consistent with the major animal welfare organisations. The overall view of the online survey is that it added little to the overall process with views expressed being consistent with other submissions and no new facts emerging.

Most industry organisations and many individual producer submissions generally supported Option B and opposed all the variations except C6 (docked tails to have at least one free palpable joint). While broadly stating their opposition to all variations and presenting specific arguments against these, Victorian Farmers Federation (VFF), Western Australian Farmers Federation (WAFF), Sheepmeat Council of Australia (SCA), AgForce and WoolProducers Australia (WPA) all supported Variation C6.

WPA supported the adoption of national standards as mandatory underpinned by unenforceable Guidelines. WPA supported the proposed standards with some amendments as proposed in *Edition 1, Public Consultation Version 1.0 of the Australian Animal Welfare Standards and Guidelines – Sheep*. WPA proposed the conversion of parts of S5.1 and entire S6.2 and S6.4 to guidelines, the removal of

S10.5 and S10.6 A and the amendment of S5.3. The variations are not supported except for a simpler S5.1. and noting that C3 single penning restrictions became S9.7 and C6 tail length to be one palpable free joint became S 6.3, as subsequently incorporated in the amended in Option B. No preference for any option was stated.

SCA expressed sentiments that supports the adoption of national standards as mandatory underpinned by unenforceable guidelines but raised a number of concerns around implementation and harmonisation. SCA proposed the conversion of parts of S3.2 and S5.1 to Guidelines, the removal of S10.6 A and the clarification of export facility exclusion and the term ‘cryptorchidism’. The variations are not supported except for a simpler S5.1. and noting that C6 tail length to be one palpable free joint became S6.3, as subsequently incorporated in the amended in Option B. No preference for any option was stated.

Many industry organisations made the point that their industry’s continuing support for the Standards and Guidelines is dependent on successful harmonisation of state and territory welfare legislation.

The four **government submissions** (VIC, TAS, QLD and NSW) received generally supported Option B (the proposed standards as drafted) with some variations. Governments have otherwise indicated support for Option B throughout the development process.

DEPI Victoria supported only Variation C5 (pain relief for laparoscopic LAI and ET) since it is already regulated in Victoria, and rejected the other variations.

Tasmania supported Variation C5 and notes that it is currently a vet-only procedure in Tasmania but made no direct comment on the other variations.

The Queensland Government (DAFF) submission supported all variations, except possibly C2 which was not mentioned and C6 - the Option B requirement for a minimum of two free palpable free joint in tails was supported instead. Variation C5 is supported because in QLD Laparoscopic artificial insemination and embryo transfer are acts of veterinary science.

The Queensland Government (DAFF) submission also took issue with aspects of the RIS, suggesting some imbalance and omissions in the benefit cost analyses, over estimation of the costs and omission of key benefits (e.g. of training dogs and effective control of dogs) and inadequate coverage of government costs.

NSW Department of Primary Industries supports the development of national livestock standards and guidelines and is committed to their implementation into regulation once they are finalised and endorsed. The issue of muzzling of working dogs has been raised as a concern and has received careful consideration.

The SA, WA, ACT and NT Governments made no formal submissions to the public consultation process, on the grounds that they had all had opportunity to provide comment during the drafting stage. Those in this group with significant sheep populations had previously expressed full support for Option B.

The public consultation process has resulted in 2 new proposed standards, revision to 10 standards and 18 guideline revisions or inclusions. The overall recommendation from the Standards Reference Group to governments is to consider endorsement of the documents based on the revised proposed standards and guidelines (Option B). Only a small amount of additional information was received, which has been taken into account in this Decision RIS.

Impact analysis

All impacts were measured against the ‘base case’ which means the relevant status quo, or the situation that would exist if the proposed standards were not adopted i.e. existing standards plus market forces and the relevant federal, state and territory legislation. The base case provided the benchmark for measuring the incremental costs and benefits of the proposed standards and other options. It is important to note that the market forces component of the base case applies to the benefits as well as the costs.

The cost-benefit analysis in this Decision RIS has been revised in the light of some additional information provided during the public consultation phase. Nevertheless, comparing the costs and benefits against the ‘base case’ continues to be hindered by an inherent and unresolvable inability to quantify benefits to animal welfare. This is particularly important for mulesing, tail docking and castration procedures, which may affect a large number of sheep as illustrated in the Table below.

Welfare issues under Option B	Number of sheep affected
Inspection of sheep at intervals	% of 70,754,293
Handle sheep in a reasonable manner	% of 73,098,762
Dog that habitually bites is muzzled	Unknown (minor)
Sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
Consider the welfare of sheep when using an electric prod	Unknown
Must not trim or grind the teeth of sheep	Unknown (minor)
No pizzle dropping	Unknown (minor)
Sheep that are tethered are able to exercise daily	1,250
Tail docking with skilled practitioner or under supervision	% of 33,289,264
Castration with skilled practitioner or under supervision	% of 16,644,632
At least one palpable free joints remaining with tail docked sheep	% of 33,289,264
AI or ET performed by veterinarian or under veterinary supervision only	150,000
Faeces and urine must not compromise the welfare of a sheep	50

While the number of sheep affected by risks to animal welfare from various practices may seem an obvious measure – such a measure fails to take into consideration a) whether or not a practice is ongoing and b) the impact of the procedure or practice. That is to say, simply listing the number of animals affected does not provide any information regarding the duration of the effect nor the impact of the effect on the animal. For example, mulesing, castration and tail docking are more serious welfare issues than tethering or single penning, although the latter two practices may occur

over the lifetime of the sheep, as opposed to just a one-off occurrence. Therefore, the combination of factors that determine the severity of the consequence include:

- The number of animals affected (small or large);
- The duration of practice (one-off or ongoing); and
- The impact of animal husbandry procedure (primarily invasive or less-invasive).

Notwithstanding this caveat, the likely number of sheep affected by each practice or procedure is given only where there is certainty or where there are robust assumptions based on experience in the industry. There is in many cases a large degree of uncertainty surrounding the number of sheep affected, due to lack of data or history of experience. In these cases, the number of sheep affected is not provided in this Decision RIS.

On this basis, the impact analysis presented in this Decision RIS should be considered with caution, especially given the existing unknowns in relation to sheep welfare and the number/impact and duration of various procedures or practices. In this respect, a complete analysis and ‘matching’ of costs and benefits for each option is not possible.

Notwithstanding the constraints, both qualitative and quantitative impacts have been considered and the following evaluation criteria have been used to assess the impacts:

- Animal welfare benefits;
- Reduction in regulatory burden; and
- Net compliance costs to industry and government.

The main test for evaluating the proposed standards and the feasible alternatives is net benefit for the community, in terms of achieving the policy objective. The incremental costs and benefits of options relative to the base case are summarised in Table 23 below. The Table below summarises the qualitative and quantitative impacts for each of the options presented in the Decision RIS.

Table 23 – Incremental 10-year costs and benefits of Options A, B, C1, C2, C4, C5 and C7 relative to the base case – 2012-13 dollars (\$m)

Option	I. Incremental Animal welfare benefits (un-quantifiable)	Number of sheep affected under Criterion I	II. Reduction in regulatory burden (quantifiable)	II. Reduction in regulatory burden (un-quantifiable)	III. Incremental compliance costs to sheep farmers (quantifiable)	III. Incremental compliance costs to sheep farmers (un-quantifiable)	Incremental Quantifiable net cost
Option A (guidelines)	< B/C	A small undetermined % of 73.1m	\$0	< B/C	\$0	\$0	\$0
Option B (Proposed national standards)	> A	A larger undetermined % of 73.1m	\$2.66	> A	\$5.33	\$0	\$2.67
Option C1 (All mulesing with pain relief)	> B	As with Option B + 4.86m	\$2.66	= B	\$35.62	\$0	\$32.97
Option C2 (Restriction of	> B	As with Option B +	\$2.66	= B	\$6.89	\$0	\$4.24

Option	I. Incremental Animal welfare benefits (un-quantifiable)	Number of sheep affected under Criterion I	II. Reduction in regulatory burden (quantifiable)	II. Reduction in regulatory burden (un-quantifiable)	III. Incremental compliance costs to sheep farmers (quantifiable)	III. Incremental compliance costs to sheep farmers (un-quantifiable)	Incremental Quantifiable net cost
mulesing to less than 6 months of age)		30k					
Option C4 (Banning tethering)	> B	As with Option B +125 sheep	\$2.66	= B	\$3.01	> B	\$0.35
Option C5 (All LAI and ET with pain relief)	> B	As with Option B +150k	\$2.66	= B	\$6.87	\$0	\$4.22
Option C7 (Omit proposed standard S5.1b)	< B	As with Option B	\$2.66	= B	\$5.33	\$0	\$2.67

As shown in Table 23 above - Options B and C7 (omit proposed standard S5.1b) would be likely to result in the same incremental quantifiable costs and benefits and a quantifiable estimated net incremental cost of \$2.67m over 10 years in 2012-13 dollars. However, Option C7 is likely to result in slightly lower unquantifiable animal welfare benefits than Option B due to expected lower compliance with sheep handling standards.

Option C1 (pain relief for all mulesing) would be likely to provide significant unquantifiable welfare benefits over and above Option B and other options C2 to C7 – as it would affect an estimated 4.86 million lambs each year and would provide pain relief for the very invasive mulesing procedure in all cases. On the other hand, Option C1 would entail the highest quantifiable costs (\$32.28 million over 10 years) of all the alternatives. The SRG meeting on the 12th of December 2013 considered that the net incremental welfare benefits over Option B under Option C1 for 4.86 million sheep per annum did not justify the additional compliance costs under Option C1 over Option B (i.e. \$30.3m over 10 years in 2012-13 dollars).

Option C2 would restrict mulesing to sheep less than 6 months of age. Option C5 would require pain relief for all laparoscopic artificial insemination (LAI) and embryo transfer (ET). The SRG considered that the net incremental welfare benefits over Option B under Options C2 (for an additional 30,000 sheep per annum) and C5 (for an additional 150,000 sheep per annum) did not justify the additional compliance costs under Option C2 and Option C5 (i.e. \$1.57m and \$1.55m over 10 years in 2012-13 dollars, respectively).

Option C4, banning permanent tethering, would eliminate the need for daily exercise of tethered sheep as required under Option B. Consequently, the incremental cost of the variation of proposed Standard 5.7 under Option C4 would be lower than the incremental cost of proposed Standard 5.7 under Option B by 2.32m in 2012-13 dollars (see Table A3.20 of Appendix 3). In addition, while banning permanent tethering would affect a small number of sheep (i.e. approximately 125 sheep as shown in Table A2.4 of Appendix 2), it would be expected to provide slightly more welfare benefits compared to the Option B.

As indicated in Table 23, Option C4 is expected to have greater animal welfare (unquantifiable) benefits than Option B and incremental (quantifiable) compliance costs to sheep farmers less than Option B. However, under Option C4 there would be an unquantifiable impact on the choice of individuals to keep sheep in a house paddock as pets (which a small percentage of farm families do). Banning tethering may make it difficult for individuals to enjoy the benefits of sheep as pets.

While it is up to Ministers to decide on the options presented in this RIS (or any other option), the analysis presented in this RIS suggests that Option C4 is the preferred combination of options that generate the greatest net benefit for the community. It should be also noted that the SRG considered Option B as a preferred option, without adopting any of the variations offered under Option C.

As shown in Table 19 below, Option C4, would result in a total incremental cost of \$3.01m over 10 years in 2012-13 dollars. However the largest driver of cost would be the variation to the proposed national standard S5.7 (i.e. ban on sheep tethering). The bulk of this cost (i.e. \$2.12m) would be incurred by NSW, where there an estimated 1,000 tethered sheep. For the purpose of costing it has been assumed on advice from AHA that the most likely farmer response to the variation of proposed standard 5.7 under Option C4, would be for 45% and 55% of current permanently tethered sheep to be fenced and disposed of, respectively. Fencing would involve erecting a fence and providing a second sheep to allow for better handling of untethered sheep¹ at a one-off cost of \$1,480 per sheep incurred in the first year of the proposed standard (see Part A2.2 of Appendix 2 for discussion).

Table 19 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C4 by state and territory – 2012-13 dollars²

Proposed standard	Description of requirement	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	Dog muzzling	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
Variation to 5.7	Banning tethering of sheep	\$2,116,067	\$105,803	\$105,803	\$105,803	\$105,803	\$105,803	\$0	\$0	\$2,645,084
6.1	Additional on-the-job training for tail docking and castration	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	Cleaning sheep sheds	\$69,231	\$78,403		\$33,266					\$180,899
Total		\$2,250,474	\$231,626	\$112,907	\$165,412	\$131,910	\$113,135	\$9	\$120	\$3,005,593

Finally, Table 26 shows the incremental net cost impact of Options A, B, C1, C2, C4, C5 and C7 per sheep. Options B and C7 would potentially result in an overall net cost per sheep of \$0.04 and Options C2 and C5 would result in a net cost per sheep of

¹ Because sheep are herd animals, multiple sheep are easier to handle than a single untethered sheep.

² See Table A3.18 in Appendix 3 for source of estimates.

\$0.06. Options C1 and C4 would potentially result in an estimated \$0.45 and \$0.005 net cost per sheep, respectively.

Table 26: Incremental average net cost per sheep of Options A, B, C1, C2, C4, C5 and C7, 2012-13 dollars

Option	Incremental net cost per sheep (Australia)
Option A	\$0.00
Option B	\$0.04
Option C1	\$0.45
Option C2	\$0.06
Option C4	\$0.005
Option C5	\$0.06
Option C7	\$0.04

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

To the extent that the majority of sheep farms are defined as small businesses (i.e. have less than 20 FTE staff) – Option C4 is not seen as disproportionately impacting on small business. Furthermore, the additional cost per sheep under Option C4 is likely to be approximately \$0.005 per sheep (based on a total flock of 73.1 million sheep and a total net 10-year cost of this option of \$0.35m in 2012-13 dollars (see Table 23). Given that \$0.005 would represent only 0.01% of the replacement cost of a sheep, which is estimated to be \$80. Option C4 would not be seen to be a barrier to entry or a restriction of competition, if applied uniformly by the states and territories. The effect on retail meat prices would be negligible.

The method of implementation of the preferred option is a matter for each jurisdiction according to the provisions of their own enabling legislation (refer to Appendix 4).

Recommendation

In summary, the proposed standards and guidelines have been developed over a period of five years with broad inputs from a wide range of stakeholders including by the sheep industries and associated industries at all levels, moderated by the Standards Reference Group. The standards are expected to achieve regulatory certainty for industry and reassurance to the community at low to moderate national cost (with some variability between jurisdictions).

In conclusion, based on the analysis undertaken in this RIS and feedback through consultation, Option C4 appears to generate the greatest net benefit for the community. On this basis, Option C4 is the preferred option, which is effectively Option B with the ban on tethering.

TABLE OF CONTENTS

FOREWORD	III
SUMMARY	IV
TABLE OF CONTENTS	XIV
1.0 BACKGROUND	16
1.1. INTRODUCTION	16
1.2. SETTING THE SCENE.....	18
1.2.1 <i>Overview of the Australian sheep industries</i>	18
1.2.2 <i>Animal welfare issues</i>	19
1.2.3 <i>Relevant legislation, standards and guidelines</i>	20
1.3 CONSULTATION PROCESSES	29
1.3.1 <i>Development of the proposed standards</i>	29
1.3.2 <i>The public consultation process</i>	31
2.0 THE PROBLEMS AND POLICY OBJECTIVE	35
2.1 IDENTIFYING THE PROBLEMS	35
2.1.1 <i>Introduction</i>	35
2.1.2 <i>Risks to the welfare of sheep</i>	36
2.1.3 <i>Excess regulatory burden</i>	50
2.2 POLICY OBJECTIVE.....	52
3.0 OPTIONS CONSIDERED	54
4.0 EVALUATION OF COSTS AND BENEFITS	56
4.1 INTRODUCTION	56
4.2 THE BASE CASE.....	56
4.3 EVALUATION OF OPTIONS RELATIVE TO THE BASE CASE	57
4.3.1 <i>Benefit drivers of the proposed national standards</i>	58
4.3.2 <i>Cost drivers of the proposed national standards</i>	62
4.3.3 <i>Option A: (non-regulatory option – voluntary national guidelines)</i>	64
4.3.4 <i>Option B: (the proposed national standards)</i>	65
4.3.5 <i>Option C1: (variation of proposed national standard S7.3)</i>	67
4.3.6 <i>Option C2: (variation of proposed national standard S7.2)</i>	69
4.3.7 <i>Option C4: (variation of proposed national standard S5.7)</i>	70
4.3.8 <i>Option C5: (variation of proposed national standard S8.1)</i>	72
4.3.9 <i>Option C7: (omit proposed national standard S5.1b)</i>	74
4.4 SELECTION OF PREFERRED OPTION.....	75
5.0 IMPLEMENTATION ISSUES	79
6.0 CONCLUSIONS AND FINDINGS	80
APPENDICES	88
APPENDIX 1 - HOURLY TIME COSTS FOR FARM WORKERS.....	89
A1.1 – ESTIMATION OF HOURLY TIME COST FOR FARM WORKERS	89

APPENDIX 2 – ESTIMATES OF QUANTIFIABLE COSTS AND SAVINGS (BENEFITS) OF THE PROPOSED STANDARDS – OPTION B	91
A2.1 PROPOSED STANDARD 5.2 – MUZZLING OF DOGS	91
A2.2 PROPOSED STANDARD 5.7 – EXERCISE OF TETHERED SHEEP	92
A2.3 PROPOSED STANDARD 6.1 – ON-THE JOB TRAINING REQUIREMENT.....	95
A2.4 PROPOSED STANDARD 6.3 – REQUIREMENT FOR ONE FREE PALPABLE JOINTS IN TAILS – REDUCTION IN REGULATORY BURDEN	96
A2.5 PROPOSED STANDARD 6.4 – REQUIREMENT FOR PAIN RELIEF UNDER CASTRATION – REDUCTION IN REGULATORY BURDEN	97
A2.5 PROPOSED STANDARD 7.1 – REQUIREMENT FOR KNOWLEDGE, EXPERIENCE AND SKILLS OR BE UNDER DIRECT SUPERVISION WHEN PERFORMING MULESING – REDUCTION IN REGULATORY BURDEN	97
A2.7 PROPOSED STANDARD 9.4 – REQUIREMENT FOR ADEQUATELY CLEANING SHEEP PENS	99
A2.8 PROPOSED STANDARD 9.7 – UNQUANTIFIABLE MINOR INCREMENTAL COST OF BANNING SINGLE PENNING FOR WOOL PRODUCTION	100
A2.9 SUMMARY OF 10-YEAR QUANTIFIABLE COSTS OF THE PROPOSED STANDARDS – OPTION B.	101
A2.10 SUMMARY OF 10-YEAR QUANTIFIABLE BENEFITS OF THE PROPOSED STANDARDS – OPTION B	102
APPENDIX 3 – ESTIMATES OF QUANTIFIABLE COSTS – OPTIONS C1, C2, C4, C5 AND C7	103
A3.1 INCREMENTAL COST OF PAIN RELIEF FOR ALL MULESING – OPTION C1.....	103
A3.1.1 <i>Incremental cost of Option C1 from the base case.....</i>	105
A3.1.2 <i>Incremental cost of Option C1 from Option B</i>	106
A3.2 INCREMENTAL COST OF RESTRICTING MULESING AGE TO LESS THAN 6 MONTHS OF AGE – OPTION C2	106
A3.2.1 <i>Incremental cost of Option C2 from the base case.....</i>	108
A3.2.2 <i>Incremental cost of Option C2 from Option B</i>	109
A3.3 INCREMENTAL COST OF BANNING SHEEP TETHERING – OPTION C4	109
A3.3.1 <i>Incremental cost of Option C4 from the base case.....</i>	111
A3.3.2 <i>Incremental cost savings of Option C4 from Option B</i>	112
A3.4 INCREMENTAL COST OF MANDATING PAIN RELIEF FOR LAPAROSCOPIC LAI AND ET – OPTION C5	113
A3.4.1 <i>Incremental cost of Option C5 from the base case.....</i>	114
A3.4.2 <i>Incremental cost of Option C5 from Option B</i>	115
A3.5 OMISSION OF VARIOUS WAYS IN WHICH THE MANNER OF HANDLING SHEEP WOULD BE CONSIDERED UNREASONABLE – OPTION C7	115
A3.6 SUMMARY OF INCREMENTAL QUANTIFIABLE COSTS AND BENEFITS OF OPTIONS A, B, C1, C2, C4, C5 AND C7	116
APPENDIX 4 - LIST OF RELEVANT FEDERAL, STATE AND TERRITORY LEGISLATION	118
APPENDIX 5 - LIST OF PROPOSED STANDARDS WITH NEGLIGIBLE COSTS INCREMENTAL TO THE BASE CASE	119
APPENDIX 6 – NUMBER OF SHEEP ANNUALLY AFFECTED BY WELFARE STANDARDS UNDER OPTION B BY STATE AND TERRITORY.....	122
APPENDIX 7 – FULL LIST OF QUESTIONS ASKED DURING PUBLIC CONSULTATION	125

1.0 Background

1.1. Introduction

This Regulation Impact Statement (RIS) assesses the proposed *Australian Animal Welfare Standards and Guidelines - Sheep* ('the proposed standards'); and should be read in conjunction with that document. These proposed standards have been prepared under a system endorsed by all state and territory governments. The development of nationally consistent animal welfare arrangements for various industry sectors has been identified as a major priority under the Australian Animal Welfare Strategy (AAWS).

The appointment of Animal Health Australia (AHA) has been appointed as the project manager for the conversion of the existing livestock model codes into standards that can be regulated, was agreed by state and territory ministers for primary industries. The method to develop the proposed standards was defined in the AHA business plan for the project, following extensive stakeholder consultation and consideration of a review of the existing codes of practice in 2005.

The purpose of the proposed standards is to set standards for regulating the welfare of all sheep, in all types of farming enterprises in Australia from extensive grazing to fully housed systems.³ They will apply to all those with responsibilities for the care and management of sheep, including those in both the wool and sheepmeat industries. It is intended that the proposed standards will replace the existing *Model Code of Practice for the Welfare of Animals – Sheep*⁴ ('the existing code'). The proposed standards and guidelines should be read in conjunction with other requirements for sheep farming, and with related Commonwealth, state and territory legislation (refer to Appendix 4 of this RIS).

The proposed standards are complemented by guidelines providing advice and/or recommendations to achieve desirable animal welfare outcomes. It is not intended that compliance with the guidelines will be made mandatory by law.

On the other hand, the proposed standards, if endorsed by the Agriculture Ministers Forum (AGMIN), are intended to be adopted or incorporated into regulations by the various jurisdictions, after which compliance with the standards will become mandatory. For evaluation purposes, this RIS treats the proposed standards as if they are mandatory;⁵ uses relevant existing Australian legislation, standards⁶ and industry practices as the base case for measurement of incremental costs and benefits (see Part 4.2 of this RIS).

The RIS is required to comply⁷ with the '*Best Practice Regulation - A Guide for Ministerial Councils and National standard Setting Bodies*' as endorsed by the Council of Australian Governments (COAG) in October 2007. COAG has agreed that all governments will ensure that regulatory processes in their jurisdiction are consistent with the following principles:

1. Establishing a case for action before addressing a problem;
2. A range of feasible policy options must be considered, including self-regulatory, co-regulatory and non-regulatory approaches, and their benefits and costs assessed;
3. Adopting the option that generates the greatest net benefit for the community;

³ Including pet sheep, show sheep and those used to keep grass low e.g. in house paddocks.

⁴ Primary Industries Standing Committee, 2006.

⁵ No costs are imposed if compliance with standards is voluntary.

⁶ 'Must' statements or practices specified as unacceptable in government codes of practice.

⁷ As independently assessed by the Commonwealth Office of Best Practice Regulation (OBPR).

4. In accordance with the Competition Principles Agreement, legislation should not restrict competition unless it can be demonstrated that:-
 - a. The benefits of the restrictions to the community as a whole outweigh the costs, and
 - b. the objectives of the regulation can only be achieved by restricting competition;
5. Providing effective guidance to relevant regulators and regulated parties in order to ensure that the policy intent and expected compliance requirements of the regulation are clear;
6. Ensuring that regulation remains relevant and effective over time;
7. Consulting effectively with affected key stakeholders at all stages of the regulatory cycle; and
8. Government action should be effective and proportional to the issue being addressed.

Accordingly, the RIS contains information on –

- The nature and extent of the relevant problems that need to be addressed; the policy objectives of proposed solutions to the problems;
- Key stakeholder consultation to date; and proposed public consultation;
- Feasible alternative options to the proposed standards and why other alternatives are not feasible;
- Analysis of relevant existing legislation and standards in both Australia and internationally (to establish the base case);
- A cost-benefit evaluation of the proposed standards and alternative policy options; relative to the base case;
- Selection of one or more preferred options that generate the greatest net benefit for the community;
- Nature and effects of the preferred option including on competition; and
- Implementation and review processes.

The RIS process has been divided into two phases. **Phase 1** was to prepare a Consultation RIS for public consultation. **Phase 2** was to prepare this Decision RIS for possible endorsement by AGMIN, taking into account public submissions.

It should be emphasised that this RIS is limited to evaluating the proposed national standards and feasible alternatives, rather than Commonwealth, state or territory legislation or other standards or codes of practice. However, the following relevant background information may be helpful to interested parties in understanding the proposed standards within their legislative, economic, national and international contexts.

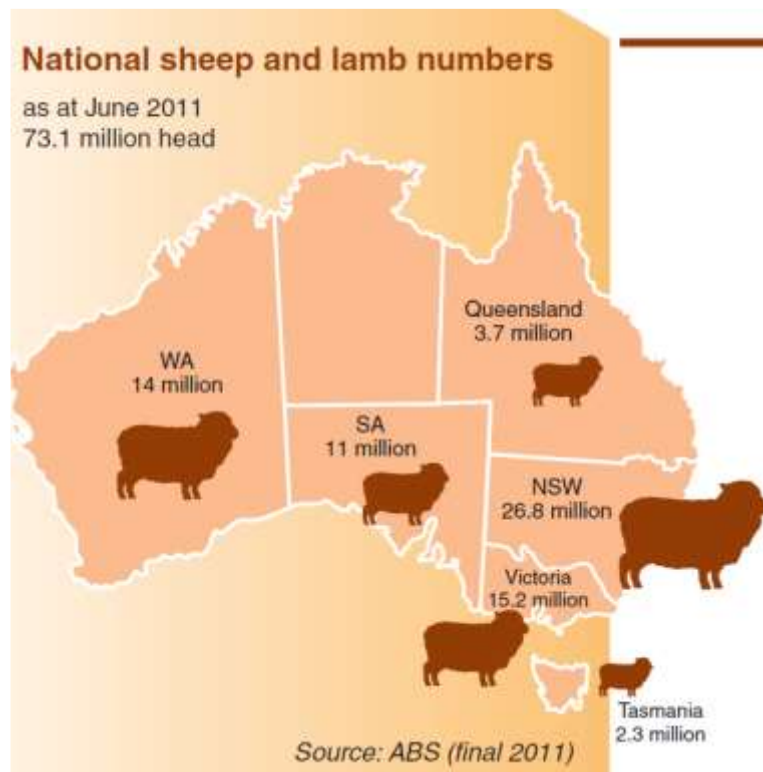
1.2. Setting the scene

1.2.1 Overview of the Australian sheep industries

To set the scene for this RIS, the following overview of the Australian sheep industries has been obtained via Meat and Livestock Australia (MLA), Australian Wool Innovation (AWI) and the Cooperative Research Centre for Sheep Industry Innovation (Sheep CRC). The various facts and figures are based on MLA/AWI/DA/ABS/ABARE⁸ 2010-11 data unless otherwise stated.

Sheep have historically been important in the development of Australian agriculture. The size of the Australian sheep flock varies from around 180 million to 68 million according to climate and market conditions. In 2010/11 there were 68.1 million sheep, generally located in the south of Australia. In 2011/12 this number had grown to 73.1 million, as shown in Figure 1. They are grazed on varying sized operations, from small farms to large extensive properties, on native and improved pastures or on crops and stubbles.

Figure 1 – National sheep and lamb numbers



Graphic courtesy of Meat and Livestock Australia.

The sheep industry is organised into two sectors: wool production and sheep meat with much dual purpose production. Sheep dairy is not a significant element; and lot feeding is covered by the sheep meat sector.

⁸ Refer to glossary.

Wool industry

Australia is the world's number one producer of premium quality fine wool, and is the largest producer of all wools by value and volume. Wool was Australia's third largest agricultural export in 2010-11 behind wheat and beef, valued at \$3.05 billion⁹ and making up approximately 5 per cent of total farm exports. Australia exports wool to 52 countries with the biggest market being China, which takes around 65 per cent of the national clip.

The Australian wool production industry is based on the Merino breed and this is still the largest component of the Australian wool production industry. A very small sector of the wool industry produces ultrafine wool from housed sheep.

Sheepmeat industry

Australia is one of the world's leading producers of lamb and mutton, the largest exporter of mutton and live sheep, and second largest exporter of lamb. The gross value of Australian sheep, lamb and live sheep production is around \$2.7 billion.¹⁰

The value of total lamb exports in 2011-12 was \$1.094 million and mutton exports \$401 million. Australian live sheep exports were valued at \$345 million in 2010-11. The lamb and sheep industry (including live sheep) contributed around 3% to the value of total Australian farm exports in 2011-12. The Middle East is the biggest Australian market for lamb exports (25%) and mutton exports (48%).

The sheep meat flock comprises a variety of breeds and cross breeds for the production of high quality prime lambs. The use of controlled grazing systems and intensive lamb finishing for the production of sheep for meat is a minority production system but is increasing.

1.2.2 Animal welfare issues

Animal welfare concerns are becoming increasingly important to industry, government, consumers and the general public, both in Australia and internationally. Practices which may have once been deemed acceptable are now being reassessed in light of new knowledge and changing attitudes.

'Animal welfare' is a difficult term to define and has several dimensions including the mental and physical aspects of the animal's well-being, as well as people's subjective ethical preferences.¹¹

Under the Australian Animal Welfare Strategy (AAWS), Australia accepts the agreed international definition of animal welfare from the World Organisation for Animal Health (OIE):

Animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress. Good animal welfare requires disease prevention and veterinary treatment, appropriate shelter, management, nutrition, humane handling and humane slaughter/killing. Animal welfare refers to the state of the animal; the treatment that an animal receives is covered by other terms such as animal care, animal husbandry, and humane treatment.¹²

⁹ http://www.daff.gov.au/_data/assets/pdf_file/0003/2161173/at-a-glance-june2012.pdf

¹⁰ ABARE 2011-12

¹¹ Productivity Commission, 1998

¹² Article 7.1.1.

World Organisation for Animal Health 2010, Terrestrial animal health code. Viewed 10 June 2012.

In accordance with this definition and with long-established welfare science principles, it is important when dealing with animal welfare to separate factual considerations of welfare from attitudes and moral judgments about what is appropriate (ethics).¹³ Two leading UK researchers note:

If people feel that it is important to try to change the laws about the treatment of animals, they must have more to go on than just their intuition. ‘Suffering’ must be recognisable in some objective way. Otherwise the laws which emerge are almost bound to be arbitrary and might even fail to improve the lot of animals much, if at all. (Dawkins, 1980, p. 2)¹⁴

We should use the word ‘welfare’ in a scientific way so that it is useful when considering animal management or when phrasing legislation. Welfare is a characteristic of an animal, not something given to it, and can be measured using an array of indicators. (Broom 1991, p. 4174)¹⁵

Animal welfare science seeks to determine the real needs of the animal. Welfare can be measured using an array of objective indicators, such as the level of cortisol in the blood as an indicator of stress. Animal psychology can also be used to determine actual animal preferences, rather than human preferences on behalf of the animal.

Accordingly, this RIS does not deal with perceived benefits of the options; but rather looks strictly at factual considerations, based on scientific evidence where available.

1.2.3 Relevant legislation, standards and guidelines

1.2.3.1 Responsibilities of governments

Animal welfare legislation provides a balance between the competing views in the community about the use of animals. The successful pursuit of many industries involving animals is dependent on community confidence in the regulation of animal welfare.

Under constitutional arrangements, the primary responsibility for animal welfare within Australia rests with individual states and territories, which exercise legislative control through ‘prevention of cruelty to animals Acts’ and other legislation as outlined in Appendix 4 of this RIS.

Animal welfare concerns arising in particular industries are often addressed in codes of practice or standards developed jointly by government and the industry. All states and territories have codes of practice under their legislation setting standards and/or guidelines for the welfare of animals. They all have the power to make compliance with animal welfare standards mandatory. They can either make regulations to require compliance with specified standards or they can incorporate the requirements of standards into the regulations themselves. The existing Model Code of Practice for the Welfare of Animals – Sheep has been adopted by all jurisdictions except Victoria, Tasmania and Western Australia which have their own codes of practice for sheep (based on the MCOP).

The Australian Government has specific powers in relation to external trade and treaties. The Australian Government is responsible for export policy and government-to-government trade facilitation, the regulation of the livestock export industry, including licensing livestock exporters, and issuing export permits and health certificates certifying that livestock meet importing country requirements. These responsibilities directly affect the sheep industries.

The main method of dealing with animal welfare issues at the national level to date has been through the development of model codes of practice (now standards) in consultation with governments, industry, welfare groups and other stakeholders, for endorsement by the former Primary Industries Ministerial Council (PIMC), and the former Standing Council on Primary

¹³ Productivity Commission, 1998

¹⁴ Dawkins, M.S., 1980 cited in Productivity Commission, (1998), p.22

¹⁵ Broom, D., 1991 cited in Productivity Commission, (1998), p.22

Industries (SCoPI). The model codes have been used as a guide by the various state and territory governments in the development of their own legislation and codes of practice. As these model codes or standards are developed primarily in recognition of government purposes, they are separate to the various wholly voluntary codes of practice and quality assurance programs that may be developed from time to time by industry associations.

Local governments have responsibility for some areas of public health and animal control (e.g. sheep at large) that can have a significant effect on animal welfare. This includes the provision of feedback to state/territory governments in order to change legislation and for the promotion and maintenance of responsible animal ownership.¹⁶

1.2.3.2 Australian Animal Welfare Strategy

In 2006, the former PIMC asked the Primary Industries Standing Committee (PISC) to develop a nationally consistent approach to the development, implementation and enforcement of Australian animal welfare standards.

The Australian Animal Welfare Strategy (AAWS)¹⁷ endorsed in May 2004 by PIMC outlined directions for future improvements in the welfare of animals and to provide national and international communities with an appreciation of animal welfare arrangements in Australia. As part of the AAWS, enhanced national consistency in regulation and sustainable improvements in animal welfare based on science, national and international benchmarks and changing community standards were identified as areas of priority effort. Work is now underway to update the Model Codes of Practice and convert them into Australian Animal Welfare Standards and Guidelines. The new documents will incorporate both national welfare standards and industry guidelines for each species or enterprise.

The aim of the AAWS was to assist in the creation of a more consistent and effective animal welfare system in Australia. The AAWS, through its participants and projects, helped to clarify the roles and responsibilities of key community, industry and government organisations. The animal welfare system in Australia aims to ensure all animals receive a standard level of care and treatment. The level of care requires that all animals be provided with adequate habitat, handling, sanitation, nutrition, water, veterinary care, and protection from extreme weather conditions and other forms of natural disasters.

1.2.3.3 The Model Codes of Practice (MCOP) Review

For the past 30 years, the welfare of livestock in Australia has been supported by a series of Model Codes of Practice for the Welfare of Animals. As community values and expectations have changed, and our international trading partners have placed greater emphasis on livestock welfare, the usefulness and relevance of these model codes has been called into question; as has the process by which these model codes have been revised and developed.

The purpose of the original model codes was to increase uniformity in the existing state and territory codes of practice and their use of animal welfare legislation. The process used to develop or review a model code was conducted by one of the states or territories in consultation with the others. As there was no official system for developing or reviewing a code there was substantial variation in the quality, consultation (the membership of standards writing groups and the consultation process varied widely), timeliness and content of the codes. The lack of consistency

¹⁶ Primary Industries Standing Committee, 2011

¹⁷ <<http://www.australiananimalwelfare.com.au/home>>

between and within individual codes meant that farmers and workers that operated between jurisdictions were uncertain about their responsibilities in relation to animal welfare. Livestock industries, service providers and animal welfare groups consistently rated this lack of consistency as a major problem and one that need to be given a very high priority for attention. In addition the reviews of codes did not routinely consider contemporary animal welfare science as a basis for a standard or involve the preparation of a rigorous economic impact assessment. Another problem was that the development and review process was unfunded and relied on the in-kind contribution of stakeholders including representatives of state and territory governments and the Federal Government.

To address these issues, the former Primary Industries Standing Committee (PISC) asked the Australian Government Department of Agriculture (DA) to consider arrangements for reviewing and developing the model codes as a basis for Australia's future livestock welfare regulation. These arrangements were reviewed in 2005¹⁸, and a new approach was recommended that would ensure consistency, scientific soundness, appropriate consultation and legal enforceability. The responsibility was handed to AHA to progress the recommendations and to facilitate the development of a preferred approach with government and livestock industry members. This collaborative process resulted in the development of the Australian Animal Welfare Standards and Guidelines Business Plan,¹⁹ which was endorsed by the former Primary industries Ministerial Council (PIMC) 10 in May 2006. Livestock industries and governments agreed to a recommendation to develop standards to be underpinned by legislation and best practice guidelines clearly separated but contextually linked in the same document.

Livestock industries have not found the existing model codes useful as industry communication vehicles because of their inconsistent, complex and often confusing mixture of standards and guidelines (refer to Part 2.1.2 of this RIS). The new standards will provide greater certainty for all stakeholders, and in particular livestock industries, than the model codes by regulating standards in legislation and by achieving nationally consistent outcomes. Nationally consistent standards and guidelines will promote the development and efficient operation of national Quality Assurance (QA) programs. This means that QA schemes will not require different rules for different jurisdictions and that auditing the schemes will be much simpler.

The overall situation within agriculture departments and livestock industry bodies was and is:

There is general agreement about the desirability of having national standards of livestock welfare that are consistently mandated and enforced in all states and territories. The need for improved processes, broader consultation and linkages to industry quality assurance programs also is generally acknowledged. There is broad consensus amongst all governments and peak industry bodies regarding a preferred process for revising and developing new welfare standards and guidelines.²⁰

The first endorsed Australian animal welfare standards and guidelines development has been for the land transport of livestock.²¹ The plan has been revised and continues to be the basis for the development process for the cattle and sheep welfare standards and guidelines.

¹⁸ Neumann, 2005

¹⁹ <http://www.animalwelfarestandards.net.au/files/2011/01/Animal-Welfare-Standards-and-Guidelines-Development-Business-Plan.pdf>

²⁰ <http://www.animalwelfarestandards.net.au/files/2011/01/Animal-Welfare-Standards-and-Guidelines-Development-Business-Plan.pdf>

²¹ Ibid

1.2.3.4 Role of standards and guidelines

For the purposes of this RIS, and especially the cost/benefit assessment in Part 4.0 of the RIS, it is important to clearly distinguish between standards and guidelines. These terms are defined in the proposed national standards document as follows:

The standards provide the basis for developing and implementing consistent legislation and enforcement across Australia, and direction for all those responsible for sheep. They reflect available scientific knowledge, current practice and community expectations.

The standards and guidelines may be reflected in the industry-based quality-assurance programs that may include sheep welfare provisions.

The position taken by PIMC 15, in May 2009, is that guidelines, regardless of their purpose in existing Codes and the new Standards and Guidelines documents, will not be regulated.

In particular agreement was reached that:

“All future revisions of Model Codes and ‘Australian Standards and Guidelines’ documents must provide a number of:

- a. clear essential requirements (‘standards’) for animal welfare that can be verified and are transferable into legislation for effective regulation, and
- b. guidelines, to be produced concurrently with the standards but not enforced in legislation, to be considered by industry for incorporation into national industry QA along with the standards.”

It is important to note that the standards and guidelines form a dual purpose document serving as the basis for development of regulations (the standards); and also to communicate to the Australian community the acceptable welfare practice and recommendations (guidelines) for better welfare practice. The non-enforcement of the recommendations (guidelines) is a fundamental premise on which industry engagement and support for this process is based. The need for regulatory certainty and stability is important for those that own and invest in livestock.

However, the terms ‘best practice’ or ‘better practice’ are not used in the proposed standards document. These are concepts used by industry for business benchmarking purposes, rather than as an enforceable standard or a recommended guideline. ‘Best practice’ is defined in Oxford Dictionaries Online as ‘commercial or professional procedures that are accepted or prescribed as being correct or most effective’.

1.2.3.5 Relevant international standards and guidelines

Animal welfare considerations during sheep farming are the subject of increasing international focus. The following policies and position statements are included to provide a brief international context, while acknowledging that Australia’s sheep production systems vary significantly from production systems, sheep breeds and climatic conditions in other countries.

In general terms, the 178 countries of OIE endorsed animal welfare guiding principles for livestock at its General Assembly in 2012. These are published in the *OIE International Animal Health Code, Article 7.1.4*²² and are as follows:

²² http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_1.7.1.htm

Eleven general principles for the welfare of animals in livestock production systems:

1. Genetic selection should always take into account the health and welfare of animals.
2. Animals chosen for introduction into new environments should be suited to the local climate and able to adapt to local diseases, parasites and nutrition.
3. The physical environment, including the substrate (walking surface, resting surface, etc.), should be suited to the species so as to minimise risk of injury and transmission of diseases or parasites to animals.
4. The physical environment should allow comfortable resting, safe and comfortable movement including normal postural changes, and the opportunity to perform types of natural behaviour that animals are motivated to perform.
5. Social grouping of animals should be managed to allow positive social behaviour and minimise injury, distress and chronic fear.
6. For housed animals, air quality, temperature and humidity should support good animal health and not be aversive. Where extreme conditions occur, animals should not be prevented from using their natural methods of thermo-regulation.
7. Animals should have access to sufficient feed and water, suited to the animals' age and needs, to maintain normal health and productivity and to prevent prolonged hunger, thirst, malnutrition or dehydration.
8. Diseases and parasites should be prevented and controlled as much as possible through good management practices. Animals with serious health problems should be isolated and treated promptly or killed humanely if treatment is not feasible or recovery is unlikely.
9. Where painful procedures cannot be avoided, the resulting pain should be managed to the extent that available methods allow.
10. The handling of animals should foster a positive relationship between humans and animals and should not cause injury, panic, lasting fear or avoidable stress.
11. Owners and handlers should have sufficient skill and knowledge to ensure that animals are treated in accordance with these principles.

These OIE general principles were informed by a scientific paper written by Professor David Fraser and other world experts on animal welfare science, which was published in the Veterinary Journal in June 2013.²³ The proposed Australian Animal Welfare Standards and Guidelines for Sheep are consistent with these principles.

There are no specific World Organisation for Animal Health (OIE) guidelines relating to sheep farming. The Terrestrial Animal Health Code (2012)²⁴ Volume one General Provisions, Section 7 Animal welfare, has nine chapters of varying degrees of relevance to sheep. Some of the relevant topics for sheep management covered include: animal behaviour, handling and restraint, responsibilities, competency, facilities, environment, hygiene, humane killing for slaughter and

²³ Fraser et al, 2013.

²⁴ <http://www.oie.int/en/international-standard-setting/terrestrial-code/access-online/> Viewed 4 Jan 2013

disease control purposes, and transport. The OIE Chapter 7.9 Animal Welfare and Beef Cattle Production Guidelines adopted in May 2012, serve as a benchmark for future sheep guidelines. These other guidelines are relevant to the way the Australian Government thinks about regulating its livestock industries and are more relevant than any other laws, standards or guidelines from any other single country. The OIE guidelines set aspirational goals for OIE Member Countries and are regarded as important international norms, though they are not applied under any law. Australia strongly supports the need for OIE Member Countries to comply with the OIE animal welfare guidelines. The expectation of members is that they will achieve the outcomes set out in the OIE guidelines and the proposed Australian welfare standards seek to achieve this outcome.

The acceptable welfare practice for livestock exported from Australia is controlled by the Australian Standards for the Export of Livestock (ASEL), Version 2.3, 2011 and the Exporter Supply Chain Assurance System (ESCAS) regulations²⁵ that are developed directly from the OIE guidelines by the Australian Government in partnership with industry. The ASEL covers procedures from sourcing and on-farm preparation of livestock to their disembarkation in the export destination. In particular ESCAS has produced the *Guidance on Meeting OIE Code Animal Welfare Outcomes, Sheep and Goats, Version 3.3, 21 August 2011*. This document sets out a highly prescriptive performance checklist to facilitate audit of practices in relation to handling, transport, feedlots, lairage and slaughter. The proposed sheep welfare standards are consistent with the relevant aspects of ASEL and ESCAS.

As stated in section 1.2.2, the AAWS has adopted the OIE definition of animal welfare. Australia also further recognises that the treatment that an animal receives covered by other terms such as animal care, animal husbandry, and humane treatment, is also an important part of animal welfare consideration. The proposed sheep standards and guidelines are considered to be entirely consistent with the guiding principles in article 7.1.2, the scientific basis for recommendations in article 7.1.3 and the general principles for the welfare of animals in livestock production systems in article 7.1.4.

A comparison of the proposed national standards with those of comparable countries indicates a general alignment of animal welfare standards – except for various painful husbandry procedures used in Australia such as castration, tail docking and mulesing. These three issues are subject to further deliberations in this consultation process, including the provision of three supplementary discussion papers that explain the rationale for the proposed approach for Australia.

NZ and the UK have laws in relation to such procedures; while the EU Member States, of which the UK is but one Member, utilise their own State laws rather than follow a mandated EU Directive.

New Zealand

New Zealand has a common welfare code for sheep and beef cattle.²⁶ Additionally, there is a separate Code of Welfare covering painful husbandry procedures applying to animals including farmed sheep;²⁷ and a Code covering the emergency slaughter of farm livestock.²⁸ Codes of Welfare are deemed to be regulations but only their minimum standards have legal effect. Together, these three codes have similar standards compared with the proposed Australian standards; but it is difficult to compare all aspects because of a difference in approach. The NZ minimum standards combine aspects of mandatory standards statements and recommendations (but the latter are not enforceable in Australia). The proposed Australian standards seek to separate

²⁵ <http://www.daff.gov.au/aqis/export/live-animals/livestock/escas> Viewed 4 Jan 2013

²⁶ <http://www.biosecurity.govt.nz/files/regs/animal-welfare/req/codes/sheep-beef-cattle/sheep-beef-code-2010.pdf>

²⁷ <http://www.biosecurity.govt.nz/files/regs/animal-welfare/req/codes/painful-husbandry/painful-husbandry.pdf>

²⁸ <http://www.biosecurity.govt.nz/animal-welfare/codes/emergency-slaughter/index.htm>

standards and guidelines to deliver clear, essential and verifiable standards and also a wealth of useful recommendations for better animal welfare.

Under the NZ Animal Welfare (Painful Husbandry Procedures) Code of Welfare 23 December 2005 Minimum standard No. 3 – Castration and Shortening of the Scrotum (cryptorchid):

- (a) The method of castration, or shortening of the scrotum, must be chosen, and applied, so as to minimise the acute as well as chronic consequences for the health and welfare of the animal.
- (b) While complying with Minimum standard 2(a), castration, or shortening of the scrotum, without pain relief must be performed when the animals are as young as possible, but not greater than six months of age.
- (c) When castrating or shortening the scrotum of any animal over the age of six months, pain relief must be used.
- (d) When using rubber rings to castrate, they must be placed above the testes and below the teats, and must be of a tension and size appropriate to the animal in order to ensure that blood supply to the testes and scrotum is stopped immediately.
- (e) When shortening the scrotum with rubber rings, they must be placed below the testes taking care not to include the testes within the ring, and they must be of a tension and size appropriate to the animal in order to ensure that blood supply to the scrotum is stopped immediately.
- (f) If high tension bands are used to castrate an animal:
 - (i) local anaesthetic must be used (at any age) to provide pain relief, and
 - (ii) the band must be positioned on the scrotal neck as close to the testes and as far from the abdomen as possible.

Minimum standard No. 4 – Tail docking: Sheep states:

- (a) Tail docking of sheep must only be undertaken when there is a significant risk of faecal and urine contamination, and/or flystrike, that leads to poor hygiene, health and welfare and/or failing to do so adds a significant cost to the farm system.
- (b) When complying with Minimum standard 2(a), a tail docking without pain relief must be performed when the sheep are as young as possible, and not greater than six months of age.
- (c) When tail docking a sheep over six months of age, pain relief must be used.

England

England's *The Welfare of Farmed Animals (England) Regulations 2007* contains mandatory standards for the welfare of farmed animals including sheep. The *Mutilations (Permitted Procedures) (England) Regulations 2007* at Schedule 2 contains mandatory standards regarding painful husbandry procedures on sheep.²⁹ England makes standards mandatory by according them Regulation status.

Under the *Veterinary Surgeons Act 1966*, as amended, only a veterinary surgeon may dehorn or disbud a sheep, apart from trimming the insensitive tip of an ingrowing horn which, if left untreated, could cause pain or distress.

The *Welfare of Livestock (Prohibited Operations) Regulations 1982* (S.I. 1982 No. 1884), as amended by the *Welfare of Livestock (Prohibited Operations) (Amendment) Regulations 1987* (S.I.

²⁹ <http://www.legislation.gov.uk/ukxi/2007/1100/schedule/1/made>

1987 No. 114) prohibit penis amputation and other penile operations, tooth grinding, freeze dagging and short-tail docking of sheep unless sufficient tail is retained to cover the vulva in the case of female sheep and the anus in the case of male sheep.

Under the *Protection of Animals (Anaesthetics) Act 1954*, as amended, it is an offence to castrate lambs which have reached three months of age without the use of an anaesthetic. Furthermore, the use of a rubber ring, or other device, to restrict the flow of blood to the scrotum or tail, is only permitted without an anaesthetic if the device is applied during the first week of life.

Under the *Veterinary Surgeons Act 1966*, as amended, only a veterinary surgeon may castrate a lamb which has reached the age of three months.

Under the English *Code of Recommendations for the Welfare of Livestock – Sheep* 14th August 2000 Recommendation 63, tail docking must be carried out only in strict accordance with the law. The tail docking procedure should be performed by a competent, trained operator.

1.2.3.6 Relevant industry guidelines and initiatives

Animal welfare is now recognised as a characteristic of product quality and in some instances is now a requirement for certain markets and by some retailers. There is increasing recognition by livestock industries that animal welfare is an integral part of good animal husbandry. Several livestock industries have made significant progress in developing their own quality assurance programs that incorporate animal welfare requirements. These industries generally see such quality assurance programs as a mechanism to demonstrate compliance with legislation, codes of practice, standards or market requirements.

WoolProducers Australia dedicates a considerable amount of time and resources into health and welfare priorities. This includes emergency animal disease preparedness, long-haul transport of livestock, diseases that cause production and/or welfare issues, mulesing and housed sheep. Biosecurity is increasingly important to keep pests and diseases away from sheep and sheep markets. These pests and diseases can be ruinous for livestock productivity, farm income, land value, animal welfare and export markets.³⁰

In 2004 the wool industry agreed that mulesing would be phased out by the end of 2010. Although this is still the long-term goal, there is no longer a fixed deadline. Australian Wool Innovation (AWI) and the Australian Government through matching funding have spent millions of dollars researching alternative methods of breech flystrike prevention, which include: breeding of resistant sheep, anti-flystrike clips, intradermal injections and blow fly control.

From 1 July 2008 all wool being sold through the auction system has had the option of having an accompanying National Wool Declaration (NWD). This document includes information on chemical use, dark fibre risk and mulesing status. The NWD was developed as part of the AWEX Industry Services Advisory Committee (ISAC), which advises on such aspects of the auction system. ISAC has a wide input from key wool pipeline stakeholders including growers, brokers, exporters and processors. The declaration asks growers to indicate whether they have ceased mulesing or if individual mobs (or even the entire clip) have not been mulesed. It also allows growers to declare if they used a pain relief treatment during the procedure.

³⁰ <http://www.woolproducers.com.au/farm-biosecurity/> Viewed 5 August 2012

In May 2008, the Australian wool industry introduced a voluntary *Code of Practice for the Welfare of Sheep Housed for Wool Production* that aims to:

- Specify the minimum standards of management and husbandry required to maintain the welfare of sheep housed for wool production;
- Provide industry guidelines for livestock producers and handlers, beyond the minimum standards, to assist them to minimise threats and risks to the welfare of sheep housed for wool; and
- Inform all those responsible for the care and management of sheep housed for wool production about their obligations.³¹

Sheepmeat Council of Australia (SCA), like WoolProducers Australia dedicates a considerable amount of time and resources into health and welfare priorities. Importantly, the Council is responsible under the *Australian Meat and Livestock Industries Act 1997* for advising the Minister on expenditure of producer levy monies. The Council has devoted much time and effort on emergency animal disease preparedness, diseases that cause production and/or welfare issues, and welfare issues in the live sheep export trade.

Through the Sheepmeat Industry Strategic Plan (SISP) SCA strives to ensure commitment of all sectors of the Sheepmeat industry to achieving sustainable improvements to livestock welfare. Research and development programs are undertaken to improve animal management, nutrition, health and welfare outcomes - while being practical and effective for Sheepmeat producers. Biosecurity is also a key priority for the industry as pests and diseases can be ruinous for livestock productivity, farm income, land value, animal welfare and export markets.

Meat and Livestock Australia (MLA) delivers marketing and research and development services for Australia's cattle, sheep and goat producers. MLA states that:

the welfare of sheep, cattle and goats affects the productivity, profitability and sustainability of the Australian livestock industries. The welfare of livestock is important during all stages of production, from birth to slaughter. Good animal welfare practices are an integral part of a property management plan. MLA is committed to investing in animal welfare research that provides tools and knowledge to producers to help them improve the wellbeing of their livestock and address issues of community concern.

MLA asks its producers to consider 'The Five Freedoms for animals' and the need to incorporate these into property management plans and procedures:

- Freedom from hunger and thirst
- Freedom from discomfort
- Freedom from pain, injury and disease
- Freedom to express normal behaviour
- Freedom from fear and distress.³²

Both the wool and sheepmeat industries have been closely involved in the development of the proposed national standards.

³¹ WoolProducers Australia et al, 2008

³² <<http://www.mla.com.au/About-the-red-meat-industry/Animal-welfare>> Viewed 5 August 2012.

1.3 Consultation processes

1.3.1 Development of the proposed standards

The Consultation Guidelines (Appendix F of the COAG Guidelines) have been considered in the consultation strategy for this RIS.

Extensive consultation has taken place with government agencies, researchers, industry and animal welfare organisations in the development of the proposed standards. The preparation of an RIS provides for an informed process of consultation regarding the proposed standards, alternative options and the costs and benefits associated with each option. The publication of the Consultation RIS is the final step in the consultation process, where the general community and consumers, as well as interested stakeholders have an opportunity to comment on both the proposed standards and the RIS.

The standards were developed under the auspices of the former Animal Welfare Committee (AWC), which was ultimately responsible to state and territory primary industries ministers (formerly PIMC and SCoPI). Membership of AWC at that stage comprised representatives from each of the State and Territory departments with responsibility for animal welfare, CSIRO, and the Australian Government Department of Agriculture. This Committee has since been reorganised with membership from governments only.

The standards development process was managed by Animal Health Australia (AHA) under a business plan available at: <http://www.animalwelfarestandards.net.au/>. This business plan employs an operational structure consisting of a core writing group and a larger reference group. The writing group undertakes the bulk of the development process and consists of:

- An Independent Chair
- The AHA Livestock Welfare Manager and Project Officer
- An Australian Government representative
- An Animal Welfare Committee government representative
- Industry members as relevant
- Relevant independent science representation
- Invited consultants.

The Writing Group is supported by a widely representative Standards Reference Group (SRG). The SRG includes the writing group and national interest organisations such as the RSPCA Australia, Animals Australia, the Australian Veterinary Association and representatives of the eight state and territory governments. Further drafts of the standards were developed by AHA in consultation with the writing and reference groups as per the business plan.

In addition to the relevant Federal, state and territory government departments, stakeholder organisations represented on the SRG include (in alphabetical order):

- **Animals Australia (AA)** is a federation representing some 40 member societies and thousands of individual supporters throughout Australia.³³

³³ < <http://www.animalsaustralia.org/about/> >

- **Australian Livestock Exporters Council (ALEC)** is the national policy body representing the livestock export industry. ALEC is made up of livestock exporters and state chapters whose members are directly involved in the export of cattle, sheep and goats.³⁴
- **Australian Livestock Markets Association (ALMA)** On 8 July 2010 Saleyard Operators Australia joined with Saleyards Association Queensland and operators in South Australia and Victoria to unite in a national body representing approximately 100 saleyards.³⁵
- **Australian Livestock & Property Agents Association (ALPA)** is the national peak industry body representing livestock and property agents. The Association represents more than 1,200 agency businesses across Australia.³⁶
- **Australian Livestock and Rural Transporters Association (ALRTA)** represents road transport companies across rural Australia. The great majority are livestock carriers. ALRTA is the national industry body and is made up of State-level associations from every State of Australia.³⁷
- **Australian Meat Industry Council (AMIC)** is the peak council that represents retailers, processors, exporters and smallgoods manufacturers in the post-farm-gate meat industry.³⁸
- **Australian Wool Exchange (AWEX)** is a public company limited by guarantee to manage and administer wool marketing arrangements in the Australian wool industry.³⁹
- **Australian Wool Innovation Limited (AWI)** is a not-for-profit company that invests in research, development and marketing for the Australian wool industry.⁴⁰
- **Australian Veterinary Association (AVA)** is the professional organisation for veterinarians. The core objective of the AVA is to advance veterinary science.⁴¹
- **Meat and Livestock Australia (MLA)** is a producer-owned company that provides services to livestock producers, processors, exporters, foodservice operators and retailers. MLA has over 43,000 livestock producer 'members' who have stakeholder entitlements in the company.⁴²
- **National Farmers' Federation (NFF)** is the peak national body representing farmers and, more broadly, agriculture across Australia.⁴³
- **RSPCA Australia** is the federal body of the eight autonomous state and territory RSPCAs in Australia. RSPCA Australia establishes national policies and positions on animal welfare, and liaises with government and industry on national animal welfare issues. RSPCA Australia policy statements regarding sheep are published on its national web site.⁴⁴

³⁴ < <http://www.livecorp.com.au> >

³⁵ <http://www.saleyards.info/public/about.cfm>

³⁶ <http://www.alpa.net.au/>

³⁷ <http://alrta.org.au/about>

³⁸ <http://www.amic.org.au>

³⁹ <http://www.awex.com.au/about-awex.html>

⁴⁰ <http://www.wool.com/index.html>

⁴¹ <http://www.ava.com.au>

⁴² <http://www.mla.com.au/HeaderAndFooter/AboutMLA/Default.htm> >

⁴³ <http://www.nff.org.au/aboutus.html>

⁴⁴ <http://www.rspca.org.au/policy/f.asp>

- **Sheepmeat Council of Australia (SCA)** is the nation's peak body representing and promoting the national and international interests of lamb and sheepmeat producers in Australia.⁴⁵
- **Wool Producers Australia (WPA)** is the nation's peak body representing and promoting the national and international interests of all wool producers in Australia.⁴⁶

Key development process components include public consultation⁴⁷ and the conduct of a regulation impact analysis⁴⁸. Key development process values include a commitment to consultation and consensus decision-making, transparency and accountability. The final proposed Standard and Guidelines (S&G) documents will be submitted for consideration of endorsement as policy by the jurisdictional Ministers responsible for livestock welfare, primarily the AGMIN.

The participation of Australian Government, state and territory governments, industry and community stakeholders in the standards setting process provides robust policy outcomes. Whilst the final endorsement is by AGMIN, the relevant industry is able to collaborate in policy development in a meaningful way that contributes to more effective and feasible outcomes.

1.3.2 The public consultation process

The public consultation objective was to seek the views and advice of interested parties in further formulating a preferred national regulatory framework for sheep welfare.

Specifically, views from interested parties were sought about how the:

- Draft sheep welfare standards would ensure the welfare of sheep, and the
- Associated Consultation RIS demonstrates the need for the standards, and identifies the key costs and benefits for sheep producers, government and the wider community.

After some delays in 2011 and 2012, an open public consultation ran from 7 March – 5 August 2013. The Australian Government Minister for Agriculture directed that consultation be extended from the agreed 60 days for a further 90 days just before the initial closure.

Media releases from AHA occurred prior and during the consultation period. Paid advertisements were placed in larger regional newspapers and one major weekend newspaper just prior to 7 March. At that time, reference group organisations (government, industry and welfare) were asked to duplicate the prepared messages through their own networks and resources. Organisations were encouraged to consult with their members and to maintain a log of all related activities. AHA maintained updates on the AHA website and at the consultation site animalwelfarestandards.net.au. In most cases the complementary efforts were timely and helpful.

Three categories of submission were received; 54 substantial written submissions and approximately 13,850 email letters, many in a similar format, of which the vast majority supported notions of better welfare standards.

The substantial written submissions are publicly available at the following web site:

<http://www.animalwelfarestandards.net.au>

⁴⁵ <http://www.sheepmeatcouncil.com.au>

⁴⁶ <http://www.woolproducers.com.au/>

⁴⁷ Conducted through; <http://www.animalwelfarestandards.net.au/>

⁴⁸ As required by the Office of best Practice Regulation; <http://www.finance.gov.au/obpr/about/index.html>

In general terms the 17 **animal welfare groups** supported Option C (Variations C1-C6) as presented in the RIS; in addition several suggested further variations. For instance, Sentient proposed additional variations, specifically a phase out of all mulesing and mandating pain relief for all surgical procedures.

RSPCA Australia suggested the RIS does not take into account the extent to which compliance costs can be internalised and passed on through the supply chain. The costs of higher welfare options proposed in the RIS are all attributed to ‘sheep farmers’ alone. The RSPCA claimed the RIS discounts the ability of sheep farmers to internalise these costs, and the steady increase in demand and market share for higher welfare products, distorting the perception of how the economic impacts may be distributed.

Most industry organisations (notably AgForce, AMIC and ALRTA) and many individual producer submissions generally supported Option B and opposed all the variations except C6 (docked tails to have at least one free palpable joint). While broadly stating their opposition to all variations and presenting specific arguments against these, VFF, WAFF, SCA, AgForce and WPA all supported Variation C6 with Victorian Farmers Federation stating their belief that:

‘Concern that accurately tail docking to two joint is difficult to replicate and the production preference for some producers for one joint for several reasons including to lessen time and stress at crutching. VFF believe this will be of no detriment to animal welfare and this is supported by the RIS which documents that there is no variation in welfare benefit between tail docking at either one, two or three joints’.

WPA supports the adoption of national standards as mandatory underpinned by unenforceable Guidelines. WPA supports the proposed standards with some amendments as proposed in Edition 1, Public Consultation Version 1.0 of the Australian Animal Welfare Standards and Guidelines – Sheep. WPA proposes the conversion of parts of S5.1 and entire S6.2 and S6.4 to Guidelines, the removal of S10.5 and S10.6 A and the amendment of S5.3. The variations are not supported by WPA except for a simpler S5.1. and noting that C3 single penning restrictions became S9.7 and C6 tail length to be one palpable free joint became S 6.3, as subsequently incorporated in the amended in Option B. No preference for any option was stated.

SCA expressed sentiments that supports the adoption of national Standards as mandatory underpinned by unenforceable Guidelines but raised a number of concerns around implementation and harmonisation. SCA proposes the conversion of parts of S3.2 and S5.1 to Guidelines, the removal of S10.6 A and the clarification of export facility exclusion and the term ‘cryptorchidism’. The variations are not supported by SCA except for a simpler S5.1. and noting that C6 tail length to be one palpable free joint became S6.3, as subsequently incorporated in the amended in Option B. No preference for any option was stated.

In response to the written submissions from SCA and WPA regarding S5.1, a new Option C7 was included in this Decision RIS. This option would omit standard S5.1b which lists various ways in which the manner of handling sheep would be considered unreasonable.

NSW Farmers supported Option A because it was “not convinced that an additional layer of regulation will actually improve animal welfare outcomes as intended”. The submission included specific arguments opposing Variations C1, C2 and C5 and supporting Variation C6.

The Australian Association of Stud Merino Breeders (AASMB) also supported Option A and opposed Option B and all variations under Option C. Its position was based on mistrust of the 2009 PIMC Resolution (that Guidelines will not be regulated) and the statement in the S&G that noncompliance with one or more guidelines will not constitute an offence under law.

Many industry organisations made the point that their industry's continuing support for the Standards and Guidelines is dependent on successful harmonisation of state and territory welfare legislation.

The four **Government submissions** (VIC, TAS, QLD and NSW) received generally supported the proposed national standards (Option B) with some variations. Governments have otherwise indicated support for national standards throughout the development process.

DEPI Victoria supported only Variation C5, as it is already regulated in Victoria and rejected the other variations.

Tasmania supported Variation C5 and notes that it is currently a vet-only procedure in Tasmania but made no direct comment on the other variations.

The Queensland Government (DAFF) submission supported all variations, except possibly C2 which was not mentioned and C6 - the Option B requirement for a minimum of two free palpable free joint in tails was supported instead. Variation C5 is supported because in QLD Laparoscopic artificial insemination and embryo transfer are acts of veterinary science.

The Queensland Government (DAFF) submission also took issue with aspects of the RIS, suggesting some imbalance and omissions in the benefit cost analyses, over estimation of the costs and omission of key benefits (e.g. of training dogs and effective control of dogs) and inadequate coverage of government costs.⁴⁹

NSW Department of Primary Industries supports the development of national livestock standards and guidelines and is committed to their implementation into regulation once they are finalised and endorsed. The issue of muzzling of working dogs has been raised as a concern and has received careful consideration.

The SA, WA, ACT and NT Governments made no formal submissions to the public consultation process, presumably on the grounds that they had all had opportunity to provide comment during the drafting stage. Those in this group with significant sheep populations had previously expressed full support for Option B.

The most controversial issues related to individual draft Standards in the substantial written submissions were:

1. Mulesing (S7.2)
 - Calls for prohibition
 - With pain relief in all ages
 - Age limits – various suggested
2. Pain relief for other surgical procedures
 - castration, tail docking (S6.2, S6.4)
 - Mandate pain relief irrespective of age (welfare groups)
 - Mandate at any age is impractical (producer groups)
 - Artificial breeding procedures (S8.1)
 - Veterinary only (welfare groups)

⁴⁹ These issues are responded to in Part 4.0 of the RIS to some extent.

- Convert G8.12 (training) and/or G8.14 (analgesia) to a Standard
3. Availability of water daily (S2.1) – non-acceptance of “reasonable access”
 4. Provision of shelter (G3.6 converted to a Standard)
 5. Slaughtering of sheep
 - By head trauma (S10.5)
 - Slaughter by bleeding out (S10.6)

The on-line survey sought responses on each of the draft Standards - specifically, whether or not the Standard would benefit the welfare of sheep – and on the specific questions asked in the Consultation RIS.

There were 965 responses (in part or whole) to the online survey, although only approximately 90 went on to answer the specific RIS questions towards the end of the survey. The overall view is that the survey added a little to the overall process with views expressed being consistent with other material and no new facts emerging.

The public consultation process has resulted in 2 new proposed standards, revision to 10 standards and 18 guideline revisions or inclusions. The overall recommendation from the Writing Group and the Standards Reference Group to governments is to consider endorsement of the documents based on the revised proposed standards and guidelines (Option B). These decisions are recorded in the Public Consultation – Response Action Plan, available at: animalwelfarestandards.net.au

2.0 The problems and policy objective

2.1 Identifying the problems

According to COAG guidelines, the RIS is required to demonstrate the need for the proposed national standards. This is best achieved by identifying the problems that the proposed national standards aim to address.

2.1.1 Introduction

Farming of animals and animal husbandry can pose risks to animal welfare. However, before discussing such risks in detail, it should be noted that risk assessment has two dimensions – the likelihood of an adverse event occurring; and the severity of the consequences if it does occur, as illustrated in Figure 2.

Figure 2 - Assessing the level of risk

Likelihood	High	Medium risk	High risk	High risk
	Mod	Low risk	Medium risk	High risk
	Low	Low risk	Low risk	Medium risk
		Low	Moderate	High
		Consequence		

Source: Victorian Competition and Efficiency Commission

The proposed national standards are not starting from a zero base. They are not introducing national standards for the first time – they are replacing inadequate existing standards (refer to Part 1.2.3.3 of this RIS). The risks associated with sheep farming are all currently being managed by the various state and territory governments in co-operation with the industry. They all have relevant Acts and Regulations in place dealing with the welfare of animals including sheep; and all jurisdictions already have standards or codes of practice dealing with many of the matters covered in the proposed national standards. As listed in Appendix 4 to this RIS, all jurisdictions except VIC, WA and TAS have adopted the existing MCOP (a set of national standards and guidelines). The latter jurisdictions have their own codes of practice based on the existing MCOP. The existing MCOP and the state codes are a confusing and inconsistent mixture of standards and guidelines, as discussed in Part 2.1.2 of this RIS.

It is important to note that the existing MCOP is not sunseting - it will remain in place as part of the base case if the problems outlined below are not addressed. It is therefore not possible to discuss the problems being addressed in this RIS without reference to the inadequacies of the existing MCOP.

The problems underlying the development of the proposed national standards can be summarised as:

- *Risks to the welfare of sheep* due to deficiencies in the existing MCOP for the welfare of sheep; and to a lesser extent

- *Uncertainty for industry* due to a lack of clear and verifiable standards; and
- *Excess regulatory burden* arising from a lack of national consistency and unnecessary standards.

The primary problem being addressed by the proposed standards and alternative options is overall risks to animal welfare. Regulatory differences between the jurisdictions and excess regulatory burden, whilst relevant, are a secondary problem in this RIS. It is important to note that sheep rather than businesses are affected by the primary problem of poor animal welfare. To the extent that farm businesses will benefit from improved animal welfare, they have market incentives to do this voluntarily, rather than in response to mandatory standards, as discussed under the heading ‘Market failure’ in Part 2.1.2 below. Thus, any incremental benefits to be derived from the mandatory reduction of risks to animal welfare would be received by the animals themselves rather than their owners.

Therefore, any benefits to be derived from solving risks to animal welfare would be received by the animals themselves and not their owners.

On the other hand, secondary problems based on regulatory differences between jurisdictions do affect businesses in the form of excess regulatory burden; however the number of businesses affected is currently unknown. The public consultation questions attempted to gather information about the number of businesses that are facing excess regulatory burden because of operating under different codes across multiple jurisdictions, with limited success.

Whilst the number of sheep affected by risks to animal welfare from various practices may seem as an obvious measure – such a measure fails to take into consideration a) whether or not a practice is ongoing and b) the impact of the procedure or practice. That is to say, simply providing for the number of animals affected does not provide any information regarding the duration of the effect nor the impact of the effect on the animal. For example, mulesing, castration and tail docking are more serious welfare issues than tethering or single penning, although the latter two practices occur over the lifetime of the sheep, as opposed to just a one-off occurrence. Therefore, the combination of factors that determine the *severity of the consequence* include:

- Number of animals affected (small or large);
- Duration of practice (one-off or ongoing); and
- Impact of animal husbandry procedure (primarily invasive or less-invasive).

Notwithstanding this caveat, the number of sheep affected by each practice or procedure is discussed *only* where there is certainty or where there are robust assumptions based on experience in the industry. There is in many cases a large degree of uncertainty surrounding the number of sheep affected, due to lack of data. The public consultation process sought further data via consultation questions at appropriate points in the RIS text; however, little additional data was provided.

2.1.2 Risks to the welfare of sheep

As discussed in Part 1.2.2 of this RIS, animal welfare means how an animal is coping with the conditions in which it lives. An animal is in a good state of welfare if (as indicated by scientific evidence) it is healthy, comfortable, well nourished, safe, able to express innate behaviour, and if it is not suffering from unpleasant states such as pain, fear, and distress.⁵⁰ There is increasing

⁵⁰ Article 7.1.1

evidence that animals kept in conditions where their welfare is poor can have weakened immune systems and are more likely to succumb to diseases.⁵¹

It is important to note that poor animal welfare includes, but is not restricted to, practices that could attract a prosecution under the cruelty provisions of existing animal welfare legislation.

Poor animal welfare outcomes can be linked to both market failure and regulatory failure.

Market failure

Some agricultural producers argue that market forces alone can prevent animal suffering because a producer has an economic incentive to protect animal welfare – that is to say, it is in the financial interest of a farmer to maintain positive physical attributes and reduce mortality rates.⁵² These producers often assert that profitability and animal welfare go hand-in-hand. Common arguments include: ‘I can’t make money if my animals aren’t well cared for,’ or ‘Profitable animals are happy animals.’⁵³ However there is a fundamental flaw with this reasoning as economists advise that maximising production and maximising profits are two different things:

the level of input usage that maximises production or yield is not the same as the level of input usage which maximises profits. When inputs are costly, a profit-maximising farmer will choose to produce less than is biologically possible. Similar reasoning suggests that a profit-maximising livestock producer will choose levels of production that do not coincide with biologically optimal levels of animal production or animal welfare.⁵⁴

Moreover, it is possible to have a physically healthy productive animal that is in a poor state of welfare due to, for instance, mental stress. Indeed, apart from physiological functioning, physical condition and performance – brain state, behaviour, and even an animal’s emotions are now all recognised as key factors in assessing an animal’s welfare.⁵⁵ In terms of this broader understanding of animal welfare there would be insufficient economic incentive for a farmer to reduce risks to animal welfare, especially where doing so would increase costs. The shortcomings (i.e. failures) of market forces delivering completely on the full spectrum of animal welfare is now discussed in this RIS.

Specifically, the RIS identifies three key sources of market failure relevant to this RIS:

- *Public good* nature of animal welfare risk management itself;
- *Negative externalities* (poor welfare outcomes) of sheep farming; and
- *Information failure* by end users (consumers) of sheep meat and wool.

With respect to public goods, any beneficial outcome associated with better risk management practices on behalf of the farmer are non-excludable (‘I cannot keep you from enjoying the fact that I employ better sheep management practices’) and non-rivalrous (‘the satisfaction I receive from knowing a sheep benefits from better management practices does not prohibit you from also being satisfied with the sheep’s better life’) amongst the community. Therefore some farmers may under invest in such management practices due to free riding. . That is to say:

First and foremost is the fact that animal welfare is not priced in any conventional way...[and]...it is relatively difficult to ascertain the price of higher farm animal welfare. Without a price, the market will not necessarily work its magic in efficiently allocating resources to their most valued use.⁵⁶

World Organisation for Animal Health 2010, [Terrestrial animal health code](#). Viewed 10 June 2012

⁵¹ Dawkins, M.S., 2012

⁵² See: <https://theconversation.com/why-market-forces-dont-protect-animal-welfare-15501>

⁵³ Lusk, J.L. and Norwood, F.B., Animal Welfare Economics, Applied Economic Perspectives and Policy (2011), p.2.

⁵⁴ Lusk, J.L. and Norwood, F.B., Animal Welfare Economics, Applied Economic Perspectives and Policy (2011), p.2.

⁵⁵ Broom, D.M. (in prep) The roles of science and industry in improving animal welfare. See: http://www.daff.gov.au/animal-plant-health/welfare/aaws/aaws_international_animal_welfare_conference/animal_welfare_future_knowledge_attitudes_and_solution.

⁵⁶ Lusk, J.L. and Norwood, F.B., Animal Welfare Economics, Applied Economic Perspectives and Policy (2011), p.2.

Many farmers are motivated by animal welfare considerations as well as financial returns. However, if a farmer was to voluntarily invest in say; higher levels of pain relief, better infrastructure and general animal health management, this would not necessarily be reflected in the meat or wool product or its price, especially where livestock are sold at auction.

This is not to suggest that there are no market incentives at all to improve animal welfare. If rational and informed farmers can save themselves money by improving welfare, then they will do it voluntarily, without being forced to do it by mandatory standards.

With respect to negative externalities of sheep farming, the costs of poor animal welfare are not always incurred by sheep farmers when making production decisions. Market forces on their own may provide a partial solution by way of threat to revenues in the case that poor welfare outcomes (malnutrition, dehydration) directly affect the quality or quantity of meat, hide or wool in sheep. However, such market solutions would be unlikely to be sufficient where there is no identifiable link between risks to animal welfare and product quality or quantity. For example, performing invasive animal husbandry procedures can result in negative externalities by way of poor animal welfare; however such procedures have not been shown to affect meat or wool quantity or quality at the point of sale. Therefore such costs fail to be ‘internalised’ in sheep farmers’ production decisions.

Under an economic model ‘productivity is prioritised and animal suffering is treated as a market externality. Market signals will generally cause welfare standards to fall below community expectations.’⁵⁷ To the extent that animal welfare conditions are externality effects, therefore, ‘there can be no expectation that market data for food products will ever provide a sufficient route to their measurement.’⁵⁸ In short, ‘because animal welfare is evidently a public good externality there is an obvious role for government policy in establishing and enforcing standards.’⁵⁹

Finally, there is also a lack of information in the market place, as consumers of wool and sheep meat are often not aware of the welfare status of the sheep used to produce the products they are buying. The main reason for this is a lack of any significant schemes available for sheep producers that offer assurance of welfare credentials, for example, by product labelling. However, even if such consumer information was available, the low market share for other animal welfare-related products (such as free-range pork, chicken and eggs) indicates that only a small percentage of consumers would be likely to be influenced in their purchasing decisions. Market assurance schemes would therefore be of limited benefit in coping with the animal welfare problems discussed in the RIS.

Regulatory failure

Although a second edition was published in 2006 with additional material on mulesing, the existing MCOP relating to the welfare of sheep was originally published in 1991. It is in need of further updating in the light of new knowledge and experience. Regulatory failure in the form of several deficiencies have been identified in the existing MCOP, including the lack of standards dealing with the following welfare issues where there are either guidelines only, or, there are no mandatory statements in the MCOP for:

- The provision of adequate food and water;
- Risk management (including weather extremes, predation, inspections and care of sick or injured animals);
- Facilities and equipment;

⁵⁷ See: <https://theconversation.com/why-market-forces-dont-protect-animal-welfare-15501>

⁵⁸ McInerney, J. (2004), Animal Welfare, Economics and Policy, Report on a study undertaken for the Farm & Animal Health Economics Division of Defra

⁵⁹ McInerney, J. (2004), Animal Welfare, Economics and Policy, Report on a study undertaken for the Farm & Animal Health Economics Division of Defra

- Handling and husbandry (including; tail length, the use of electric prodders, dogs, teeth grinding, pizzle dropping and the exercise of tethered sheep);
- Knowledge and skills for mulesing, tail docking and castration;
- Breeding management;
- Intensive sheep production systems; and
- Humane killing.

Moreover, the original MCOPs did not incorporate an official system for developing or reviewing a code, which resulted in substantial variation in the quality, consultation, timeliness and content of the codes. In addition, the review of codes did not comprehensively consider contemporary animal welfare science as a basis for a standard or include a regulatory impact analysis. The development and review process was unfunded and relied on the in-kind contributions of representatives of government and other stakeholders.

The Ministerial Council and the AAWS participants acknowledged that there is a national recognition of and commitment to the need to review and update the existing codes in line with contemporary science and community views. The development of Australian animal welfare standards represents a commitment to simultaneous refreshment of the legislation that will achieve greater effect and harmonisation than if done unilaterally and over time. This is a significant issue for the sheep industry as higher welfare standards such as mandating lower ages for pain relief for castration or tail docking or banning mulesing could have a profound effect on farm viability as a result of management changes required to address the new standards or associated welfare risks.

The existing MCOP and some of the current state and territory codes of practice are a confusing mixture of both standards ('must' requirements) and guidelines ('should' advisory statements). As such, these codes are not sufficiently clear or verifiable for implementation and enforcement purposes.

For example, Clause 8.2 of the existing MCOP reads as follows:

There are times when sheep need to be handled for close inspection or shifted to another place. *It is essential* that the catcher handle the sheep gently to reduce stress to individual sheep and to other sheep nearby [*emphasis added*].

If drafting facilities are not available, *sheep may be caught, but not pulled, by one leg*. If carrying is necessary, they *should not* be lifted by the wool [*emphasis added*].

Clause 9.3 of the existing MCOP reads as follows:

Tail docking is a *recommended practice* for blowfly control. It *should* be performed on lambs as early as management practices will allow, preferably before 12 weeks. Animals older than six months *require* an anaesthetic [*emphasis added*].

Clause 9.4 of the existing MCOP reads as follows:

Where castration is required it *should* be performed on lambs as early as management practices will allow, preferably before 12 weeks. Animals older than six months *require* an anaesthetic [*emphasis added*].

The above wording is open to two different interpretations: the first is that the entire paragraph is intended as a guideline; and the second is that anaesthesia for animals older than six months is intended to be mandatory. In its own code of practice (based on the existing MCOP) Victoria has adopted the second interpretation. For the purposes of this RIS, the second interpretation has been followed, although it is not entirely clear that the courts would take a similar view.

Similarly, Appendix 3, Clause 3 B of the existing MCOP reads as follows:

The *recommended* age of mulesing is 2 to 12 weeks and; mulesing over 6 months *must* be done with anaesthesia. and; sheep *must not* be mulesed after 12 months of age [*emphasis added*].

Such lack of clear and verifiable standards would make their integration into industry programs such as training and quality assurance (QA) much more difficult creating another restriction on adequately managing animal welfare risks.

This regulatory base case issue is further complicated by differences between jurisdictions regarding ‘acts of veterinary science’ in relation to issues such as the provision of pain relief for surgical husbandry such as castration. In some jurisdictions (NT, WA, Tas), livestock owners are not permitted to perform these age-of-sheep related veterinary procedures under any circumstances. There are clearly stated ‘acts of veterinary science’ based on an age limit of the animal with no exemptions for livestock owners. In some jurisdictions (SA, NSW, Qld) there are exemptions for an owner to perform these ‘acts of veterinary science’ as long as it is not for fee or reward. In other jurisdictions (Vic) the matter is not covered under legislation covering veterinary surgeons and their work.

Another complication is the differences between jurisdictions’ prevention of cruelty to animals acts (POCTA) which often are mostly general in their description of offences. In relation to pain relief for sheep, NSW is an exception with a defence to a cruelty charge if an age limit of 6 months for castration and tail docking and 12 months for mulesing is followed (Section 24 - certain defences).

In summary, both market and regulatory failure can create significant risks to the welfare of sheep. The main areas of direct concern to incremental risks in sheep welfare are in relation to painful husbandry procedures. The mulesing procedure and associated welfare impacts are of most concern in this RIS; however other painful husbandry procedures discussed include: tail docking, castration and laparoscopic artificial insemination (LAI). These procedures involve surgical cutting, constriction rings or application of heat to destroy tissue. In general, the impact on the animal and level of perceived pain increases with the animal’s size and age. Scientific advice needs to be taken into account in the setting of national standards and/or guidelines. There is a need to agree on acceptable age limits before pain relief is applied. Other areas of welfare concern (including those that relate to cruelty) are: tethering, dog bites, inadequately cleaned sheds, excessive wool length, teeth grinding and trimming, inappropriate use of electric prodders and pizzle dropping.

Mulesing

Mulesing is the removal of wrinkled skin from the breech or breech and tail of a sheep using mulesing shears. Until accepted alternatives are developed and the current practice can be phased out, mulesing of lambs remains an important husbandry practice in Australia for animal health, welfare and management reasons. The principal reason is to reduce urine and faecal soiling or dag formation in the breech and tail wool and thus minimise susceptibility to breech and tail flystrike. Flystrike is one of the most important health and welfare concerns for sheep in Australia and sheep industries are committed to controlling flystrike to ethically acceptable levels.

Currently, cost effective chemical, management and breeding solutions are not available for all types of production systems in Australia and mulesing is a valuable tool for the prevention of breech flystrike for certain production environments and sheep types.

However, mulesing is a very painful procedure and involves a greater degree of tissue trauma than other surgical husbandry procedures such as castration or tail-docking. One of the first papers published was by Paull et al 2007 and examined the behavioural and physiological stress responses of lamb’s mulesed with no additional treatment.⁶⁰ Lambs mulesed with no drug application

⁶⁰ Paull DR, Lee C, Colditz IG, Atkinson SJ and Fisher AD. The effect of a topical anaesthetic formulation, systemic flunixin and carprofen, singly or in combination, on cortisol and behavioural responses of Merino lambs to mulesing. *Aust Vet J* 2007;85: 98-106.

exhibited large increases in the stress-responsive hormone cortisol, reduced lying and increased standing with a hunched back compared with unmulesed lambs.

Currently most pain relief products that could be used in conjunction with mulesing are only available through a veterinarian. The most widely used product is Tri-Solfen, which was costed as an S4 drug available only under prescription from veterinarians.⁶¹ Subsequently after this study was completed, Tri-Solfen has become available on 1 July 2014 as an S5 registered product available from Landmark rural merchandise stores⁶². There are no non-steroidal anti-inflammatory drugs (NSAID) that are currently registered for sheep in Australia.

Available scientific research suggests that it is possible to achieve pain relief in conjunction with mulesing. Pain relief would be most effectively achieved through a combination of approaches such as the pre-mulesing administration of systemic, off-label pain relief followed by a post-mulesing application of topical anaesthetic to deal with the ensuing period of pain associated with the inflammatory phase. That is to say a combination of short and⁶³ long-acting pain relief drugs may be needed to provide more complete pain relief.

Under the base case, there are an estimated 4.86 million lambs per annum that are currently mulesed without pain relief. Table 1 illustrates that this problem is largest particularly for Merino lambs in NSW and WA.

Table 1 – Number of lambs by sire type mulesed without pain relief per annum – by state and territory⁶⁴

Jurisdiction	No. Merino lambs mulesed without pain relief	No. 'other' lambs mulesed without pain relief	Total number of lambs mulesed without pain relief
NSW	952,818	332,584	1,285,402
VIC	386,716	199,301	586,017
QLD	236,964	101,656	338,620
SA	470,541	463,734	934,275
WA	1,385,048	152,261	1,537,309
TAS	119,651	58,712	178,363
AUSTRALIA	3,551,738	1,308,246	4,859,985

Appendix 3 of the existing MCOP for sheep requires anaesthesia for the mulesing of sheep over 6 months of age, and no mulesing over 12 months of age. As with other similar husbandry procedures, upper age limits are appropriate for mulesing in order to optimise sheep welfare. It is reasoned that the age limit after which mulesing requires the use of pain relief is consistent with the standards for castration and tail docking. When mulesing is done it is common practice to do this at the lamb marking stage to avoid extra mustering and handling. Research has shown that younger animals recover more quickly than older animals from this and other invasive procedures such as tail docking and castration. Therefore, six months is proposed as a suitable age limit in Australia to accommodate all production systems. The same situation exists for castration and tail docking. There are currently an estimated 30,000 lambs mulesed over the age of 6 months, as shown in Table 2, again with the greatest amount taken to be in NSW, VIC, SA and WA.

⁶¹ This drug is currently being considered for rescheduling to S6, which result in less restricted supply.

⁶² https://portal.apvma.gov.au/pubcris?p_auth=l5sx8X5j&p_id=pubcrisportlet_WAR_pubcrisportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_pos=1&p_p_col_count=3&_pubcrisportlet_WAR_pubcrisportlet_id=60099&_pubcrisportlet_WAR_pubcrisportlet_javax.portlet.action=viewProduct

⁶³ Paull DR, Colditz IG, Lee C, Atkinson SJ and Fisher AD. Effectiveness of non-steroidal anti-inflammatory drugs and epidural anaesthesia in reducing the pain and stress responses to a surgical husbandry procedure (mulesing) in sheep (2008).

⁶⁴ See Table A3.2 of Appendix 3 for source of estimates

Table 2 – Number of lambs mulesed per annum above the age of 6 months – by state and territory⁶⁵

Jurisdiction	No. lambs mulesed over 6 months of age
NSW	9,143
VIC	4,801
QLD	809
SA	6,199
WA	8,419
TAS	629
AUSTRALIA	30,000

Lack of skills for lamb marking

Tail docking and castration are usually performed together, during a husbandry process called ‘lamb marking’ that often includes earmarking and other husbandry procedures. Insufficient skill/supervision by those performing the tail docking and castration procedures (discussed in the next sections) can lead to adverse welfare outcomes. This problem is regarded as highly important by the sheep industry. An unskilled/unsupervised farm hand undertaking tail docking would fail to adequately meet the following key animal welfare considerations:

- Reducing the impact of mustering, handling and restraint
- Carrying out the procedures at the earliest practical age
- Knowledge of the appropriate age/size considerations for selection of method
- Ensuring that facilities and equipment are suitable
- Applying the method skilfully
- Applying other basic principles such as vaccinating ewes and lambs to protect against tetanus and other clostridial diseases
- Avoiding wet weather
- Maintaining clean hygienic practices
- Allowing the unweaned lambs to mother up as soon as possible
- Releasing the sheep from the yards and onto feed and water as soon as possible
- Conducting regular post-docking inspections.

According to Table 3 there are an estimated 701 unskilled farmhands likely to be involved in tail docking and castrating procedures with the majority located in NSW, VIC, SA and WA. It is expected that in most cases they will be involved in these procedures under the guidance of an experienced operator and hence will already be gaining the skills and experience required.

Table 3 – Number of unskilled/unsupervised farmhands performing tail docking and castration – by state and territory⁶⁶

Jurisdiction	No. Farmhands requiring skills and/or supervision
NSW	262
VIC	175
QLD	29

⁶⁵ See Table A3.8 of Appendix 3 for source of estimates

⁶⁶ See Table A2.5 of Appendix 2 for source of estimates

Jurisdiction	No. Farmhands requiring skills and/or supervision
SA	109
WA	99
TAS	25
NT	0
ACT	1
Australia	701

The number of lambs that are affected by adverse welfare outcomes due to unskilled and unsupervised farmhands undertaking tail-docking procedures is unknown.

Operator proficiency is a significant concern to industry and the training and supervision required by the new standards is already largely provided. The implementation of a new regulatory framework may not result in any noticeable improvement of welfare for sheep.

Castration

Castration remains an important procedure for sheep husbandry and on-farm management of male sheep in Australia. The reasons for castration include:

- Reduced aggression and sexual activity;
- Easier and safer to handle and manage;
- Less likely to fight, reducing bruising and injuries to themselves and other sheep;
- Easier to keep in paddocks after the time that sexual maturity would be reached;
- Allows for management flexibility to finish lambs to meet market specifications under variable seasonal conditions;
- Allows other husbandry practices (e.g. shearing) to be undertaken more quickly, efficiently and safely;
- Prevention of unwanted mating and pregnancies, particularly with the risk of dystocia in maiden ewes;
- Wethers grow a finer wool quality than rams;
- Ease and efficiency of processing (significant increase in the cost to producer for the processing of entire males); and
- Improved meat quality in sheep.

The most common methods of castration of lambs in Australia are by:

- Rubber rings; and
- Cutting (with a lamb-marking knife) the scrotum and manual removal of testes.

The problems under the base case involving castration of male lambs relate to insufficient skills/supervision of farmhands performing this procedure – leading to adverse outcomes. As with tail docking, key considerations relating to animal welfare would fail to be adequately met in the instances where those undertaking castration procedures were unskilled and unsupervised. The number of farmhands requiring skills and/or supervision by jurisdiction for castration is identical to tail docking and is summarised in Table 3.

The total annual number of male lambs that are castrated in Australia by jurisdiction are estimated in Table 4 below. The number of male lambs⁶⁷ that are affected by adverse welfare outcomes due to unskilled/unsupervised farmhands undertaking castration procedures is currently unknown. As with tail docking, operator proficiency is a significant concern to industry and training and supervision required is already largely provided. The implementation of a new regulatory framework may not result in any noticeable improvement of welfare for sheep.

Table 4 – Number of male lambs castrated per annum – by state and territory⁶⁸

Jurisdiction	Lamb numbers
NSW	6,104,213
VIC	3,553,978
QLD	598,251
SA	2,555,737
WA	3,273,000
TAS	548,855
NT	-
ACT	10,599
AUSTRALIA	16,644,632

Tail docking

Tail docking of lambs is widely practised in Australia for hygiene reasons and minimisation of external parasites such as fly larvae. Webb Ware et al 2000 reported that leaving the tail on lambs can result in a 3 fold increase in flystrike rates in Australia. The Australian blowfly is extremely aggressive and can lay hundreds of eggs on sheep. Where they are laid in moist areas with faeces and urine - the hatched larvae use enzymes to dig into the tissue of the sheep causing inflammation and pain.⁶⁹ Under Australian conditions, leaving a tail longer than three free palpable joints can have adverse health and welfare outcomes for the sheep as these sheep are reported to be difficult to shear and crutch, can heal abnormally, and are more susceptible to staining, dag and flystrike (Munro and Evans 2009).

The most common methods of tail docking lambs include:

- Gas-heated hot knife;
- Applying rubber rings; and
- Cutting with a sharp knife.

According to Hayward (2002) lambs should be tail docked by the hot knife method or the rubber ring method in preference to the sharp knife method.

Conversely, the practice of removing the entire tail is not acceptable as it results in adverse health and welfare implications and is unnecessary. The welfare problems are created when no tail stump is left, or less commonly when the tail stump is too long. The absence of an effective tail stump prevents the sheep from being able to channel urine and faeces away from the breech area. It also increases the risk of cancers from exposure of soft tissue to the sun.⁷⁰ It is well documented that short docking (i.e. leaving zero palpable joints) leads to health and welfare issues for sheep such as rectal prolapse (Thomas et al 2003) and squamous-cell carcinoma of the vulva.

⁶⁷ Breeding rams are of course not castrated but their numbers are so small as to be negligible.

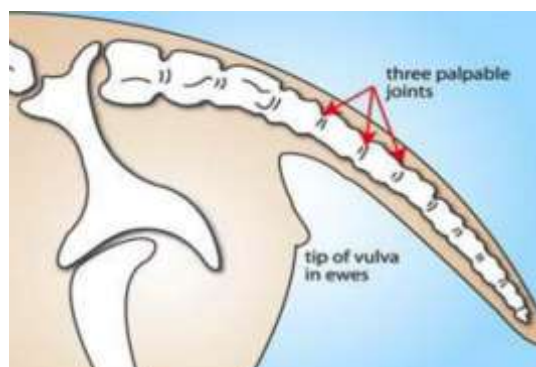
⁶⁸ See Table A2.1 of Appendix 2 for source of estimates x 50% to reflect male lambs only

⁶⁹ <http://www.weeklytimesnow.com.au/article/2011/11/01/402255_on-farm.html>

⁷⁰ <<http://www.flyboss.org.au/management/tail-length.php>>

The generally regarded optimum length of a tail is to leave three palpable joints, however, there is little evidence of difference between a docked tail length of one, two or three palpable free joints in terms of animal welfare. An illustration of sheep's palpable tail joints is provided in Figure 3.

Figure 3 – Illustration of palpable joints in a sheep's tail⁷¹



Source: Adapted from NSW DPI

The problems under the base case relating to tail docking and sheep welfare include:

- A high proportion of lambs having tails docked too short to prevent soiling of the breech wool and flystrike (see Larsen and deFegeley 2004); and, to a small extent, sheep involved in competitions of live animals in shows⁷². The total annual number of lambs that are tail docked in Australia by jurisdiction is estimated in Table 3. Anecdotal advice from industry is that short tails are quite common in sale yards; however, the percentage of lambs that have too short a tail is currently unknown.

Table 3 – Number of lambs tail docked per annum – by state and territory⁷³

Jurisdiction	Lamb numbers
NSW	12,208,426
VIC	7,107,956
QLD	1,196,502
SA	5,111,474
WA	6,546,000
TAS	1,097,709
NT	-
ACT	21,197
AUSTRALIA	33,289,264

- The practical difficulty in always achieving an exact tail length with the docking procedure and that absolute accuracy maybe difficult to achieve in small lambs; and

Further information about mulesing, castration and tail docking can be found in discussion papers available from the website: <http://www.animalwelfarestandards.net.au>

Laparoscopic artificial insemination (LAI) for artificial sheep breeding

⁷¹ Ibid

⁷² Provides the illusion that the lambs are more muscular

⁷³ See Table A2.1 of Appendix 2 for source of estimates

Laparoscopic artificial insemination (LAI) is an important technique for obtaining genetic gain (i.e. producing genetically improved progeny) to a greater extent than with conventional breeding methods.

LAI involves the direct placement of semen into the uterus. The procedure was developed in 1982 by Australian researchers and it revolutionised the sheep artificial insemination technique with a number of production advantages over per-vaginal insemination. An experienced operator can inseminate up to 450 ewes per day with fresh or frozen semen. Semen for both LAI and Embryo transfer (ET) is collected by artificial vagina or electro-ejaculation and may be fresh or frozen.

ET involves similar methods with the insertion of fertilised embryos using a laparotomy procedure under a general anaesthetic. These embryos are ‘flushed’ from a donor ewe. Due to the practical anaesthetic requirements for embryo collection and placement, this procedure is not discussed further in this RIS.

Careful management and a regime of veterinary drugs are required to synchronise oestrus in all artificial breeding. Both LAI and ET require high standards of asepsis and analgesia and detailed knowledge of anatomy and surgical techniques to ensure that the welfare of the animal is not compromised.

Artificial breeding procedures on a sheep have the potential to cause unreasonable pain, distress or injury. Whilst LAI is a minority breeding method compared to natural breeding practice in paddocks, it requires the use of a laparoscope, and is an invasive and painful procedure used to inject semen directly into the uterus (through the abdomen) in order to provide for reliable conception.

Under the base case there are an estimated 300,000 sheep per annum that undergo the LAI procedure, and it is estimated that 50% of these procedures are performed without pain relief. The number of breeding ewes undergoing the LAI procedure without pain relief is estimated by state and territory in Table 5. The most common practice of LAI without pain relief is estimated to occur in NSW, VIC, SA and WA.

Table 5 – Number of ewes per annum undergoing LAI without pain relief – by state and territory⁷⁴

Jurisdiction	No. of breeding ewes affected
NSW	55,302
VIC	30,992
QLD	7,043
SA	21,998
WA	29,893
TAS	4,669
NT	1
ACT	103
Australia	150,000

Permanent Tethering

Tethering is where an animal is confined to a specific area by an anchored chain and is typically used on an individual sheep to allow grazing and access to pasture/feed in unfenced areas. Tethering is regarded as a temporary method of restraint that is not suitable for long-term

⁷⁴ See Table A3.14 of Appendix 3 for source of estimates

confinement.⁷⁵ (This problem does not include the short term tethering of sheep in shows for grooming, judging and display). The particular welfare concerns about permanently tethered sheep⁷⁶ are that they may be unable to obtain sufficient exercise and are typically isolated from other sheep (which are herd animals). Both of these issues are likely to result in adverse welfare outcomes for permanently tethered sheep. The probability of both these issues occurring is reasonably high. However the extent of permanent tethering in Australia is not substantial in relation to the overall population of sheep. There are an estimated 1,250 permanently tethered sheep in Australia with the majority (1,000) in NSW as shown in Table 6.

Table 6 – Number of permanently tethered sheep – by state and territory⁷⁷

Jurisdiction	No. of permanently tethered sheep
NSW	1,000
VIC	50
QLD	50
SA	50
WA	50
TAS	50
NT	-
ACT	-
Australia	1,250

Bites from dogs

It is currently estimated that under the base case there are 2,191 sheep farm dogs that are prone to biting and that are non-muzzled, as shown in Table 7.

Table 7 – Number of non-muzzled sheep farm dogs prone to biting – by state and territory⁷⁸

Jurisdiction	No. Non-muzzled sheep dogs
NSW	821
VIC	549
QLD	91
SA	341
WA	311
TAS	78
NT	0
ACT	2
Australia	2191

The number of sheep at risk of dog bites is unknown, however assuming that each dog would be able to herd around 100 sheep - this would bring the total number of sheep potentially subject to pain or injury resulting from a dog bite at some stage - equal to any number of sheep up to 21,910 per annum. However, dogs are often employed as part of best practice mustering activities. It is

⁷⁵ See Table A2.3 of Appendix 2 for source of estimates.

⁷⁶ Typically, pet sheep and farm house paddock sheep.

⁷⁷ See Table A2.3 of Appendix 2 for source of estimates.

⁷⁸ See Table A2.2 of Appendix 2 for source of estimates

unlikely to be a significant welfare issue, as where a biting dog is detected swift remedial action is usually undertaken.

Welfare problems relating to cruelty

There are some welfare problems that are serious enough to attract an investigation and possible prosecution under the cruelty provisions of the animal welfare legislation that exists in all jurisdictions (see Appendix 4 to this RIS). In such cases, the numbers of animals affected is not essential to demonstrating the existence of a welfare problem, as cruelty prosecutions can (and have been) launched in cases of a single animal. Such cases include the following welfare risks.

Inadequately cleaned sheds

Currently there are a minority number of sheep farmers allowing faeces and urine to accumulate in sheds to a stage that is compromising the welfare of a sheep in an intensive production system. It is estimated that there are an estimated 5 inadequately cleaned sheep sheds affecting approximately only 50 sheep across Australia, as shown in Table 8. The majority of these sheep and sheds are in NSW and VIC (see Table 8).

Table 8 – Number of inadequately cleaned sheds – by state and territory⁷⁹

Jurisdiction	Current no. of inadequately cleaned sheds	Current number of sheep affected
NSW	2	20
VIC	2	20
QLD	-	-
SA	1	10
WA	-	-
TAS	-	-
NT	-	-
ACT	-	-
Australia	5	50

Excessive wool length

Excessive wool length (i.e. length that is greater than twice the average annual growth for that breed) is more likely to become a breeding ground for lice in sheep and lead to infestations. Apart from the obvious concerns of over-heating - other welfare issues include:

- Moisture build-up in long wool and subsequent fleece rot - which can lead to flystrike;
- Moist fleeces making sheep heavier and prone to becoming cast or developing foot abscesses in wet pasture leading to reduced ability to feed and drink;
- Roundworm scouring leading to dag formation around the breech, made worse when sheep have long wool;
- Ewes lambing with long wool may experience difficult births and lambs may struggle to find the teat to feed properly, particularly when suckling for the first time.⁸⁰

⁷⁹ See Table A2.9 of Appendix 2 for source of estimates

⁸⁰ <http://www.dpi.nsw.gov.au/archive/agriculture-today-stories/august/shearing-is-an-animal-welfare-necessity>

The number of sheep that carry wool length greater than twice the average annual growth for that breed outside shearing periods is currently unknown.

Trimming and grinding of sheep teeth

Tooth grinding (also known as the Caldwell method) and tooth trimming involves the use of an angle grinder, fitted with a cutting disc to shorten and straighten the incisors. These procedures are conducted because of the perceived benefits to animal production, however, a number of field trials in a range of locations have failed to demonstrate any benefit to productivity.⁸¹ A large trial by Williams (1993) involving over 40 900 ewes in Victoria and southern New South Wales showed no improvement with respect to productivity.⁸²

Whilst these procedures do not have any beneficial effect on health or productivity of sheep, they do have the potential to cause significant pain.⁸³ The number of sheep that are currently at risk from this procedure is currently unknown.

Inappropriate use of electric prodders

Electric prodders are used to handle and manage the movement of sheep in some cases, notwithstanding that there are other alternative handling aids such as flappers, rattlers, or canes with flags. Electric prodders can result in pain and suffering if used inappropriately on sheep. The use of electric prodders on sensitive areas such as the genital, anal, udder, or facial areas of sheep is painful and inappropriate. The use of electric prodders on lambs that are less than three months old or on sheep that are unable to move away is also inappropriate. The extent of inappropriate use of electric prodders and the number of sheep that are affected adversely is unknown.

Pizzle dropping

Pizzle dropping is a surgical procedure performed on wether lambs and weaners (under 12 months of age). The skin between the prepuce and the abdomen is severed to allow the prepuce to hang below the wool on the belly region.⁸⁴ Pizzle dropping is sometimes performed to reduce pizzle rot (balanoposthitis — inflammation of the prepuce and penis of castrated sheep), wetting of the belly wool by urine and resultant fly strike in the region of the pizzle.⁸⁵ There is no evidence or valid data to support the procedure but rather only anecdotal reports to justify the procedure on a production basis in terms of reduced staining of belly wool.⁸⁶ Moreover, pizzle dropping has been largely abandoned due to lack of efficacy.⁸⁷

However, there are welfare risks associated with the procedure including pain and the risk of surgical damage if the procedure is performed incorrectly.⁸⁸ The number of sheep that are at risk from this procedure is currently unknown.

⁸¹ < <http://www.ava.com.au/policy/105-sheep-dentistry-including-tooth-trimming> >

⁸² Williams A (1993). Evaluation of tooth grinding as a method for improving economic performance in flocks with premature incisor tooth loss ('broken mouth'). Final Report, Project DAV 5, Wool Research and Development Corporation

⁸³ < <http://www.dpi.vic.gov.au/agriculture/about-agriculture/legislation-regulation/animal-welfare-legislation/codes-of-practice-animal-welfare/accepted-farming-practice-sheep> >

⁸⁴ < <http://www.ava.com.au/policy/101-pizzle-dropping> >

⁸⁵ < <http://www.dpi.vic.gov.au/agriculture/about-agriculture/legislation-regulation/animal-welfare-legislation/codes-of-practice-animal-welfare/accepted-farming-practice-sheep> >

⁸⁶ < <http://www.ava.com.au/policy/101-pizzle-dropping> >

⁸⁷ Hayward, M, (March 2002), Pain and its Control In Routine Husbandry Procedures In Sheep and Cattle - prepared for ACT Animal Welfare Advisory Committee.

⁸⁸ < <http://www.ava.com.au/policy/101-pizzle-dropping> >

Other risks to sheep welfare

Other 'risks to welfare of sheep' include any potential factors which could affect the welfare of sheep in a way that causes pain, injury or distress to sheep. The outcome could include; sunburn, hypothermia, heat stress, dehydration, exhaustion, abortion, injury, metabolic disease or death. These risks can be managed by undertaking reasonable actions to prevent or reduce the risk.

Although the number of sheep affected by poor risk management in general is unknown, Table 9 illustrates the estimated number of sheep by state and territory. It is expected that an *unknown proportion* of these sheep would be subject to adverse welfare outcomes from other poor risk management practices.

Table 9 – Number of sheep in Australia 2011-12 – by state and territory⁸⁹

Jurisdiction	No. of Sheep
NSW	26,824,697
VIC	15,212,015
QLD	3,653,239
SA	11,008,541
WA	13,999,854
TAS	2,344,469
NT	1,855
ACT	54,092
AUSTRALIA	73,098,762

2.1.3 Excess regulatory burden

Excess regulatory burden arises from a lack of national consistency and from unnecessary existing standards.

Lack of national consistency

A project to address the need for consistency in animal welfare arrangements was endorsed by PIMC in 2006 and funded under the AAWS. It followed agreement by livestock industries that inconsistency of welfare requirements and operational arrangements for all industry members under existing jurisdictional laws and enforcement arrangements was the most important impediment to achievement of improved and nationally consistent animal welfare outcomes.

In addition the AAWS Livestock and Production animals Working Group has repeatedly stated that consistency in animal welfare arrangements is the single biggest obstacle to achieving nationally consistent improvements in animal welfare outcomes.

A lack of consistency in regulation of animal welfare arrangements also results in unnecessary regulatory burden for farm businesses that operate in more than one state or territory, and would be subject to different requirements across borders. The extent of sheep farming businesses operating in more than one jurisdiction and the number of sheep that are affected adversely is unknown. In addition a lack of consistency results in impediments to the setup and operation of national quality assurance schemes by industry associations.

⁸⁹ See Table A2.1 of appendix 2 for source of estimates

An example of the effect of inconsistent implementation of animal welfare regulations is provided by the fourth edition of the poultry code. The implementation of the poultry code experienced years of delay after its endorsement by the Ministerial Council in 2002 (although it had been expected that the code would be implemented within around 12 months). Regulations to give effect to the poultry code were only implemented by the end of 2008 in some jurisdictions. In addition the regulation of the code varied substantially between jurisdictions.

As discussed in Part 1.2.2.3 of this RIS, a key objective of the AAWS was ‘to facilitate improved consistency of legislation across states and territories for improved and sustainable animal welfare outcomes.’ The aim is to ensure all animals receive a standard level of care and treatment. Australia’s animal welfare ministers agreed in April 2006 on the need for a nationally consistent approach for the development, implementation and enforcement of animal welfare standards. At the AAWS 2nd National Australian Animal Welfare Strategy Workshop, participants reiterated that having consistent legislation across states and territories was a major objective of the AAWS.

The main jurisdictional differences in animal welfare standards for sheep are the following cases where one or more jurisdictions have explicit standards whereas others have either guidelines or no mention at all:

- Sheep teeth grinding, clipping or trimming are expressly prohibited under VIC and NSW legislation.
- VIC requires castration of rams over 6 months of age to be conducted under veterinary supervision using anaesthesia. There are approximately 1,777⁹⁰ sheep in VIC per annum where castration involves the administration of drugs by veterinary supervision that would otherwise be performed by contractors in other states and territories.

The number of businesses affected by these inconsistencies (i.e. those operating across jurisdictions) and the number of sheep involved remains unknown, despite the request for information via public consultation questions.

Such inconsistencies have the potential to cause unnecessary regulatory burden as a result of interstate businesses having to comply with different standards. Where those differences are not risk-based, any additional costs represent waste. However, it is unlikely that unfair business competition from an inconsistent operating environment between jurisdictions (i.e. an un-level playing field) is likely to occur due to the very small number of animals involved with respect to teeth grinding and trimming; and castration over 6 months. Such jurisdictional differences are minor compared to the risks to animal welfare resulting from the inadequacies of the existing MCOP.

Some differences in standards are required because of biological or behavioural variations between sheep breeds, climate or other regional differences; but other inconsistencies in standards are not necessary for these reasons. Such differences would be about promoting ‘best practice’ rather than national consistency for consistency’s sake.

Where regional or other critical differences are not apparent, industry-wide standards not only have a positive effect on the economy as a whole, but also provide benefits for individual businesses that

⁹⁰ Equal to 3,553,978 castrated male lambs with 0.05% castrated over 6 months based on advice from AHA

use them as strategic market instruments. Standardisation can lead to lower transaction costs in the economy as a whole, as well to savings for individual businesses.⁹¹

Unnecessary existing standards

Excess regulatory burden can also be imposed by unnecessary existing standards. For example, clause 1.C. 3 in Appendix 3 of the existing MCOP requires:

A comprehensive and audited training and accreditation process is available and *mandatory* for anyone who performs the mulesing procedure [*emphasis added*]

Expert advice from industry is that the relevant knowledge, experience and skills for mulesing can be acquired on the job, and the formal training and accreditation is unnecessary. In economic terms, this can be regarded as a form of government failure. As shown in Table 10 there is currently unnecessary regulatory burden being placed on 590 farmhands per annum resulting in an additional transport and course fee cost equal to an estimated \$674 per trainee. The highest regulatory burden is imposed on NSW followed by VIC, SA and WA.

Table 10 – Number farmhands each year currently undergoing formal training and accreditation for mulesing – by state and territory⁹²

Jurisdiction	No. Employees that are currently affected by training and accreditation
NSW	233
VIC	130
QLD	18
SA	98
WA	93
TAS	17
NT	-
ACT	1
Australia	590

2.2 Policy objective

The former Animal Welfare Committee (AWC), which provided expert advice to state and territory primary industries ministers, requested that animal welfare standards be: ‘clear, essential and verifiable.’ To complement these criteria, the four main decision-making principles used for policy analysis in the welfare standards development process are that they are:

- Desirable for animal welfare, and preferably supported by science;
- Feasible for industry and government to implement;
- Important for the animal welfare regulatory framework; and
- Will achieve a valid, intended outcome for animal welfare.⁹³

In relation to the proposed standards the following overarching policy objective is identified:

⁹¹ TU Dresden and Fraunhofer Institute, 2000.

⁹² See Table A2.8 of Appendix 2 for source of estimates

⁹³ Animal Health Australia (AHA) (2013). Australian Animal Welfare Standards and Guidelines for Sheep, Public Consultation Version, In Press, Adapted from Linstone and Turoff 2002 The Delphi Method: Techniques and Applications III.B.I The Policy Delphi.

To minimise risks to sheep welfare and to reduce regulatory burden in a way that is practical for implementation and industry compliance.

The main criterion for evaluating the proposed standards and the feasible alternatives is net benefit for the community, in terms of achieving this policy objective. As part of the evaluation, there will be a need to ensure that the benefits of the proposed standards justify their costs, and that they take into account the expectations of the Australian and international communities.

3.0 Options considered

In accordance with the COAG guidelines, an RIS is required to identify feasible alternatives to the proposed standards. Conversely, an RIS is not required to identify alternatives that are not practicable, or where there are no significant cost burdens being imposed.

Having no standards at all is not a feasible option, because if no action is taken, the existing MCOP for sheep will remain in place.⁹⁴ Some jurisdictions already have their own standards (based on the existing MCOP) as part of the base case; and it is outside the scope of this RIS to consider changes to individual state or territory standards.

Similarly, public education campaigns as an alternative to national standards are likely to be ineffective and therefore not a practicable alternative. Non-compliance with animal welfare standards is usually limited to a very small number of farmers who are unlikely to be more influenced by public education campaigns than by enforceable standards.

As discussed in Part 2.1.2 of this RIS, there is a lack of information in the market place, as consumers of wool and sheepmeat are not aware of the welfare status of the sheep used to produce the products they are buying. However, even if such consumer information were available, the market share for other animal welfare-related products indicates that only a small percentage of consumers would be likely to be influenced in their purchasing decisions. Thus better consumer information is not a practical alternative to welfare standards and guidelines.

At the SRG meetings in 2009 and 2010, alternative positions and views were expressed by governments, industry and animal welfare organisations regarding the need to consider various practicable alternatives, resulting in a provisional list of variations to the proposed standards. This list was prioritised to six variations by the Animal Welfare Committee, on the basis of controversial issues that might provide further improvements in animal welfare, but before the costs of such improvements had been estimated. In arriving at the variations to be examined, the same four main decision-making principles used for policy analysis in the welfare standards development process (refer to Part 2.2. of this RIS) were used to assess the potential suitability of the variations for further analysis. The public consultation sought the views and advice of interested parties in the further formulation of variations to the existing proposals.

As a result of the public consultation, Options C3 and C6 have now been incorporated into the proposed standards (Option B). An additional Option C7 has been added in response to representations from the sheep industries at the SRG meeting. This option would omit standard S5.1b which lists various ways in which the manner of handling sheep would be considered unreasonable.

The practicable alternatives together with the proposed national standards will from here on be referred to as ‘options’. The options to be assessed in terms of costs and benefits are:

- **Option A:** converting the proposed national standards as currently drafted into national voluntary guidelines (the minimum intervention option);
- **Option B:** the proposed national standards as currently drafted with the intention of them being made mandatory;
- **Option C:** the proposed mandatory national standards as currently drafted with one or more of the following variations (retaining the earlier numberings to avoid confusion):

⁹⁴ MCOPs are not subject to sunset provisions.

- *Option C1: All mulesing with pain relief*
- *Option C2: Restrict mulesing age to less than 6 months of age*
- *Option C4: Tethering ban*
- *Option C5: Mandate pain relief for laparoscopic LAI and ET*
- *Option C7: Omit proposed standard S5.1b (list of unreasonable sheep handling practices).*

Information on the meanings and impacts of these options is given in the evaluation of costs and benefits in the next part of this RIS.

4.0 Evaluation of Costs and Benefits

4.1 Introduction

The purpose of this Part of the RIS is to compare and contrast the costs and benefits of the feasible options and variations against the ‘base case’.

The evaluation of the relative benefits and costs for the feasible options and variations is conducted in the context of how well the policy objective identified in Part 2.2 of this RIS is likely to be achieved – (i.e. how well the options or variations would address the problems discussed in Part 2.1 of this RIS).

Where data exists, discounted⁹⁵ quantitative estimates of costs and benefits are provided over 10 years of implementation. A discount factor of 7% is used for present value (PV) calculations in this RIS, as recommended by the Commonwealth Office of Best Practice Regulation (OBPR). Whilst it is expected that the standards would be reviewed every 5 years, a 10-year analysis is conducted to effectively capture their full impact, taking into consideration implementation lag times. A detailed discussion of the estimation of quantifiable costs and benefits is provided in Appendices 2 and 3 to this RIS. All data used is sufficiently certain, and robust assumptions are stated. However, where cost and benefit data or assumptions is not available, then a quantitative measure is not possible and the assessment is made using qualitative criteria about the achievement of the policy objective. All costs and benefits reported are incremental to the base case (refer to Part 4.2 of this RIS).

The costs and benefits of Options A, B (the practical alternatives), and options under C1 to C7 are evaluated by using the following criteria (**I to III**) to compare the effectiveness of each option in achieving the relevant part of the policy objective:

- I.** Animal welfare benefits;
- II.** Reduction in regulatory burden; and
- III.** Net compliance costs to industry and government.

As discussed in Part 2.1.3 of the RIS, all options and variations reduce the problem of industry uncertainty by separating guidelines from standards; and therefore industry uncertainty is not used as an assessment criterion.

4.2 The base case

The term ‘base case’ means relevant status quo, or the situation that would exist if the proposed standards were not adopted i.e. the existing Australian standards plus market forces and the relevant federal, state and territory legislation (refer to Appendix 4 for details). The base case provides the benchmark for measuring the incremental costs and benefits of the proposed standards and other options. It is important to note that market forces apply to the benefits as well as the costs. Just as the influence of market forces is subtracted from the gross costs, in order to estimate incremental costs, if there are financial gains from improved production then these market forces should also be subtracted from the gross benefits in order to estimate incremental benefits. In other words, if rational and informed farmers can save themselves money by improving welfare, then they will do it voluntarily, without being forced to do so by mandatory standards. (These points are made in response to the submission from Queensland DAFF).

⁹⁵ A discount factor of 7% is used for present value calculations in this RIS, as recommended by OBPR.

Cruelty and certain unacceptable animal welfare practices can already be prosecuted under cruelty and aggravated cruelty offence provisions under existing animal welfare legislation e.g. sheep must not be allowed to suffer malnutrition or dehydration, or worse still die from lack of feed or water.

The proposed standards and guidelines are intended to replace the following model code of practice:

- *Model Codes of Practice for the Welfare of Animals: The Sheep*, PISC/SCARM Report Series 29, CSIRO Publishing, 1991 (revised 2006)

The proposed standards and guidelines once endorsed by AGMIN may also over-ride provisions for sheep in the following codes of practice:

- *Model Codes of Practice for the Welfare of Animals: Animals at Saleyards*, PISC/SCARM Report Series 31, CSIRO Publishing, 1991
- *Model Codes of Practice for the Welfare of Animals: Livestock at Slaughtering Establishments*, PISC/SCARM Report Series 79, CSIRO Publishing, 2001.

These proposed standards are consistent with those in the:

- *Australian Animal Welfare Standards and Guidelines – Land Transport of Livestock*, PISC Report Series XX, CSIRO Publishing 2009.

It is open to states and territories at any time to adopt the existing model codes as standards, and indeed some have already done so. Similarly, it is open to these jurisdictions to adopt or not adopt the proposed standards as state or territory standards. If and when the proposed standards are submitted to AGMIN for endorsement, the decision to be made by AGMIN will be whether to replace the existing model code and relevant state codes with the proposed standards or alternative options. For this reason, it is necessary for this RIS to assess the costs and benefits of the proposed changes in **standards**, rather than changes in the level of enforcement (which jurisdictions advise are unlikely). In other words, the RIS needs to separate out other factors (such as the level of enforcement) in order to measure the incremental costs and benefits of changes in standards; that is, to compare 'like' with 'like'.

4.3 Evaluation of options relative to the base case

The assessment of the costs and benefits of the options and variations is conducted by discussing each option in terms of its expected incidence and distribution of costs and benefits, relative to the 'base case' (as defined in Part 4.2 of the RIS).

It is intended that after public consultation, Option C will entail one or more variations of Option B - C1 to C7, which unlike options A and B are not mutually exclusive. Each Option C1 to C7 is analysed using the same criteria as with Options A and B. All options have been requested by government and industry for further investigation in this RIS process. Options C1 to C7 would each involve the issuing and promotion of national standards (same as Option B), to be reviewed once every 5 years by AGMIN. These agreed national standards would become regulations and would be mandatory. Like Option B, any such variations of the mandatory national standards would also replace relevant state or territory codes of practice that currently exist under the 'base case'.

The data used in this analysis and the assumptions and qualifications to the data on which the costs and benefits have been estimated are provided in the appendices.

A list of the proposed national standards with negligible incremental costs relative to the base case is provided in Appendix 5.

In order to consolidate the analysis by removing duplication and thereby making the options and variations easier to compare, the following main benefit and cost features of the proposed national standards are outlined in Part 4.3.1 and 4.3.2, respectively. The discussion of options therefore highlights their differences, thereby avoiding the repetition of text and figures.

4.3.1 Benefit drivers of the proposed national standards

This part of the RIS highlights the main benefit drivers, which underlie the proposed standards. These are identified as quantifiable and unquantifiable benefits in terms of improved welfare outcomes and reduced regulatory burden.

Drivers of unquantifiable animal welfare benefits – Criterion I

The UK FAWC ‘Five Freedoms’ form a reasonable framework for the description and consideration of animal welfare benefits addressed in the two feasible Options and six feasible variations (the key operating words are highlighted). The list does not represent a priority or hierarchy of needs or the basis for ranking the impact of welfare insult. Animal welfare’ is a difficult term to define and has several dimensions including the mental and physical aspects of the animal’s well-being, as well as people’s subjective ethical preferences. However, this RIS does not deal with perceived benefits of the options; but rather looks strictly at factual considerations, based on scientific evidence where available.

1. Freedom from Hunger and Thirst - by ready access to fresh water and a diet to maintain full health and vigour.
2. Freedom from Discomfort - by providing an appropriate environment including shelter and a comfortable resting area.
3. Freedom from Pain, Injury or Disease - by prevention or rapid diagnosis and treatment.
4. Freedom to Express Normal Behaviour - by providing sufficient space, proper facilities and company of the animal's own kind.
5. Freedom from Fear and Distress - by ensuring conditions and treatment which avoid mental suffering.⁹⁶

The standards take a balanced approach to address risks to the welfare of sheep in all of these areas. There is a focus on developing these standards that address the issues of husbandry procedures that cause pain, and confinement issues. These are issues of commission or direct intervention by humans as opposed to issues of omission or mismanagement. In the former, humans could take a more proactive role in the management of welfare risk and these standards direct what is reasonable.

The relevant proposed standards for addressing *animal welfare problems*, identified in Part 2.1, are directed at providing benefits to sheep welfare, from better compliance often as a result of explicitly stating implied standards of welfare. In some cases the standards spell out unacceptable behaviours that could otherwise result in a cruelty prosecution. Some jurisdictions already have equivalent legislation or standards under the base case. Welfare benefits and jurisdictions where an improvement in welfare is expected are indicated, as follows:

- **Risk management of extreme weather, natural disasters, disease, injury and predation:**

- *Proposed standard S3.2 - must ensure the inspection of sheep at intervals and at a level appropriate to the production system and the risk to the welfare of sheep.* Uninspected sheep in all states and territories would achieve welfare benefits except TAS where inspection is already required as part of the base case. As shown in Table 10, this standard has the potential to benefit

⁹⁶ < <http://www.fawc.org.uk/freedoms.htm> >

the current number of uninspected sheep, which is *an unknown proportion of 70.75 million*⁹⁷ sheep per annum.

- **Handling and husbandry:**

- *Proposed standard S5.1 – must handle sheep in a reasonable manner plus proposed standard S5.1b - A person handling sheep must not:*

- 1) lift sheep off the ground by only one leg, or by the head, ears, horns, neck, tail or wool, unless in an emergency; or
- 2) throw or drop sheep, except to land on its feet from a height less than 1.5 metres; or
- 3) strike sheep in an unreasonable manner, punch or kick; or
- 4) drag sheep that are not standing by only one leg, except in an emergency to allow safe handling, lifting, treatment or humane killing; or
- 5) drag sheep by only the ears, or tail; or
- 6) drag by mechanical means, except in an emergency, for the minimum distance to allow safe handling, lifting, treatment or humane killing.

Mishandled sheep in all states and territories would receive some welfare benefits. As shown in Table 10, this has the potential to benefit the current number of mishandled sheep, which is *an unknown proportion of 73.10 million* sheep per annum;

- *Proposed standard S5.2 – must ensure a dog that habitually bites is muzzled when working sheep.* Sheep in all states and territories would receive welfare benefits from no longer being bitten by dogs. The number of sheep that would otherwise be bitten by non-muzzled dogs remains unknown. However, as discussed in Part 2.1 of this RIS, dogs are often employed as part of best practice mustering activities. Therefore any welfare benefit obtained is likely to be minor, as where a biting dog is detected swift remedial action is usually undertaken under the base case;

- *Proposed standard S5.3 – must ensure a sheep is shorn before length is greater than twice the average annual growth for that breed.* Sheep with wool length more than twice the annual growth in all states and territories would obtain welfare benefits except TAS where there is already a requirement under the base case for wool length not to exceed 250mm. However, an unknown number of sheep would receive welfare benefits in having their wool reduced below lengths twice the annual growth. There is a significant economic disadvantage to producers where wool is left to grow over twice the annual growth and this is a strong driver of appropriate behaviour. Welfare benefits would be driven from a minor increase in compliance from explicitly stating implied standards of care, which would make prosecution under cruelty provisions much easier. Therefore any welfare gain is likely to be very minor and unquantifiable;

- *Proposed standard S5.4 – must consider the welfare of sheep when using an electric prod.* Sheep currently prodded electrically (in an inappropriate manner) in all states and territories would receive welfare benefits. However an unknown number of sheep would experience improved welfare resulting from an increase in compliance from explicitly stating implied standards of care, which would make prosecution under cruelty provisions much easier. Therefore any welfare gain is likely to be very minor and unquantifiable;

- *Proposed standard S5.5 – must not trim or grind the teeth of sheep.* Sheep that would otherwise have their teeth trimmed or ground in all states and territories would receive a welfare benefit except NSW, VIC and TAS where no trimming or grinding is allowed under the base

⁹⁷ 73,098,762 sheep across Australia less 2,344,469 in Tasmania where inspection is already covered under the base case

case. However a very minor unknown number of sheep would be affected resulting from an increase in compliance from explicitly stating implied standards of care. Therefore any welfare gain is likely to be minor and unquantifiable;

- *Proposed standard S5.6 – must not alter the anatomy of the prepuce by incising the surrounding skin (pizzle dropping) of sheep.* Sheep that would otherwise have pizzle dropping performed on them in all states and territories would receive welfare benefits. Pizzle dropping is almost unknown in the sheepmeat industry and has lost favour amongst the broader wool industry. However an unknown number of sheep would be affected resulting from an increase in compliance from explicitly stating implied standards of care, which would make prosecution under cruelty provisions much easier. Therefore any welfare gain is likely to be very minor and unquantifiable;

- *Proposed standard S5.7 – must ensure that sheep that are tethered are able to exercise daily.* Tethered sheep in all states and territories would receive welfare benefits except NT and ACT where sheep are not known to be tethered. As shown in Table 6 in this RIS, this is estimated to improve the welfare of an estimated 1,250 sheep across Australia with 1,000 sheep in NSW and 50 sheep in each of the remaining states of VIC; QLD; SA; WA and TAS;

- **Tail docking and castration:**

- *Proposed standard S6.1 – those performing tail-docking and castration must have the relevant knowledge, experience and skills or be under the direct supervision of a person who has the relevant knowledge, experience and skills.* A proportion of tail docked and castrated sheep in all states and territories would receive welfare benefits. As shown in Table 3 in this RIS, 701 farmhand employees or contractors per annum would be required to receive on-the-job training with the majority in NSW, VIC and SA equal to 262, 175, and 109, respectively (see Part 2.1.2 of the RIS for discussion). It is also highly probable that a proportion of these 701 workers already receive training and work in supervised environments. The proportion of 33.29 million sheep that are tail docked and 16.65 million sheep that are castrated that would have improved welfare due to better skilling and supervision – remains unknown, but is a function of the number of sheep that are currently tail docked and castrated by unskilled farmhands;

- *Proposed standard S6.3 – must leave a docked tail stump of a sheep with at least one palpable free joints remaining.* Tail docked sheep that would otherwise be left with no palpable joints in all states and territories would receive welfare benefits. Tail docked sheep with at least one palpable joint would receive welfare benefits. As discussed in Part 2.1.2 of this RIS a *high but unknown proportion of 33.29 million sheep* are tail docked and left with tails that are too short (no palpable joints). The welfare benefits are a function of the number of sheep that are currently tail docked leaving no tail stump.

- **Breeding management:**

- *Proposed standard S8.2 – a person must be a veterinarian, or operating under veterinary supervision, to perform surgical embryo transfer or laparoscopic insemination of a sheep.* Sheep undergoing ET or LAI without veterinarian supervision in all states and territories would be affected. There would be a minor unquantifiable improvement in welfare from deterring ‘rare’ cases of non-compliance.

- **Intensive sheep production systems:**

- *Proposed standard S9.4 - must not allow the faeces and urine to accumulate to the stage that compromises the welfare of a sheep in an intensive production system.* Sheep in inadequately cleaned sheds would receive welfare improvements in NSW, VIC and SA. As shown in Table 8 in this RIS, proposed standard S9.4 would affect 20 sheep in NSW and 20 in VIC and 10 sheep in SA. Therefore, proposed standard S9.4 is likely to provide welfare benefits to a small number of sheep.

Drivers of quantifiable benefits of a reduction in regulatory burden – Criterion II

• Mulesing and training:

- *Proposed standard S7.1 – those performing mulesing must have the relevant knowledge, experience and skills or be under the direct supervision of a person who has the relevant knowledge, experience and skills.* In the case of employees, training costs are usually met by their employer; however, contractors would incur training costs themselves. Employers of farmhands and contractors undertaking mulesing in all states and territories would benefit from reduced training costs under the base case of \$647 per person (see Part 2.1.4 for discussion)). Proposed standard 7.1 would result in an estimated **\$2.61m reduction in training and accreditation costs** over 10 years and in present value dollars⁹⁸ for mulesing procedures - as summarised in Table 11 in this RIS. The largest beneficiary of this standard would be 233 employers of farmhands or contractors in NSW (see Table 11 in this RIS), 130 in VIC, 98 in SA, and 93 in WA. However the number of businesses (i.e. farms) and contractors affected by inconsistencies is currently unknown; but they would benefit from this proposed standard.

Table 11 – Summary of quantifiable 10-year incremental benefit of proposed standard 7.1 under Option B by state and territory – 2012-13 dollars⁹⁹

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Stakeholders affected	233	130	18	98	93	17	-	1	590
Estimated reduction in regulatory burden	\$1,032,120	\$573,567	\$79,492	\$434,643	\$409,771	\$75,979	\$0	\$3,019	\$2,608,591

• Tail docking and castration:

- *Proposed standard S6.4 – must not castrate sheep over 6 months old without pain relief.* Proposed standards creating national consistency with respect to castration would lead to lower transaction costs in the economy as a whole, as well as savings for individual businesses operating across jurisdictional boundaries.¹⁰⁰ Businesses in VIC that would otherwise need to employ the supervision of a veterinarian to perform castration under the base case would no longer be required to do so and could use a contractor (see discussion of inconsistency in Part 2.1.4). There are an estimated 1,777¹⁰¹ male lambs over 6 months castrated in VIC every year (see Table 4 in this RIS). The time cost difference between a veterinarian and a contractor in administering Xylazine 20 and Lignocaine would be \$1.67¹⁰² and \$2.33¹⁰³ per lamb, respectively. The total time cost savings of administering pain relief would be \$4.00 per lamb and given that there are 1,777 male lambs per annum this would bring the reduction in regulatory burden over 10 years to **\$71,080** or **\$46,657** in 2012-13 dollars. However the number of businesses affected by inconsistencies and the number of sheep involved is currently unknown; but they would benefit from this proposed standard.

Drivers of unquantifiable benefits of a reduction in regulatory burden – Criterion II

⁹⁸ Discounted using a 7% discount rate

⁹⁹ See Table A2.12 of Appendix 2 for source of estimates.

¹⁰⁰ TU Dresden and Fraunhofer Institute, 2000.

¹⁰¹ Equal to 3,553,978 castrated male lambs with 0.05% castrated over 6 months based on advice from AHA

¹⁰² Based on a time cost of 30 seconds at \$140 = difference between contractor rate of \$80 and veterinarian rate of \$220

¹⁰³ Based on a time cost of 60 seconds at \$140 = difference between contractor rate of \$80 and veterinarian rate of \$220

Proposed standards creating national consistency with respect to handling and husbandry would lead to lower transaction costs in the economy as a whole, as well as savings for individual businesses operating across jurisdictional boundaries.¹⁰⁴

- **Handling and husbandry:**

- *Proposed standard S5.5 – must not trim or grind the teeth of sheep.* Businesses that would otherwise have the teeth of their sheep trimmed or ground¹⁰⁵ would no longer have an advantage (see discussion of inconsistency in Part 2.1.4), notwithstanding that there are no demonstrated productivity gains from grinding or trimming of sheep (see discussion of teeth grinding and trimming in Part 2.1.2). Moreover, given that this practice is very minor, whilst the number of businesses affected is unknown, proposed standard S5.5 would result in some minor reduction in regulatory burden in farms operating across jurisdictions and no longer needing to implement different sheep dentistry practices. However the number of businesses affected by inconsistencies and the number of sheep involved is currently unknown; but they would benefit from this proposed standard.

4.3.2 Cost drivers of the proposed national standards

This part of the RIS highlights the main cost drivers of the proposed national standards, as shown in Table 12 (i.e. standards that impose the highest costs). This part also helps to contextualise the proposed national standards by illustrating the impact of discounted 2012-13 dollar costs on each state and territory. The effective cost per sheep in each state and territory is shown in Table 13. All other proposed standards have been assessed as imposing negligible incremental costs relative to the base case.

Jurisdictions have proposed no incremental allocation of resources towards enforcement and therefore no additional cost in relation to enforcement with regards to the proposed standards is identified as compared to the base case.

Costs incurred by industry associations in briefing their members about the proposed national standards and preparing QA schemes and other industry programs have not been counted here, because any such costs would be voluntarily incurred i.e. they are not mandated by the proposed standards.

¹⁰⁴ TU Dresden and Fraunhofer Institute, 2000.

¹⁰⁵ Except NSW, VIC and TAS where no trimming or grinding is allowed under the base case

Table 12 – Summary of quantifiable 10-year incremental cost of proposed standards under Option B by state and territory – 2012-13 dollars¹⁰⁶

Proposed standard	Description of requirement	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	Dog muzzling	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	Exercising tethered sheep	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
6.1	Additional on-the-job training for tail docking and castration	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	Cleaning sheep sheds	\$69,231	\$78,403	-	\$33,266	-	-	-	-	\$180,899
Total		\$4,071,135	\$336,071	\$201,466	\$252,498	\$231,500	\$232,850	\$9	\$120	\$5,325,648

As shown in Table 12 – the proposed national sheep standards would result in a total incremental cost of \$5.33m over 10 years in 2012-13 dollars. However the largest driver of cost would be proposed national standard S5.7 (i.e. the requirement for exercising tethered sheep). The bulk of this cost (i.e. \$3.94m) would be incurred by NSW, where there are an estimated 1,000 tethered sheep. For the purpose of costing it has been considered on advice from AHA that the most likely response to proposed standard 5.7 would be for 10%, 40% and 50% of current permanently tethered sheep to be exercised, fenced and disposed of, respectively. Fencing would involve erecting a fence and providing a second sheep to allow for better handling of untethered sheep¹⁰⁷ at a one-off cost of \$1,480 per sheep incurred in the first year of the proposed standard (see Part A2.2 of Appendix 2 for discussion).

Table 13 and other similar tables in this RIS showing average cost per sheep are designed to give an estimated total cost per animal in each jurisdiction and to provide an understanding of the relative impact of standards (or variations) by state or territory. However, some of the standards (variations) will apply only to wool sheep, meat sheep or both and the average cost per sheep is not broken down into this detail. Furthermore, even if it was to be broken down, it is not possible to determine the number of animals either affected or not affected by one or more standards (variations). Therefore, care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

As shown in Table 13, the average net impact per sheep would range from a savings of \$0.05 per sheep in the ACT to a cost of \$0.11 per sheep in NSW.

Table 13 – Average net 10-year cost impact per sheep as a result of the proposed standards under Option B by state and territory –2012-13 dollars¹⁰⁸

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost of proposed standards	\$3,039,015	-\$284,153	\$121,973	-\$182,145	-\$178,271	\$156,871	\$9	-\$2,899	\$2,670,400
Total	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762

¹⁰⁶ See Table A2.14 in Appendix 2 for source of estimates.

¹⁰⁷ Because sheep are herd animals, multiple sheep are easier to handle than a single untethered sheep.

¹⁰⁸ See Table A2.16 of Appendix 2 for source of estimates

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
flock									
Cost per sheep	\$0.11	-\$0.02	\$0.03	-\$0.02	-\$0.01	\$0.07	\$0.00	-\$0.05	\$0.04

Based on advice received from jurisdictions on the far more detailed *Land Transport Standards*¹⁰⁹, a reasonable assumption is made that there will be negligible incremental costs in enforcing the proposed standards compared to the existing code under the base case.

4.3.3 Option A: (non-regulatory option – voluntary national guidelines)

Option A would involve the issuing and promotion of agreed national risk-based guidelines once every 5 years by AGMIN. These agreed national guidelines would encompass ‘should statements’ as opposed to ‘must statements’ and, unlike the proposed standards, these guidelines would not become regulations and therefore would not be mandatory (i.e. adherence would be voluntary).¹¹⁰

These agreed national guidelines would be additional to industry guidelines or Quality Assurance programs in the ‘base case’. The voluntary national guidelines would also be additional to existing state or territory standards and codes of practice and guidelines under the ‘base case’.

Unquantifiable incremental net benefits of Option A (Criterion I – animal welfare)

Option A would be likely to lead to improved animal welfare outcomes, depending on the level of voluntary adherence with the national guidelines, through a better management of risks to animal welfare in both sheep meat and wool farms. Specifically, some improvements to the welfare of animals would be expected in ensuring the provision of adequate food and water, suitable environments, health care, opportunity to express most normal behaviours and protection from fear and distress. Areas for potential improvements relate to:

- Risk management of extreme weather, natural disasters, disease, injury and predation;
- Handling and husbandry;
- Tail docking and castration;
- Breeding management; and
- Intensive sheep production systems.

As discussed in Part 4.1.3 of this RIS some improvement in welfare is expected; but the extent of such improvement is unknown. However, any resulting improvement over the base case is likely to be significantly less than that which would occur under a situation of mandatory compliance with enforceable, risk-based and clearly understood standards.

Potential and unquantifiable incremental net costs of Option A (Criterion III –adherence costs)

Under Option A the sheep meat and wool industries would incur voluntary costs, depending on the degree of adherence to the voluntary guidelines. However there would be *no incremental costs imposed under Option A* as compared to the ‘base case’. Importantly, *any voluntary cost incurred* would be driven by the degree of adherence to the guidelines. A description of potential voluntary costs that might be incurred is summarised in Table 12 in Part 4.3.2 of this RIS. The cost per state or territory under Option A will again depend on the degree of adherence to the guidelines.

¹⁰⁹ Tim Harding & Associates, 2008

¹¹⁰ Compliance is not relevant as guidelines are not binding or enforceable

4.3.4 Option B: (the proposed national standards)

Option B would involve the issuing and promotion of agreed national risk-based standards once every 5 years post-implementation by the AGMIN. These agreed national standards would encompass ‘must statements’ and, unlike Option A, these standards would become regulations and would be mandatory (i.e. compliance would be mandatory). The mandatory national standards would replace existing state or territory model codes of practice and guidelines under the ‘base case’.

Unquantifiable incremental net benefits of Option B (Criterion I – animal welfare)

As compared with Option A, Option B would lead to much more improved animal welfare outcomes, through better management of risks to animal welfare in sheep farms due to mandatory compliance with enforceable risk-based standards. Specifically, there would be improvements to the welfare of animals in ensuring adequate food and water, suitable environments, health care, opportunity to express most normal behaviours and protection from fear and distress. A detailed discussion of additional benefits and their drivers (i.e. the proposed national standards) is provided in Part 4.3.1 of this RIS. In particular, there would be improvements in the:

- Risk management of extreme weather, natural disasters, disease, injury and predation where all uninspected sheep across all states and territories would achieve welfare benefits except TAS where inspection is already required as part of the base case. As shown in Table 10, this has the potential to affect *an unknown proportion of 70.75 million*¹¹¹ sheep per annum;
- Handling and husbandry in relation to handling of all sheep in a reasonable manner; muzzling all dogs that habitually bite sheep; keeping all wool lengths to below 250mm in length (except TAS); considering the welfare of all sheep when using an electric prod; eliminating the practice of trimming and grinding of sheep teeth (except NSW, VIC and TAS); eliminating the practice of pizzle dropping; ensuring exercise for tethered sheep (except NT and ACT) thereby promoting the welfare of 1,250 sheep in Australia with up to 1,000 sheep in NSW and up to 50 sheep in each of the remaining states of VIC, QLD, SA, WA and TAS¹¹²;
- Practice of tail docking and castrations in terms of on-the-job training and supervision of all 701 farmhand employees or contractors per annum with the majority in NSW, VIC and SA equal to 262, 175, and 109, respectively (see Part 2.1.2 of the RIS for discussion). However it is not known what proportion of the 33.29 million sheep that are tail docked and the 16.65 million sheep that are castrated would have improved welfare due to better skilling and supervision. Moreover, an unknown proportion of 33.29 million tail-docked sheep would no longer be left with tails that are too short (i.e. no palpable joints);
- Breeding management and deterrence of all ‘rare’ cases of sheep undergoing ET or LAI without veterinarian supervision;
- Incidence of all sheep in inadequately cleaned sheds would receive welfare improvements in NSW, VIC and SA (20 sheep in NSW, 20 in VIC and 10 sheep in SA).

¹¹¹ 73,098,762 sheep across Australia less 2,344,469 in Tasmania where inspection is already covered under the base case

¹¹² For a detailed discussion on the nature of the welfare benefits to be attained (i.e. the welfare problems to be addressed see Part 2.1.2 of this RIS)

The number of sheep affected by particular standards across Australia is summarised in Table 14. The breakdown in welfare impacts and number of sheep affected by state and territory is summarised in Appendix 6 of this RIS.

Table 14 – Summary of number of sheep affected annually by welfare standards under Option B as compared to the base case¹¹³

Welfare issue resolved under Option B	Number of sheep affected
Inspection of sheep at intervals	% of 70,754,293
Handle sheep in a reasonable manner	% of 73,098,762
Dog that habitually bites is muzzled	Unknown (minor)
Sheep is shorn before the wool reaches twice the annual length for that breed	Unknown (minor)
Consider the welfare of sheep when using an electric prod	Unknown
Must not trim or grind the teeth of sheep	Unknown (minor)
No pizzle dropping	Unknown (minor)
Sheep that are tethered are able to exercise daily	1,250
Tail docking with skilled practitioner or under supervision	% of 33,289,264
Castration with skilled practitioner or under supervision	% of 16,644,632
At least one palpable free joint remaining with tail docked sheep	% of 33,289,264
LAI or ET performed by veterinarian or under veterinary supervision only	150,000
Faeces and urine must not compromise the welfare of a sheep	50

Quantifiable incremental net benefits of Option B (Criterion II – reduced regulatory burden)

Option B would impose incremental benefits in removing unnecessary regulation requiring training and accreditation for those performing mulesing procedures under proposed standard S7.1, estimated to be *\$2.61m* over 10 years in 2012-13 dollars¹¹⁴, (see Table 11 of this RIS in Part 4.3.1). As shown in Table 11, the benefits would be mainly attributable to, NSW, VIC, SA and WA under proposed national standard S7.1 with an incremental benefit of *\$1.03m*, *\$0.57m*, *\$0.43m* and *\$0.41m*, respectively, in 2012-13 dollars.

Moreover, under proposed national standard S6.4, there would be a reduction in regulatory burden for VIC sheep farmers who would be provided the opportunity to administer pain relief with the castration of 1,777 sheep per annum with the use of contractors rather under veterinary supervision. The reduction in regulatory burden would be an estimated *\$46,657* over 10 years in 2012-13 dollars.

The total reduction in regulatory burden under the proposed national standards S7.1 and S6.4, under Option B is estimated to be *\$2.66m* over 10 years in 2012-13 dollars.

Unquantifiable incremental net benefits of Option B (Criterion III – reduced regulatory burden)

Option B would be effective in promoting national consistency. Industry-wide standards in relation to teeth grinding and trimming of sheep (S5.5) would have a positive effect on the economy and would reduce transaction costs of compliance, especially for businesses operating in more than one jurisdiction – the number of which is currently unknown, but is being sought via public consultation questions elsewhere in this RIS. The AAWS would have increased ability to facilitate improved consistency of animal welfare outcomes across states and territories.

¹¹³ See Table A6.1 of Appendix 6 for source of estimates

¹¹⁴ Discounted at a rate of 7%

Quantifiable incremental net costs of Option B (Criterion III – compliance costs)

Option B would impose incremental costs estimated to be **\$5.33m** over 10 years in 2012-13 dollars¹¹⁵, as estimated in Table 12 of this RIS. The costs would be mainly attributable to the requirement for exercising tethered sheep¹¹⁶ under proposed national standard S5.7. This incremental cost would amount to an estimated **\$4.97m** in 2012-13 dollars (see Table 12). As shown in Table 12, the most impacted state would be NSW with respect to the proposed national standard S5.7 with an incremental cost of **\$3.94m** in 2012-13 dollars.

Net quantifiable benefit of Option B

Based on the discussion above, the net incremental quantifiable cost of option B is estimated to be **\$2.67m** over 10 years in 2012-13 dollars. As shown in Table 13 – VIC, WA and SA would receive **\$0.28m**, **\$0.18m** and **\$0.18m** over 10 years in net quantifiable benefits whilst NSW would incur a net incremental cost of **\$3.04m**.

4.3.5 Option C1: (variation of proposed national standard S7.3)

Option C1 would be a variation of the proposed national standards that would amend proposed standard S7.3 and would require pain relief for *all mulesing* and not just for sheep that are six months to 12 months of age.

Unquantifiable incremental net benefits of Option C1 (Criterion I – animal welfare)

As with Option B, Option C1 would lead to improved animal welfare outcomes, with a detailed discussion of additional welfare benefits and their drivers provided in Part 4.3.1 of this RIS. However, in addition to Option B, Option C1 would require a topical anaesthetic formulation applied immediately after the mulesing cut and would provide additional pain relief benefits for an estimated 4.86 million lambs per annum (see Table 1 in this RIS). The majority of lambs affected by this additional welfare benefit would include WA, NSW and SA with an estimated 1.54 million, 1.29 million and 0.93 million lambs affected per annum, as shown in Table 1 in this RIS.

This option offers certainty and incremental management adjustment to industry compared to other potential proposals to further restrict mulesing (lower ages as in Option C2 or a phase out). There is a risk to industry that this step could be perceived as inadequate progress towards calls for a total mulesing phase out. There are also concerns that the application of Tri-Solfen is an inadequate level of pain relief but there are no other available options for sheep. A total mulesing phase out has not been asked to be considered at this time because of the overall negative impacts on the welfare of a large proportion of the national sheep flock and consequential impacts on farm viability.

Quantifiable incremental net benefits of Option C1 (Criterion II – reduced regulatory burden)

Option C1 would result in the same level of reduced regulatory burden as Option B. The total reduction in regulatory burden under a variation of the proposed national standards S7.1 (removing requirement of formal training and accreditation for mulesing) and S6.4 (removing requirement of castration by veterinarian only in VIC), under Option C1 is estimated to be **\$2.66m** over 10 years in 2012-13 dollars.

¹¹⁵ Discounted at a rate of 7%

¹¹⁶ It is likely that this will result in persons in charge opting to incur a one-off cost and erect a fence and provide a companion sheep to allow for the better management of untethered sheep rather than exercise sheep at a high annual cost

Unquantifiable incremental net benefits of Option C1 (Criterion II – reduced regulatory burden)

Identical to Option B, Option C1 would be effective in promoting national consistency in relation to teeth grinding and trimming of sheep (S5.5). This would reduce the unquantifiable regulatory burden in relation to this matter for businesses operating across multiple jurisdictions and which currently have different approaches to these matters.

Quantifiable incremental net costs of Option C1 (Criterion III – compliance costs)

Option C1 would impose incremental costs estimated to be **\$35.62m** over 10 years in 2012-13 dollars¹¹⁷, as summarised in Table 15 of this RIS. The costs would be mainly attributable to the requirement for pain relief for all mulesing under the variation to proposed national standard S7.3. The incremental cost of the variation to proposed standard S7.3, would amount to an estimated **\$30.31m** in 2012-13 dollars (see Table 15). As shown in Table 14, the most impacted states with respect to all the standards would be WA, NSW and SA with an estimated incremental 10-year quantifiable cost of \$9.68m, \$9.44m and \$5.95m, respectively in 2012-13 dollars.

Table 15 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C1 by state and territory – 2012-13 dollars¹¹⁸

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	\$1,292,689	\$64,634	\$64,634	\$64,634	\$64,634	\$64,634	\$0	\$0	\$1,615,862
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$173,228
Pain relief all mulesing (Variation on proposed standard 7.3)	\$8,015,625	\$3,654,337	\$2,111,594	\$5,826,034	\$9,586,488	\$1,112,251	\$0	\$0	\$30,306,329
Total	\$9,442,721	\$3,844,794	\$2,183,332	\$5,950,278	\$9,677,229	\$1,184,217	\$9	\$120	\$32,275,028

Table 16 gives the average net quantifiable cost impact per sheep ranging from a cost savings of \$0.05 in the ACT to a cost of \$0.67 in WA.

Table 16 – Average net 10-year quantifiable cost impact per sheep as a result of the proposed standards under Option C1 by state and territory –2012-13 dollars¹¹⁹

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$11,054,640	\$3,370,184	\$2,233,567	\$5,643,889	\$9,408,217	\$1,269,122	\$9	-\$2,899	\$32,969,058
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.41	\$0.22	\$0.61	\$0.51	\$0.67	\$0.54	\$0.00	-\$0.05	\$0.45

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

¹¹⁷ Discounted at a rate of 7%

¹¹⁸ See Table A3.5 of Appendix 3 for source of estimates

¹¹⁹ See Table A3.6 of Appendix 3 for source of estimates

4.3.6 Option C2: (variation of proposed national standard S7.2)

Option C2 would involve restricting the mulesing age to less than 6 months of age and this provides a variation to proposed national standard S7.2 (which allows mulesing between 24hrs old and 12 months old). It would also make the proposed standard S7.3 - mulesing at 6 to 12 months old with pain relief, redundant. This proposal means the most likely outcome is that animals required to be mulesed would then be done before 6 months of age.

Unquantifiable incremental net benefits of Option C2 (Criterion I – animal welfare)

As with Option B, Option C2 would lead to improved animal welfare outcomes, with a detailed discussion of additional welfare benefits and their drivers provided in Part 4.3.1 of this RIS. However, in addition to Option B, Option C2 would restrict mulesing to lambs less than 6 months of age and would provide additional pain relief benefits for an estimated 30,000 lambs per annum (see Table 2 in this RIS). The majority of lambs affected by this additional welfare benefit would include those in NSW, WA and SA with an estimated 9,143, 8,419 and 6,199 lambs affected per annum, respectively, as shown in Table 2 in this RIS. This variation offers certainty and incremental management adjustment to industry compared to other potential proposals to further restrict mulesing by lowering the permissible age for the procedure. There is a risk to industry that this step could be perceived as inadequate progress towards calls for a total mulesing phase out as only 30,000 additional lambs would be affected over and above Option B. A total mulesing phase out has not been asked to be considered at this time because of the overall negative impacts on the welfare of a large proportion of the national sheep flock and consequential impacts on farm viability.

Quantifiable incremental net benefits of Option C2 (Criterion II – reduced regulatory burden)

Option C2 would result in the same level of reduced regulatory burden as Option B. The total reduction in regulatory burden under a variation of the proposed national standards S7.1 (removing requirement of formal training and accreditation for mulesing) and S6.4 (removing requirement of castration by veterinarian only in VIC), under Option C2 is estimated to be **\$2,66m** over 10 years in 2012-13 dollars.

Unquantifiable incremental net benefits of Option C2 (Criterion II – reduced regulatory burden)

Identical to Option B, Option C2 would be effective in promoting national consistency in relation to teeth grinding and trimming of sheep (S5.5). This would reduce the unquantifiable regulatory burden in relation to this matter for businesses operating across multiple jurisdictions and which currently have different approaches to these matters.

Quantifiable incremental net costs of Option C2 (Criterion III – compliance costs)

Option C2 would impose incremental costs estimated to be **\$6.89m** over 10 years in 2012-13 dollars¹²⁰, as summarised in Table 17 of this RIS. The costs would be mainly attributable to the:

¹²⁰ Discounted at a rate of 7%

- Restriction of mulesing to lambs less than 6 months of age under the variation to proposed national standard S.7.2 - with an estimated 10-year cost of \$1.58m in 2012-13 dollars (see Table 17); and
- Requirement for exercising tethered sheep under proposed national standard S5.7 - with an estimated 10-year cost of \$4.97m in 2012-13 dollars (see Table 17).

As shown in Table 17, the most impacted states would be NSW, WA, VIC and SA with an estimated 10-year incremental cost of \$4.55m, \$0.67m, \$0.59m, and \$0.58m, respectively in 2012-13 dollars.

Table 17 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C2 by state and territory – 2012-13 dollars¹²¹

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$173,228
Mulesing < 6 months only	\$480,127	\$252,136	\$42,469	\$325,537	\$442,100	\$33,013	\$0	\$0	\$1,575,383
Total	\$4,551,262	\$588,207	\$243,935	\$578,036	\$673,600	\$265,863	\$9	\$120	\$6,893,359

Table 18 gives the average net quantifiable cost impact per sheep ranging from a cost a savings of \$0.05 in the ACT to a cost of \$0.13 in NSW.

Table 18 – Range of average 10-year cost per sheep as a result of the proposed standards under Option C2 by state and territory – 2012-13 dollars¹²²

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$3,519,141	-\$32,017	\$164,443	\$143,392	\$263,829	\$189,884	\$9	-\$2,899	\$4,238,111
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.13	-\$0.00	\$0.05	\$0.01	\$0.02	\$0.08	\$0.00	-\$0.05	\$0.06

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

4.3.7 Option C4: (variation of proposed national standard S5.7)

Option C4 would involve banning tethering of sheep. This would be a variation to proposed national standard 5.7 (which requires the daily exercise of tethered sheep). This variation deals with the real welfare issue of tethering which is the deprivation of social interaction with other sheep. It is expected that the outcome of banning tethering would result in persons in charge creating suitable fenced areas for sheep or no longer grazing the sheep (see Appendix A3.3).

¹²¹ See Table A3.11 of Appendix 3 for source of estimates

¹²² See Table A3.12 of Appendix 3 for source of estimates

The value in this proposed standard for industry and Australia is the ability to clearly communicate that Australia does not allow this management system for the benefit of domestic and international markets. It removes this reputational risk and uncertainty for industry.

Unquantifiable incremental net benefits of Option C4 (Criterion I – animal welfare)

As with Option B, Option C4 would lead to improved animal welfare outcomes, with a detailed discussion of additional welfare benefits and their drivers provided in Part 4.3.1 of this RIS. However, Option C4 would involve an alternative to proposed Standard 5.7 whereby daily exercise of tethered sheep under Option B, would be replaced by a complete ban on tethering. This would involve approximately 125 animals (10% of the 1250 sheep that would have otherwise been tethered under Option B), as discussed in Part A2.2 of Appendix 2. Under Option C4, it assumed that of this 10% sheep, half (5%) would be fenced, and the remaining 5% would be no longer grazed. This would include 100 sheep in NSW and 5 in each of the remaining states of Vic, Qld, SA, WA and Tas. This option would provide slightly more welfare benefits as compared to the ‘base case’ than under Option B - with sheep free to express normal behaviours including socialisation with other animals. The remaining welfare benefits under Option C4 would be identical to Option B.

Quantifiable incremental net benefits of Option C4 (Criterion II – reduced regulatory burden)

Option C4 would result in the same level of reduced regulatory burden as Option B. The total reduction in regulatory burden under a variation of the proposed national standards S7.1 (removing requirement of formal training and accreditation for mulesing) and S6.4 (removing requirement of castration by veterinarian only in VIC), under Option C4 is estimated to be **\$2,66m** over 10 years in 2012-13 dollars.

Unquantifiable incremental net benefits of Option C4 (Criterion II – reduced regulatory burden)

Identical to Option B, Option C4 would be effective in promoting national consistency in relation to teeth grinding and trimming of sheep (S5.5). This would reduce the unquantifiable regulatory burden in relation to this matter for businesses operating across multiple jurisdictions and which currently have different approaches to these matters.

Quantifiable and unquantifiable incremental net costs of Option C4 (Criterion III – compliance costs)

Option C4 would impose incremental costs estimated to be **\$3.01m** over 10 years in 2012-13 dollars¹²³ (see Table 19). However, in addition to Option B, under Option C4 there would be an impact on the choice of farming families to keep sheep as pets (which a significant proportion do). Banning tethering means that there would be no way for individuals where fencing is not appropriate and exercise is no longer an alternative, to keep pet sheep from trampling lawns and gardens and therefore, they would be prevented from being able to enjoy the benefits of a unique type of pet ownership.

¹²³ Discounted at a rate of 7%

As shown in Table 19, the most impacted states would be NSW, VIC, SA and WA with an estimated 10-year incremental cost of \$2.25m, \$0.23m, \$0.17m, and \$0.13m, respectively in 2012-13 dollars.

Table 19 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C4 by state and territory – 2012-13 dollars¹²⁴

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
Variation to 5.7 (banning tethering)	\$2,116,067	\$105,803	\$105,803	\$105,803	\$105,803	\$105,803	\$0	\$0	\$2,645,084
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$180,899
Total	\$2,250,474	\$231,626	\$112,907	\$165,412	\$131,910	\$113,135	\$9	\$120	\$3,005,593

Table 20 gives the average net quantifiable cost impact per sheep ranging from a cost a savings of \$0.05 in the ACT to a cost of \$0.05 in NSW.

Table 20 – Range of average 10-year cost per sheep as a result of the proposed standards under Option C4 by state and territory –2012-13 dollars¹²⁵

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$1,218,354	-\$388,598	\$33,415	-\$269,231	-\$277,861	\$37,156	\$9	-\$2,899	\$350,345
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.05	-\$0.03	\$0.01	-\$0.02	-\$0.02	\$0.02	\$0.00	-\$0.05	\$0.00

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

4.3.8 Option C5: (variation of proposed national standard S8.1)

Option C5 would mandate pain relief for laparoscopic artificial insemination (LAI) and embryo transfer (ET). This provides a variation to proposed national standard S8.1 (which simply states that a person performing artificial breeding procedures on a sheep must not cause unreasonable pain, distress or injury to a sheep).

Whilst many ewes undergoing these procedures currently do receive pain relief, this standard sets an appropriate level of pain relief management that will contribute to the ongoing community acceptance of these specialised breeding procedures. ET requires an anaesthetic to be administered for sheep welfare and for effective restraint; and as this is an existing practice, ET does not receive further consideration here.

These artificial breeding procedures are valuable because they permit rapid genetic progress and the faster breeding of better sheep. The immediate value in this proposed standard for industry and Australia is the ability to clearly communicate that Australia does not allow these invasive procedures to be done without pain relief for the benefit of domestic and international markets. It removes this risk to Australia's international reputation; and also uncertainty for industry.

¹²⁴ See Table A3.18 of Appendix 3 for source of estimates

¹²⁵ See Table A3.19 of Appendix 3 for source of estimates

Unquantifiable incremental net benefits of Option C5 (Criterion I – animal welfare)

As with Option B, Option C5 would lead to improved animal welfare outcomes, with a detailed discussion of additional welfare benefits and their drivers provided in Part 4.3.1 of this RIS. However, in addition to Option B, Option C5 would result in pain relief benefits for an estimated 150,000 breeding ewes per annum currently going through LAI procedure without pain relief (see Table 10 in this RIS). The majority of lambs affected by this additional welfare benefit would include NSW, VIC, WA and SA with an estimated 55,302, 30,992, 29,893 and 21,998 breeding ewes affected per annum, respectively, as shown in Table 10 in this RIS.

Quantifiable incremental net benefits of Option C5 (Criterion II – reduced regulatory burden)

Option C5 would result in the same level of reduced regulatory burden as Option B. The total reduction in regulatory burden under a variation of the proposed national standards S7.1 and S6.4, under Option C5 is estimated to be **\$2,66m** over 10 years in 2012-13 dollars.

Unquantifiable incremental net benefits of Option C5 (Criterion II – reduced regulatory burden)

Identical to Option B, Option C5 would be effective in promoting national consistency in relation to pain relief for LAI and ET. This would reduce the unquantifiable regulatory burden in relation to this matter for businesses operating across multiple jurisdictions and which currently have different approaches to these matters.

Quantifiable incremental net costs of Option C5 (Criterion III – compliance costs)

Option C5 would impose incremental costs estimated to be **\$6.87m** over 10 years in 2012-13 dollars¹²⁶, as summarised in Table 21 of this RIS. The costs would be mainly attributable to:

- The requirement for pain relief for all LAI and ET under the variation to proposed national standard S.8.1 - with an estimated 10-year cost of **\$1.55m** in 2012-13 dollars; and
- The requirement for exercising tethered sheep under the proposed standard S5.7 – with an estimated 10-year cost of **\$4.97m** in 2012-13 dollars (see Table 21).

As shown in Table 21, the most impacted states would be NSW, VIC, WA and SA with an estimated 10-year incremental cost of \$4.64m, \$0.66m, \$0.54m, and \$0.48m, respectively, in 2012-13 dollars.

Table 21 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C5 by state and territory – 2012-13 dollars¹²⁷

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$180,899
Pain relief	\$569,917	\$319,388	\$72,579	\$226,701	\$308,066	\$48,122	\$10	\$1,062	\$1,545,844

¹²⁶ Discounted at a rate of 7%

¹²⁷ See Table A3.23 of Appendix 3 for source of estimates

Proposed standard for all LAI and ET	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total	\$4,641,052	\$655,459	\$274,044	\$479,199	\$539,566	\$280,972	\$19	\$1,182	\$6,871,492

Table 22 gives the average net cost impact per sheep ranging from a cost a savings of \$0.03 in the ACT to a cost of \$0.13 in NSW.

Table 22 – Range of average 10-year cost per sheep as a result of the proposed standards under Option C5 by state and territory –2012-13 dollars¹²⁸

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$3,608,932	\$35,235	\$194,552	\$44,555	\$129,795	\$204,993	\$19	-\$1,837	\$4,216,244
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.13	\$0.00	\$0.05	\$0.00	\$0.01	\$0.09	\$0.01	-\$0.03	\$0.06

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

4.3.9 Option C7: (omit proposed national standard S5.1b)

Option C7 would simply require that *a person must handle sheep in a reasonable manner* under proposed standard S5.1 and would omit proposed standard S5.1b, which lists various ways in which the manner of handling sheep would be considered unreasonable. Without S5.1b, the sheep handling practices that are regarded as unreasonable for the purposes of S5.1 would not be spelled out, leading to an expected lower level of compliance than under Option B. Moreover, some regulators have advised that they would regard Option C7 as a 'step backwards' in terms of animal welfare standards and inferior to existing codes of practice. On this basis, some jurisdictions may well be reluctant to implement such a standard.

Unquantifiable incremental net benefits of Option C7 (Criterion I – animal welfare)

Apart from sheep handling matters, Option C7 would lead to similar improved animal welfare outcomes as with Option B. A detailed discussion of additional welfare benefits and their drivers provided in Part 4.3.1 of this RIS. However due to the omission in the specification of unreasonable sheep handling practices, Option C7 would be expected to lead to a smaller improvement in animal welfare as a result of a likely lower level of compliance.

Quantifiable incremental net benefits of Option C7 (Criterion II – reduced regulatory burden)

Option C7 would result in the same level of reduced regulatory burden as Option B. The total reduction in regulatory burden under a variation of the proposed national standards S7.1 and S6.4, under Option C7 is estimated to be **\$2,66m** over 10 years in 2012-13 dollars.

Unquantifiable incremental net benefits of Option C7 (Criterion II – reduced regulatory burden)

¹²⁸ See Table A3.24 of Appendix 3 for source of estimates

Identical to Option B, Option C7 would be effective in promoting national consistency in relation to tail docking. This would reduce the unquantifiable regulatory burden in relation to this matter for businesses operating across multiple jurisdictions and which currently have different approaches to these matters.

Quantifiable incremental net costs of Option C7 (Criterion III – compliance costs)

Identical to Option B, Option C7 would impose quantifiable incremental costs, estimated to be **\$5.33m** over 10 years in 2012-13 dollars¹²⁹ (see Table 12).

4.4 Selection of preferred option

The incremental costs and benefits relative to the base case of Option A, Option B (the proposed national standards) and Options C1 to C7 are provided in Table 23. Options C1 to C7 were not combined into a single option during consultation phase.

There is no significant interdependency between the individual options. However, if options C1 and C2 are adopted (both relate to mulesing), there is not likely to be a reduction in the total number of sheep mulesed to comply with the new standards.

Comparing the costs and benefits against the base case is hindered by the inherent and unresolvable inability to quantify benefits to animal welfare.

The three evaluation criteria used were:

- I.** Animal welfare benefits
- II.** Reduction in regulatory burden; and
- III.** Net compliance costs to industry and government.

As shown in Table 23 - Options B and C7 would be likely to result in the same quantifiable costs and benefits as compared to the base case and a quantifiable estimated net incremental cost of **\$2.67m** over 10 years in 2012-13 dollars. However, C7 would be expected to result in slightly lower unquantifiable animal welfare benefits than Option B due to likely lower compliance with sheep handling standards.

Moreover, Option C1 is likely to provide for significant unquantifiable welfare benefits over and above Option B and other options C2 to C7 – as it would affect an estimated 4.86 million lambs each year and would provide pain relief for the very invasive mulesing procedure; albeit at a higher cost than Option B.

It is important to note the number of sheep alone does not reflect the severity of consequences; but rather it is the combination of:

- Number of animals affected (small or large);
- Duration of practice (one-off or ongoing); and
- Impact of animal husbandry procedure (primarily invasive or less-invasive).

¹²⁹ Discounted at a rate of 7%

Table 23: Incremental 10-year costs and benefits of Options A, B, C1, C2, C4, C5 and C7 relative to the base case – 2012-13 dollars (\$m)

Option	I. Incremental Animal welfare benefits (un-quantifiable)	Number of sheep affected under Criterion I	II. Reduction in regulatory burden (quantifiable)	II. Reduction in regulatory burden (un-quantifiable)	III. Incremental compliance costs to sheep farmers (quantifiable)	III. Incremental compliance costs to sheep farmers (un-quantifiable)	Incremental Quantifiable net cost
Option A (guidelines)	< B/C	A small undetermined % of 73.1m	\$0	< B/C	\$0	\$0	\$0
Option B (Proposed national standards)	> A	A larger undetermined % of 73.1m	\$2.66	> A	\$5.33	\$0	\$2.67
Option C1 (All mulesing with pain relief)	> B	As with Option B + 4.86m	\$2.66	= B	\$35.62	\$0	\$32.97
Option C2 (Restriction of mulesing to less than 6 months of age)	> B	As with Option B + 30k	\$2.66	= B	\$6.89	\$0	\$4.24
Option C4 (Banning tethering)	> B	As with Option B + 125 sheep	\$2.66	= B	\$3.01	> B	\$0.35
Option C5 (All LAI and ET with pain relief)	> B	As with Option B + 150k	\$2.66	= B	\$6.87	\$0	\$4.22
Option C7 (Omit proposed standard S5.1b)	< B	As with Option B	\$2.66	= B	\$5.33	\$0	\$2.67

A sensitivity analysis at the 3% discount rate and 10% discount rate reveals no change in the ranking of quantifiable costs between the Options, as shown in Table 24.

Table 24: Sensitivity analysis for ranking of costs at the 7%, 3% and 10% discount rate – 2012-13 dollars (\$m)

Ranking of costs	PV 7%	PV 3%	PV 10%
Option A	0.00	0.00	0.00
Option C4	3.01	3.65	2.63
Options B and C7	5.33	6.59	4.60
Option C5	6.87	8.54	5.91
Option C2	6.89	8.57	5.93
Option C1	35.62	44.82	30.38

Table 25 shows the incremental 10-year costs and benefits of options C1 to C7 relative to Option B.

Table 25: Incremental costs and benefits of Options C1 to C7 relative to Option B – 2012-13 dollars (\$m)

Option	I. Incremental Animal welfare benefits (unquantifiable)	II. Reduction in regulatory burden (quantifiable)	II. Reduction in regulatory burden (unquantifiable)	III. Incremental compliance costs to sheep farmers (quantifiable and unquantifiable)	Incremental Quantifiable net cost
Option C1 (All mulesing with pain relief)	> B	\$0	0	\$30.30	\$30.30
Option C2 (Restriction of mulesing to less than 6 months of age)	> B	\$0	0	\$1.58	\$1.58
Option C4 (Banning tethering)	> B	\$0	0	-\$2.32 (quantifiable) > B (unquantifiable)	-\$2.32
Option C5 (All LAI and ET with pain relief)	> B	\$0	0	\$1.55	\$1.55
Option C7 (Omit proposed standard S5.1b)	< B	\$0	0	\$0	\$0

Finally, Table 26 shows the incremental net cost impact of Options A, B, C1, C2, C4, C5 and C7 per sheep. Options B and C7 would potentially result in an overall net cost per sheep of \$0.04 and Options C2 and C5 would result in a net cost per sheep of \$0.06. Options C1 and C4 would potentially result in an estimated \$0.45 and \$0.005 net cost per sheep, respectively.

Table 26: Incremental average net cost per sheep of Options A, B, C1, C2, C4, C5 and C7, 2012-13 dollars

Option	Incremental net cost per sheep (Australia)
Option A	\$0.00
Option B	\$0.04
Option C1	\$0.45
Option C2	\$0.06
Option C4	\$0.005
Option C5	\$0.06
Option C7	\$0.04

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

The SRG meeting on the 12th of December 2013 considered that the net incremental *welfare benefits* over Option B under Option C1 for 4.86 million sheep per annum did not justify the additional compliance costs under Option C1 over Option B (i.e. \$30.3m over 10 years in 2012-13 dollars – see Table 23).

The SRG also considered that the net incremental welfare benefits over Option B under Options C2 (for an additional 30,000 sheep per annum) and C5 (for an additional 150,000 sheep per annum) did not justify the additional compliance costs under Option C2 and Option C5 (i.e. \$1.57m and \$1.55m over 10 years in 2012-13 dollars, respectively – see Table 23).

Option C4, banning permanent tethering, would eliminate the need for daily exercise of tethered sheep as required under Option B. This has been estimated at about \$4.97m over 10 years in 2012-13 dollars as a result of the costs saved from not having to exercise tethered sheep. Alternatively, Option C4 would entail fencing and disposing of 45% and 55% of current permanently tethered sheep, respectively, and is estimated to be a one off cost of \$2.65m in 2012-13 present value dollars. Therefore, the incremental cost of the variation of proposed Standard 5.7 under Option C4 is lower than the incremental cost of proposed Standard 5.7 under Option B by 2.32m in 2012-13

dollars (see Table A3.20 of Appendix 3). In addition, while banning permanent tethering would affect a small number of sheep (i.e. approximately 125 sheep as shown in Table A2.4 of Appendix 2), it would be expected to provide slightly more welfare benefits compared to the Option B.

As indicated in Table 25, Option C4 is expected to have greater animal welfare (unquantifiable) benefits than Option B and incremental (quantifiable) compliance costs to sheep farmers less than Option B. However, under Option C4 there would be an unquantifiable impact on the choice of individuals to keep sheep in a house paddock as pets (which a small percentage of farm families do). Banning tethering may make it difficult for individuals to enjoy the benefits of sheep as pets.

While it is up to Ministers to decide on the options presented in this RIS (or any other option), the analysis presented in this RIS suggests that Option C4 is the preferred combination of options that generate the greatest net benefit for the community. It should be also noted that the SRG considered Option B as a preferred option, without adopting any of the variations offered under Option C.

To the extent that the majority of sheep farms are defined as small businesses (i.e. have less than 20 FTE staff) – Option C4 is not seen as disproportionately impacting on small business. Furthermore, the additional cost per sheep under Option C4 is likely to be approximately \$0.005 per sheep (based on a total flock of 73.1 million sheep and a total net 10-year cost of this option of \$0.35m in 2012-13 dollars (see Table 23). Given that this would represent only 0.01% of the replacement cost of a sheep, which is estimated to be \$80 - Option C4 would not be seen to be a barrier to entry or a restriction of competition, if applied uniformly by the states and territories. The effect on retail meat prices would be negligible.

5.0 Implementation issues

The intent of preparing the proposed national standards is to replace the existing MCOP and current jurisdictional standards, if and when adopted by the AGMIN. The method of implementation is a matter for each jurisdiction according to the provisions of their own enabling legislation, as listed in Appendix 4 to this RIS.

All jurisdictions can make regulations to require compliance with the proposed standards, and all regulations except those in New South Wales can adopt the standards by reference to the standards document. (New South Wales would have to draft full regulations using similar wordings as the standards). The Australian Capital Territory, the Northern Territory, South Australia and Victoria and Western Australia can adopt standards as amended from time to time; whereas Queensland and Tasmania can only adopt standards as at a particular date (that is, if the standards are amended, the regulations would have to be amended accordingly).

Jurisdictions are unlikely to adopt particular standards that are inconsistent with their primary legislation; although these exceptions would apply in only a small number of cases. For instance, DEPI Victoria supported Variation C5 (pain relief for laparoscopic LAI and ET) as it is already required in Victoria. Tasmania also supported Variation C5 and noted that it is currently a vet-only procedure in Tasmania. The Queensland Government (DAFF) supported Variation C5 because laparoscopic artificial insemination and embryo transfer are ‘acts of veterinary science’ in QLD, and veterinarians are likely to use pain relief.

As discussed in Part 4.3.2 of this RIS, the cost of making the necessary regulations to adopt the standards is likely to be relatively small and in any case, is part of the normal role of government. Based on advice received from jurisdictions on the far more detailed Land Transport Standards¹³⁰, a reasonable assumption has been made that there will be negligible incremental costs in enforcing the proposed standards compared to the existing code under the base case.

The effectiveness of the proposed standards will be evaluated when the standards are next reviewed. Indicators will include the extent to which the standards have been:

- Officially adopted and implemented by the various government jurisdictions;
- Adopted as policy by the sheep industry associations;
- Complied with by sheep farmers, their employees and contractors; and
- Accepted by the Australian community.

¹³⁰ Tim Harding & Associates, 2008.

6.0 Conclusions and findings

The key points of the RIS were:

1. The main problems underlying the development of the proposed national standards are those relating to:
 - *Risks to the welfare of sheep* due to deficiencies in the existing MCOP for the welfare of sheep; and to a lesser extent
 - *Uncertainty for industry* due to a lack of clear and verifiable standards; and
 - *Excess regulatory burden* arising from a lack of national consistency and unnecessary standards;
2. The mulesing procedure and associated welfare impacts are of most concern in this RIS; however other painful husbandry procedures discussed include tail docking, castration and laparoscopic artificial insemination (LAI). The number of sheep that could be affected by current poor practices in regards to mulesing, tail docking and castration are potentially significant, however, the extent of such practices is currently unknown..
3. In relation to the proposed standards and feasible alternatives the following overarching policy objective is identified:

To minimise risks to sheep welfare and to reduce regulatory burden in a way that is practical for implementation and industry compliance.

4. In terms of the policy development process and consultation to date, a number of alternative positions and views expressed by governments, industry and animal welfare organisations have been considered. A list was prioritised and narrowed by the Animal Welfare Committee comprising feasible options, and included variations that were considered controversial but that might provide further benefits in animal welfare.
5. The Options and Variations evaluated in terms of the indicative costs and benefits were:
 - **Option A:** converting the proposed national standards as currently drafted into national voluntary guidelines (the minimum intervention option);
 - **Option B:** the proposed national standards as currently drafted with the intention of them being made mandatory;
 - **Option C:** the proposed mandatory national standards as currently drafted with one or more of the following variations (retaining the earlier numberings to avoid confusion):
 - *Option C1: All mulesing with pain relief*
 - *Option C2: Restrict mulesing age to less than 6 months of age*
 - *Option C4: Tethering ban*
 - *Option C5: Mandate pain relief for laparoscopic LAI and ET*
 - *Option C7: Omit proposed standard S5.1b (list of unreasonable sheep handling practices).*

6. Comparing the costs and benefits against the ‘base case’ is hindered by the inherent and unresolvable inability to quantify benefits to animal welfare. This is particularly important for mulesing, tail docking and castration procedures, which may affect a large number of sheep. The three evaluation criteria used were:

- I. Animal welfare benefits;
- II. Reduction in regulatory burden; and
- III. Net compliance costs to industry and government

7. The likely animal welfare benefits of the proposed national standards (Option B and options C1 to C7), whilst unquantifiable, are all likely to produce significant welfare improvements over the base case and Option A (voluntary guidelines in lieu of mandatory standards).
8. As shown in Table 23 - Options B and C7 would be likely to result in the same quantifiable costs and benefits as compared to the base case and a quantifiable estimated net incremental cost of **\$2.67m** over 10 years in 2012-13 dollars. However, C7 is likely to result in slightly lower unquantifiable animal welfare benefits than Option B due to lower compliance with sheep handling standards. Option C4 would potentially result in the lowest quantifiable net cost of \$0.35m over 10-years, however there would be an unquantifiable impact on the choice of farming families to keep sheep in the house paddock as pets (which a small percentage of families do).

Table 23: Incremental 10-year costs and benefits of Options A, B, C1, C2, C4, C5 and C7 relative to the base case – 2012-13 dollars (\$m)

Option	I. Incremental Animal welfare benefits (un-quantifiable)	Number of sheep affected under Criterion I	II. Reduction in regulatory burden (quantifiable)	II. Reduction in regulatory burden (un-quantifiable)	III. Incremental compliance costs to sheep farmers (quantifiable)	III. Incremental compliance costs to sheep farmers (un-quantifiable)	Incremental Quantifiable net cost
Option A (guidelines)	< B	A small undetermined % of 73.1m	\$0	< B	\$0	\$0	\$0
Option B (Proposed national standards)	> A	A larger undetermined % of 73.1m	\$2.66	> A	\$5.33	\$0	\$2.67
Option C1 (All mulesing with pain relief)	> B	As with Option B + 4.86m	\$2.66	= B	\$35.62	\$0	\$32.97
Option C2 (Restriction of mulesing to less than 6 months of age)	> B	As with Option B + 30k	\$2.66	= B	\$6.89	\$0	\$4.24
Option C4 (Banning tethering)	> B	As with Option B +125 sheep	\$2.66	= B	\$3.01	> B	\$0.35
Option C5 (All LAI and ET with pain relief)	> B	As with Option B +150k	\$2.66	= B	\$6.87	\$0	\$4.22
Option C7 (Omit proposed standard S5.1b)	< B	As with Option B	\$2.66	= B	\$5.33	\$0	\$2.67

9. Option C1 would be likely to provide significant unquantifiable welfare benefits over and above Option B and other options C2 to C7 – as it would affect an estimated 4.86 million lambs each year and would provide pain relief for the very invasive mulesing procedure. On the other hand, Option C1 would entail the highest quantifiable costs (\$35.62 million over 10 years) of all the alternatives.
10. The SRG meeting on the 12th of December 2013 considered that the net incremental *welfare benefits* over Option B under Option C1 for 4.86 million sheep per annum did not justify the additional compliance costs under Option C1 over Option B (i.e. \$30.3m over 10 years in 2012-13 dollars – see Table 23).
11. The SRG also considered that the net incremental welfare benefits over Option B under Options C2 (for an additional 30,000 sheep per annum) and C5 (for an additional 150,000 sheep per annum) did not justify the additional compliance costs under Option C2 and Option C5 (i.e. \$1.57m and \$1.55m over 10 years in 2012-13 dollars, respectively – see Table 23).
12. Option C4, banning permanent tethering, would eliminate the need for daily exercise of tethered sheep as required under Option B. Consequently, the incremental cost of the variation of proposed Standard 5.7 under Option C4 would be lower than the incremental cost of proposed Standard 5.7 under Option B by 2.32m in 2012-13 dollars (see Table A3.20 of Appendix 3). In addition, while banning permanent tethering would affect a small number of sheep (i.e. approximately 125 sheep as shown in Table A2.4 of Appendix 2), it would be expected to provide slightly more welfare benefits compared to the Option B.
13. As indicated in Table 25, Option C4 is expected to have greater animal welfare (unquantifiable) benefits than Option B and incremental (quantifiable) compliance costs to sheep farmers less than Option B. However, under Option C4 there would be an unquantifiable impact on the choice of individuals to keep sheep in a house paddock as pets (which a small percentage of farm families do). Banning tethering may make it difficult for individuals to enjoy the benefits of sheep as pets.
14. While it is up to Ministers to decide on the options presented in this RIS (or any other option), the analysis presented in this RIS suggests that Option C4 is the preferred combination of options that generate the greatest net benefit for the community. It should be also noted that the SRG considered Option B as a preferred option, without adopting any of the variations offered under Option C.

Glossary of terms and acronyms

ABS:	Australian Bureau of Statistics.
ABARE:	Australian Bureau of Agricultural and Resource Economics.
AHA:	Animal Health Australia.
AGMIN	Agriculture Ministers Forum
Animal welfare:	The state of an animal and how well it is coping with the conditions in which it lives.
AVA:	Australian Veterinary Association.
Base case:	The situation that would exist if the proposed standards were not adopted.
Bleeding out:	Loss of blood caused by cutting the major blood vessels, usually in the neck or at the base of the heart via the thoracic inlet.
Blunt trauma:	A single blow to the forehead causing immediate loss of consciousness.
Castration:	Removal or disruption of the function of the testes by excision, or by constriction and/or crushing of testicular blood supply (rubber ring, tension band or burdizzo clamp).
Crutching:	Removal of wool from the hindquarters and tail of a sheep.
COAG:	Council of Australian Governments.
DA:	Australian Government Department of Agriculture.
Economic efficiency:	When an output of goods and services is produced making the most efficient use of scarce resources and when that output best meets the needs and wants and consumers and is priced at a price that fairly reflects the value of resources used up in production.
Electro-immobilisation:	The use of pulsed, low-frequency electrical current to restrain an animal. The process produces tetanic contractions of skeletal muscles and therefore voluntary movement is not possible. The process does not produce pain relief.
ET	Embryo transfer
EU:	European Union.
Externality:	The cost or benefit related to a good or service that accrues to persons other than the buyer or the seller of that good or service.
Guidelines:	The recommended practices to achieve desirable animal welfare outcomes. The guidelines complement the standards. They should be used as guidance. Guidelines use the word 'should'. Non-compliance with one or more guidelines will not in itself constitute an offence under law. Compare with <i>Standards</i> .
Heat stress:	When the response by animals to hot conditions above their thermo-neutral limit (heat load) exceeds the ability of their behavioural, physiological or psychological coping mechanisms.
Humane destruction:	The activity that results in immediate loss of consciousness and then death of the animal. The primary consideration is to prevent the animal from suffering further pain or distress.
LAI	Laparoscopic artificial insemination
Lamb marking:	A set of procedures commonly done at the same time. May include earmarking, ear tagging, vaccination, drenching, tail docking and

	castration of lambs.
Market:	An area of close competition between firms, or the field of rivalry in which firms operate.
Market failure:	The situation which occurs when freely functioning markets, operating without government intervention, fail to deliver an efficient or optimal allocation of resources.
Mulesing:	The removal of skin from the breech and/or tail of a sheep using mulesing shears.
OIE:	World Organisation for Animal Health.
Owner:	A person or company who owns livestock.
Pain relief:	The administration of drugs that reduce the intensity and duration of a pain response.
Person in charge:	The person who is responsible for the welfare of the livestock at a particular time. Responsibility for duty of care for livestock welfare may extend to the person's employer.
PIMC:	Primary Industries Ministerial Council, later known as the Standing Council on Primary Industries (SCoPI), which ceased in December 2013.
Prescribed:	Specified by regulations made under an Act.
Pizzle dropping:	A surgical procedure performed on wether lambs and weaners where the skin between the prepuce and the abdomen is severed to allow the prepuce to hang below the wool on the belly region.
Producer:	A farmer of livestock.
Public good:	A good or service that will not be produced in private markets because there is no way for the producer to keep those who do not pay for the good or service from using it.
Restriction of competition:	Something that prevents firms in a market or potential entrants to a market from undertaking the process of economic rivalry.
Risk assessment:	A logical and systematic process of establishing the context, identifying, analysing, evaluating, developing treatment strategies for, documenting and communicating risks associated with an activity, function or process.
Risk management:	A logical and systematic process of conducting a risk assessment, treating, monitoring and communicating risks associated with any activity, function or process in a way that will enable organisations to minimise losses and maximise opportunities.
RIS:	Regulation Impact Statement.
QA:	Quality Assurance.
RSPCA:	Royal Society for the Prevention of Cruelty to Animals.
SCoPI:	The former Standing Council on Primary Industries (SCoPI) which ceased in December 2013..
Sheep:	<i>Ovis aries</i> and other members of the genus <i>Ovis</i> .
Standards:	The acceptable animal welfare requirements designated in the proposed standards document. The requirements that must be met under law for livestock welfare purposes. The standards are intended to be clear, essential and verifiable statements; however, not all issues are able to be well defined by scientific research or are able to be quantified. Standards use the word 'must'.
Stress:	A response by animals that activates their behavioural,

physiological or psychological coping mechanisms.

Tail docking: The removal of a portion of a sheep's tail.

Weaning: Liquid feed is no longer provided to the lamb.

Wether: A castrated male sheep.

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Appendices

1. Hourly Time cost for farm workers
2. Estimates of quantifiable costs and benefits of the proposed national standards (Option B)
3. Estimates of quantifiable costs of options C1 to C7
4. Details of relevant federal, state and territory legislation
5. List of proposed standards with negligible costs incremental to the base case
6. Number of sheep annually affected by welfare standards under Option B by State and territory
7. Complete list of public consultation questions.

Appendix 1 - Hourly time costs for farm workers

A primary resource requirement of activities undertaken in relation to sheep farming is labour time. The purpose of this appendix is to capture the dollar cost per hour of this resource and will be used in later appendices as relevant to estimate impacts of various standards with respect to time requirements on stakeholders.

A1.1 – Estimation of hourly time cost for farm workers

It is understood that the actual cost of time may vary between businesses, between individuals in a business and from day to day. However due to lack of specific data, time costs are estimated by taking average weekly earnings for ‘Farm, forestry and garden workers’¹³¹, as shown in Table 1 column (a). Average weekly earnings are then annualised and converted to May 2012 values using an 8.35% growth in average wages between 2010 and 2012¹³² in column (c).

Table A1.1 – Estimated hourly charge out rate for farm workers by State and Territory – 2012-13¹³³

Jurisdiction	May 2010 Average weekly earnings (a)	May 2010 Annual earnings (b) = (a) x 52	May 2012 annual earnings (c) = (b) + [(b) *8.35%]	Projected on-cost multiplier (d)	Overhead cost multiplier (e)	No. weeks worked per annum (f)	No. hours worked per week (g)	Hrly Rate (h) = (c)/{(f)* (g)}*(d)* (e) ¹³⁴
NSW	\$843	\$43,836	\$47,496	1.19	1.5	44	38	\$51
VIC	\$971	\$50,492	\$54,708	1.17	1.5	44	38	\$57
QLD	\$851	\$44,252	\$47,947	1.15	1.5	44	38	\$49
SA	\$817	\$42,484	\$46,031	1.18	1.5	44	38	\$49
WA	\$922	\$47,944	\$51,947	1.18	1.5	44	38	\$55
TAS	\$1,091	\$56,732	\$61,469	1.18	1.5	44	38	\$65
NT	\$544	\$28,288	\$30,650	1.21	1.5	44	38	\$33
ACT	\$764	\$39,728	\$43,045	1.2	1.5	44	38	\$46

The projected on-cost multiplier in column (d) represents salary on-costs of superannuation, payroll tax, Fringe Benefits Tax (FBT) and workers compensation by state and territory. Leave loading is already incorporated in annual earnings in column (c). Each of the projected on-cost multipliers reflects the ratio of salary on-costs to total earnings within the state and territory as noted in 2002-03¹³⁵. Projection is based on the annual increase of this ratio between 1993-94 and 2002-03, which varies for each of the states and territories. Other salary related on-costs are considered in column (f) – the number of weeks worked per annum (44), which takes account of an average of two weeks of sick leave and two weeks of public holidays plus four weeks of annual leave. The 38-hour working week [column (g)], is based on the guarantee of maximum ordinary hours in the Australian Government Workplace Relations Act.

The overhead cost multiplier in column (e) incorporates non-salary related costs such as a vehicle and computer. This multiplier is based on a guidance note from the Victorian Competition and Efficiency commission, which states,

¹³¹ ABS (2011) – Employee Earnings and Hours, Australia, Cat. 6306.0, Table 1a, Average weekly cash earnings and hours paid for, full-time non-managerial adult employees, Australia–Detailed occupation (ANZSCO)

¹³² ABS (2012) – Average Weekly Earnings, Australia, Cat. 6302.0

¹³³ All figures have been rounded to whole numbers for ease of presentation

¹³⁴ Rounded to the nearest whole number.

¹³⁵ ABS (2003) – Labour Costs, Australia 2002-03, Table 1a. Major Labour Costs, State/Territory, Cat. 6348.0.55.001

The Australian Vice-Chancellor's Committee guidance to universities on bidding for research funding suggests multipliers of 1.52 for on-costs and 1.4 for non-laboratory infrastructure costs (excluding other direct, non-salary costs). This suggests that an overhead multiplier of at least 1.5 may be appropriate.¹³⁶

The hourly charge out rate is then calculated by dividing annual earnings by the product of the number of weeks worked and hours per week and then multiplying this by the overhead cost and on-cost multipliers:

$$\text{Hourly charge out rate} = \frac{\text{annual earnings}}{(\text{working weeks} \times \text{hours per week}) \times \text{on-cost multiplier} \times \text{overhead cost multiplier}}$$

¹³⁶Victorian Competition and Efficiency Commission 2006, *Guidance Note on Suggested Default Methodology and Values for Staff Time in BIA/RIS Analysis*, Melbourne, p.3.

Appendix 2 – Estimates of Quantifiable costs and savings (benefits) of the proposed standards – Option B

The purpose of this Appendix is to establish the quantifiable costs and benefits of the proposed Australian Animal Welfare Standards and Guidelines - Sheep ('the proposed standards'). This includes only those proposed standards with estimated costs that are incremental to the base case. That is, proposed standards with costs assessed to be not greater than the base case are not estimated here. Moreover, jurisdictions have proposed no incremental allocation of resources towards enforcement and, therefore, no additional cost in relation to enforcement with regards to the proposed standards is identified.

A2.1 proposed standard 5.2 – Muzzling of dogs

According to proposed standard 5.4, a person in charge of a dog that habitually bites sheep must muzzle the dog while working sheep. The number of dogs that bite is assumed as 1 per establishment (on average) involved in sheep farming¹³⁷. The number of sheep farms per state and territory is summarised in Table A2.1 and is estimated to be around 43,828 across Australia.

Table A2.1 –Population statistics with respect to sheep farming by state and territory - 2010-11

Jurisdiction	No. farms [^] (i)	Employees (j) = (i)/43,828*2 3,352 ^{^^}	Sheep numbers [^] (k)	Breeding ewes 1 year and over [^] (l)	Lamb numbers [^] (m)
NSW	16,416	8,747	26,824,697	15,418,723	12,208,426
VIC	10,970	5,845	15,212,015	8,640,841	7,107,956
QLD	1,819	969	3,653,239	1,963,563	1,196,502
SA	6,813	3,630	11,008,541	6,133,230	5,111,474
WA	6,223	3,316	13,999,854	8,334,526	6,546,000
TAS	1,552	827	2,344,469	1,301,896	1,097,709
NT	3	2	1,855	269	-
ACT	32	17	54,092	28,733	21,197
AUSTRALIA	43,828	23,352	73,098,762	41,821,781	33,289,264

[^] Source: ABS (2012) – *Agricultural Commodities by State & Territory*

^{^^} Source: <http://www.ibisworld.com.au/industry/default.aspx?indid=16> (accessed 13 December 2012)

Furthermore, it is assumed for the purpose of estimation that the proportion of dogs currently muzzled either because they are prone to biting or because of market forces¹³⁸, is currently 95%. Incremental costs are assumed to be around \$30¹³⁹ per muzzle per dog. Also muzzles are assumed to be purchased only once and reused from dog to dog. However, this may be an underestimate, as some sheep dogs may need to have their muzzles replaced over their lifetimes.

As shown in Table A2.2, the one-off cost of muzzling dogs under proposed standard 5.2, is estimated to be approximately **\$65,742** in 2014-15 or **\$57,422** in 2012-13 present value dollars.

¹³⁷ On advice from AHA

¹³⁸ It is in the interest of a farmer to ensure that the hides of sheep are not marked, as this would reduce the future sale value of a lamb/sheep.

¹³⁹ Online price survey for durable wire muzzles suitable for Australian sheep dogs - prices range from \$20 to \$40 - based on size - assume average cost (see http://www.myshopping.com.au/ZM--717820982_Pet_Supplies)

Table A2.2 – One-off incremental cost of muzzles for sheep dogs as required under standard 5.2 – 2012-13 dollars

Jurisdiction	No. sheep dogs affected (i)	% not muzzled (n)=(i)*5%	Muzzle cost per dog (o)	One-off cost (p)= (o)*(n)
NSW	16,416	821	\$30	\$24,624
VIC	10,970	549	\$30	\$16,455
QLD	1,819	91	\$30	\$2,729
SA	6,813	341	\$30	\$10,220
WA	6,223	311	\$30	\$9,335
TAS	1,552	78	\$30	\$2,328
NT	3	0	\$30	\$5
ACT	32	2	\$30	\$48
Australia	43,828	2191	\$30	\$65,742
<i>Present value 7% discount rate</i>				\$57,422
3% discount rate				\$61,968
10% discount rate				\$54,332

A2.2 proposed standard 5.7 – Exercise of tethered sheep

According to proposed standard 5.7, a person in charge must ensure sheep that are tethered are able to exercise daily. The main resource cost of this standard would be the time required to ensure that exercising is undertaken daily for sheep. Hourly charge out rates for each state and territory are established in Appendix 1 (see column (h) in Table A1.1). Moreover, for the purpose of estimation, the amount of time required per day to exercise permanently tethered sheep would be 10 minutes per animal, even if the exercise is off-leash as some oversight would be required to prevent damage to house paddocks. Based on advice from AWC the estimated number of current permanently tethered sheep by state or territory is summarised in Table A2.3. AHA estimates that of the sheep that are currently permanently tethered: 10% are likely to receive exercise; 40% are likely to be fenced; and 50% of sheep will no longer be grazed as shown in Table A2.3. The rationale for these estimates is as follows – daily exercising is onerous and many farming families would be likely choose less costly alternatives such as fencing or disposal of the sheep. Sheep are a smaller grazing unit (one cow generally equals 8 sheep DSE = dry sheep equivalent) and can be effectively fenced into small areas, i.e. a small area is possible to sustainably graze a sheep.¹⁴⁰

Table A2.3 – Number of current permanently tethered sheep and distribution of actions in response to proposed Standard 5.7 – exercise of tethered sheep

Jurisdiction	No. current permanently tethered sheep	No. current permanently tethered sheep that would receive exercise 10%	No. current permanently tethered sheep that would be fenced 40%	No. current permanently tethered sheep that would no longer be grazed 50%
NSW	1,000	100	400	500
VIC	50	5	20	25
QLD	50	5	20	25
SA	50	5	20	25
WA	50	5	20	25
TAS	50	5	20	25

¹⁴⁰ <http://www.depi.vic.gov.au/agriculture-and-food/farm-management/pastures/phosphorus-sheep-and-beef>

NT	0	0	0	0
ACT	0	0	0	0
Australia	1250	125	500	625

As shown in Table A2.4, the 10-year cost of exercising 10% of current permanently tethered sheep under proposed standard 5.7 is estimated to be approximately \$3.92m or \$2.58m in 2012-13 present value dollars.

Table A2.4 – 10-year incremental cost of exercising 10% of current permanently tethered sheep under standard 5.7 –2012-13 dollars

Jurisdiction	10% of current permanently tethered sheep (q)	Hourly charge out rates (h) ¹⁴¹	Annual cost of exercise (r) = (q)*(h)*0.167hrs*365 days	10-year cost (s) = (r)*10
NSW	100	\$51	\$308,463	\$3,084,632
VIC	5	\$57	\$17,466	\$174,664
QLD	5	\$49	\$15,046	\$150,462
SA	5	\$49	\$14,822	\$148,219
WA	5	\$55	\$16,727	\$167,268
TAS	5	\$65	\$19,793	\$197,927
NT	-	\$33	\$0	\$0
ACT	-	\$46	\$0	\$0
Australia	125		\$392,317	\$3,923,172
Present value 7% discount rate				\$2,575,207
3% discount rate				\$3,249,073
10% discount rate				\$2,191,472

Alternatively, the person in charge may decide to avoid the cost of exercising current permanently tethered sheep in about 40% of cases (see Table A2.3A) by erecting a fence and providing a companion sheep to allow for the better management of untethered sheep. The cost of fencing is estimated using the following assumptions:

- 8 sheep per hectare or 0.25 hectare for every 2 sheep;
- 0.25 hectare is 2,500 square metres or 200 metres of fencing;
- One-off standard sheep fence cost of \$7 per metre including labour and materials¹⁴²;
- One-off purchase cost of sheep of \$80.

For 40% of current permanently tethered sheep there would be a one-off cost of \$1,480 incurred in the first year of the proposed standard.

$$\text{Cost of sheep } (\$80) + \text{cost of fence } (200 \text{ metres} \times \$7 \text{ per metre}) = \$1,480$$

As shown in Table A2.5, the 10-year cost of providing for fencing and companion sheep for 40% of current permanently tethered sheep under proposed standard 5.7 is estimated to be approximately \$0.74m or \$0.65m in 2012-13 present value dollars.

Table A2.5 – 10-year incremental cost of fencing and providing companion sheep for 40% of current permanently tethered sheep under standard 5.7 –2012-13 dollars

¹⁴¹ See Table A1.1 for the source of estimates

¹⁴² http://www.weeklytimesnow.com.au/article/2011/01/31/289045_on-farm.html (accessed 2 January 2013)

Jurisdiction	40% of currently permanently tethered sheep (q')	10-year one-off cost (r') = (q')*\$1,480
NSW	400	\$592,000
VIC	20	\$29,600
QLD	20	\$29,600
SA	20	\$29,600
WA	20	\$29,600
TAS	20	\$29,600
NT	-	\$0
ACT	-	\$0
Australia	500	\$740,000
Present value 7% discount rate		\$646,345
3% discount rate		\$697,521
10% discount rate		\$611,570

Disposing of sheep does not consider their sentimental value to the person in charge.

As shown in Table A2.6, the 10-year quantifiable cost (not including loss in sentimental value) of getting rid of 50% of current tethered sheep under proposed standard 5.7 is estimated to be approximately \$2.67m or *\$1.74m* in 2012-13 present value dollars.

Table A2.6 – 10-year incremental cost of getting rid of 50% of current permanently tethered sheep under standard 5.7 –2012-13 dollars

Jurisdiction	50% of current permanently tethered sheep (q'')	Lawn mowing cost for average size law (h')	Annual cost of lawn mowing (r'') = (q'')*(h')*17	10-year cost (s') = (r'')*10
NSW	500	\$25	\$212,500	\$2,125,000
VIC	25	\$25	\$10,625	\$106,250
QLD	25	\$25	\$10,625	\$106,250
SA	25	\$25	\$10,625	\$106,250
WA	25	\$25	\$10,625	\$106,250
TAS	25	\$25	\$10,625	\$106,250
NT	-	\$25	\$0	\$0
ACT	-	\$25	\$0	\$0
Australia	625		\$265,625	\$2,656,250
Present value 7% discount rate				\$1,743,588
3% discount rate				\$2,199,840
10% discount rate				\$1,483,773

Table A2.7, summarises the 10-year quantifiable cost (not including loss in sentimental value) of exercising, fencing and disposing of 10%, 40% and 50% of current permanently tethered sheep, respectively, under proposed standard 5.7 and is estimated to be approximately **\$7.32m** or ***\$4.97m*** in 2012-13 present value dollars.

Table A2.7 – 10-year quantifiable incremental cost of exercise requirement under proposed standard 5.7 –2012-13 dollars

Jurisdiction	Annual cost of exercise for 10% of current permanently tethered sheep	One-off cost of fencing and companion sheep for 40% of current permanently tethered sheep	Annual cost of disposing 50% of current permanently tethered sheep and mowing	10-year cost
NSW	\$308,463	\$592,000	\$212,500	\$5,801,632
VIC	\$17,466	\$29,600	\$10,625	\$310,514
QLD	\$15,046	\$29,600	\$10,625	\$286,312
SA	\$14,822	\$29,600	\$10,625	\$284,069
WA	\$16,727	\$29,600	\$10,625	\$303,118
TAS	\$19,793	\$29,600	\$10,625	\$333,777
NT	\$0	\$0	\$0	\$0
ACT	\$0	\$0	\$0	\$0
Australia	\$392,317	\$740,000	\$265,625	\$7,319,422
Present value 7% discount rate				\$4,965,140
3% discount rate				\$6,146,434
10% discount rate				\$4,286,816

A2.3 Proposed standard 6.1 – On-the job training requirement

According to proposed standard 6.1, a person performing tail docking or castration must have the relevant knowledge, experience and skills or be under the direct supervision of a person who has the relevant knowledge experience and skills.

The implication of this is that there would be additional training costs in all states. According to AHA, the cost of training is likely to be minor as it is envisaged that this will be provided by the operator of the sheep farm in the form of on-the-job training, estimated to take 30 minutes per new starter. This is mainly envisaged as a defensive standard with minimal cost impact.

It is noted that a total of 23,352¹⁴³ individuals (i.e. farmhands) are employed in sheep farming. Of this amount it is assumed that there would be 10% turnover in the industry and that 30% would need to receive on-the-job training for tail docking or castration given that these are specialised tasks in the industry. It is also assumed that the turnover in the number of sheep farmhands would be constant and stable over 10 years, and so the number of those needing training (i.e. 10% or in other words approximately 2,335 farmhands per annum) would also be stable.

As shown in Table A2.8, this would mean that approximately 701 new starters would require on-the-job training per year.

The total 10-year incremental training cost is estimated to be approximately **\$0.19m** or **\$0.12m** in 2012-13 present value dollars, as shown in Table A2.8.

¹⁴³ See: <<http://www.ibisworld.com.au/industry/default.aspx?indid=17>> (accessed 1 October 2012)

Table A2.8 – 10-year incremental training cost of sheep farmhands by state and territory under proposed standard S6.1 –2012-13 dollars

Jurisdiction	No. Farmhands requiring training (t)=(j) ¹⁴⁴ *10%*30 %	Hourly cost (h) ¹⁴⁵	Training cost (u)=(t)*(h)	10-year cost (v) = (u)*10
NSW	262	\$51	\$6,653	\$66,526
VIC	175	\$57	\$5,035	\$50,346
QLD	29	\$49	\$719	\$7,191
SA	109	\$49	\$2,653	\$26,533
WA	99	\$55	\$2,735	\$27,350
TAS	25	\$65	\$807	\$8,071
NT	0	\$33	\$1	\$8
ACT	1	\$46	\$12	\$119
Australia	701		\$18,615	\$186,145
<i>Present value 7% discount rate</i>				\$122,187
3% discount rate				\$154,161
10% discount rate				\$103,980

A2.4 Proposed standard 6.3 – Requirement for one free palpable joints in tails – reduction in regulatory burden

Proposed standard 6.3 requires docked tails to have at least *one free palpable joint*. This is a new standard that does not exist in the existing MCOP but it is expected to have a negligible cost impact. Tail docking is conducted to make sheep management more efficient by reducing faecal dag formation and hence controlling breech fly strike risk. Webb Ware et al 2000¹⁴⁶ reported that leaving the tail on lambs can result in a 3 fold increase in fly strike rates in Australia. However, the minimum proposed standard for tail length is required to prevent total loss of the tail which has adverse health and welfare implications and is not necessary for breech fly strike control. The practice of removing the entire tail is not acceptable. The generally regarded optimum length is three joints. Proposed standard 6.3 sets a baseline requirement that protects the welfare of the sheep and provides a margin for error by the tail-docking surgeon recognising that absolute accuracy maybe difficult to achieve in small lambs at the recommended age for marking of 2 to 12 weeks.

Proposed standard S6.3 is expected to provide additional welfare benefits over and above base case, noting that the welfare difference between one and three joints is unlikely to be significant. The welfare problems are created when no tail stump is left, or less commonly when the tail stump is too long. The expected welfare benefit would be significant but difficult to quantify as the number of sheep that would then be left with a longer, more functional tail is not known. The number is expected to be a large number of the estimated 33 million sheep that are docked each year. The operational costs to sheep farmers are expected to be negligible and in some regions it is common practice to ‘dock short’ leaving a tail length of one free joint. This practice could continue if proposed standard S6.3 was to be adopted.

The immediate value in this proposed standard for industry and Australia is the ability to clearly communicate that Australia does not allow the practice of docking to the extent that there is no tail

¹⁴⁴ See Table A2.1 for source of estimates

¹⁴⁵ See Table A1.1 in Appendix 1 for source of estimates

¹⁴⁶ Webb Ware JK, Vizard AI, Lean GR. Effects of tail amputation and treatment with and albendazole controlled-release capsule on the health and productivity of prime lambs. *Aust Vet J* 2000, 78: 838-842

stump for the benefit of domestic and international markets. It removes this risk to Australia's international reputation and also uncertainty for industry.

This standard would be effective in promoting national consistency in relation to tail docking. This would reduce the unquantifiable regulatory burden in relation to this matter for businesses operating across multiple jurisdictions and which currently have different approaches to these matters.

A2.5 Proposed standard 6.4 – Requirement for pain relief under castration – reduction in regulatory burden

Under proposed standard 6.4, a person in charge must not castrate sheep over 6 months old without pain relief. This proposed standard would create national consistency with respect to castration and would lead to lower transaction costs in the economy as a whole, as well to savings for individual businesses operating across jurisdictional boundaries.¹⁴⁷ Businesses in VIC that would otherwise need to employ the supervision of a veterinarian to perform castration under the base case would no longer be required to do so and could use a contractor (see discussion of inconsistency in Part 2.1.4). There are 1,777¹⁴⁸ male lambs over 6 months castrated in VIC every year (see Table 4 in this RIS). The time cost difference between a veterinarian and a contractor in administering Xylazine 20 and Lignocaine would be \$1.67¹⁴⁹ and \$2.33¹⁵⁰ per lamb, respectively. The total time cost savings of administering pain relief would be \$4.00 per lamb and given that there are 1,777 male lambs per annum this would bring the reduction in regulatory burden over 10 years to **\$71,080** or **\$46,657** in 2012-13 dollars.

A2.5 Proposed standard 7.1 – Requirement for knowledge, experience and skills or be under direct supervision when performing mulesing – reduction in regulatory burden

According to proposed standard 7.1, a person performing mulesing must have the relevant knowledge, experience, and skill or be under the direct supervision of a person who has the relevant knowledge, experience and skills.

This proposed standard would result in a ***cost savings and a reduction in regulatory burden*** for new starters in sheep farming and is estimated by taking the difference in the cost of formal training and on-the-job training *both assumed to require a day in terms of time resource required*. The difference therefore, would be the cost of formal training in a course estimated to be around \$600 for a full day¹⁵¹ and cost of travel out around \$0.74 per km. Assuming total travel of 100km in 1hr, this would bring the average transport cost to \$74. The transport and course fee costs saved would therefore be equal to an estimated \$674 per trainee.

The number of trainees that would save on course fees and travel costs is estimated by firstly determining the prevalence of mulesing in the industry. Tables A2.9 and A2.10 illustrate the number of farms and employees involved with merino lambs and 'other' lambs, respectively.

¹⁴⁷ TU Dresden and Fraunhofer Institute, 2000.

¹⁴⁸ Equal to 3,553,978 castrated male lambs with 0.05% castrated over 6 months based on advice from AHA

¹⁴⁹ Based on a time cost of 30 seconds at \$140 = difference between contractor rate of \$80 and veterinarian rate of \$220

¹⁵⁰ Based on a time cost of 60 seconds at \$140 = difference between contractor rate of \$80 and veterinarian rate of \$220

¹⁵¹ National Mulesing Training Course delivered by the Livestock Contractors Association

Table A2.9 – Estimated number farms and employees involved with mulesing activity – merino lambs

Jurisdiction	Farms marking merino lambs [^] (c1)	% mulesing merino lambs ^{^^} (d1)	Est. no. farms mulesing merino lambs (e1) = (c1)*(d1)	No. of employees with farms mulesing 'merino lambs' (f1) = 9,965/23,352*(e1)	Est. annual turnover of employees in merino lamb farms (g1) = (f1)*10%
NSW	6,145	65%	3,994	1,704	170
VIC	3,231	59%	1,906	813	81
QLD	617	58%	358	153	15
SA	2,907	53%	1,541	657	66
WA	3,290	58%	1,908	814	81
TAS	414	59%	244	104	10
NT	0	0%	0	0	0
ACT	20	65%	13	6	1
AUSTRALIA	16,624		9,965	4,252	425

[^] Source: ABS (2011) – *Agricultural Commodities by State & Territory* - Cat. No. 7121.0 2010-11

^{^^} Source: Jones, A and Curnow, M (May 2012), *Sheep CRC: National Farmer Survey Results 2011*, Australian Government

Table A2.10 – Estimated number of farms and employees involved with mulesing activity 'other' lambs

Jurisdiction	Farms marking "other" lambs [^] (h1)	% mulesing meat lambs ^{^^} (i1)	Est. no. farms mulesing 'other' lambs (j1) = (h1)*(i1)	No. of employees with farms mulesing 'other' lambs (k1) = 3,853/23,352*(j1)	Est. annual turnover of employees in "other" lamb farms (l1) = (k1)*10%
NSW	11,330	13%	1,473	629	63
VIC	8,085	14%	1,132	483	48
QLD	903	7%	63	27	3
SA	4,480	17%	762	325	32
WA	3,748	7%	262	112	11
TAS	1,130	14%	158	68	7
NT	0	0%	0	0	0
ACT	23	13%	3	1	0
AUSTRALIA	29,699		3,853	1,644	164

[^] Source: ABS (2011) – *Agricultural Commodities by State & Territory* - Cat. No. 7121.0 2010-11

^{^^} Source: Jones, A and Curnow, M (May 2012), *Sheep CRC: National Farmer Survey Results 2011*, Australian Government

The incremental 10-year benefit (reduction in regulatory burden) of not requiring formal training and accreditation under proposed standard 7.1 is estimated to be **\$4m** or **\$2.61m** in 2012-13 present value dollars, as shown in Table A2.11.

Table A2.11 – 10-year incremental benefit (reduction in regulatory burden) for training requirements by state and territory under proposed standard 7.1 –2012-13 dollars

Jurisdiction	No. Employees needing training in mulesing per annum (m1) = (l1) + (g1)	Annual cost savings (n1)	10-year cost savings (o1) = (m1)*(n1)
NSW	233	\$157,237	\$1,572,372
VIC	130	\$87,379	\$873,795
QLD	18	\$12,110	\$121,101
SA	98	\$66,215	\$662,153
WA	93	\$62,426	\$624,261
TAS	17	\$11,575	\$115,749
NT	-	\$0	\$0
ACT	1	\$460	\$4,599
Australia	590	\$397,403	\$3,974,029
Present value 7% discount rate			\$2,608,591
3% discount rate			\$3,291,192
10% discount rate			\$2,219,881

A2.7 proposed standard 9.4 – Requirement for adequately cleaning sheep pens

According to proposed standard 9.4, a person in charge must not allow faeces and urine to accumulate to the stage that it compromises the welfare of a sheep in an intensive production system.

According to the Australian Superfine Wool Growers Association there are 5 group pen shed enterprises with an estimated total of around 5,000 head of sheep¹⁵². Taking the average number of sheep per pen to be 5¹⁵³ – then this would entail roughly 1,000 pens. However, of these, it is noted that only 1%¹⁵⁴ of pens would not adequately be cleaned under proposed standard 9.4. It is believed that there are two sheds in NSW and Vic respectively, and a single shed in SA.

The cost of cleaning sheds using a scoop and shovel is assumed to involve two hours of labour time per shed and once a week. Over 10 years this would be equal to **\$0.28m**. In present value dollars this would equal **\$0.18m**, as shown in Table A2.12.

¹⁵² Based on advice from AHA

¹⁵³ AHA notes that 4 to 6 sheep would typically be housed in one pen.

¹⁵⁴ Based on advice from AHA

Table A2.12 – 10-year incremental cost of requirement for adequately cleaning sheep pens by state and territory under proposed standard 9.4 –2012-13 dollars

Jurisdiction	Current no. of inadequately cleaned sheds (w)	Annual cost (x) = (w)*(h) ¹⁵⁵ *2hrs/week *52 weeks	10-year cost (y) = (x)*10
NSW	2	\$10,547	\$105,469
VIC	2	\$11,944	\$119,442
QLD	-	\$0	\$0
SA	1	\$5,068	\$50,679
WA	-	\$0	\$0
TAS	-	\$0	\$0
NT	-	\$0	\$0
ACT	-	\$0	\$0
Australia	5	\$27,559	\$275,589
Present value 7% discount rate			\$180,899
3% discount rate			\$228,236
10% discount rate			\$153,943

A2.8 proposed standard 9.7 – Unquantifiable minor incremental cost of banning single penning for wool production

Proposed standard 9.7 would involve banning single penning of sheep for fine wool production (<13 microns¹⁵⁶) The concern here is that individually housed sheep are deprived of social interaction with other sheep and that such housing would therefore be seen as cruel because it would go against ‘the five freedoms principles’. It is generally accepted that sheep will seek the company of other sheep if given the opportunity to do so.

Research was undertaken in 2009¹⁵⁷ to examine the prevalence and incidence of abnormal behaviour in 96 castrated ultra-fine merino wethers housed individually indoors in Victoria, by quantifying the time budgets and incidence and type of stereotypies or redirected behaviours. This involved placing digital cameras above approximately 10% of the sheep in a shed and recording 48 hours of observations of each sheep including 15 minutes of instantaneous sampling between 8:15am and 6:15pm for two consecutive days over a 3-week period. In particular, time spent, standing, moving, lying, ruminating, eating, drinking and sleeping was recorded.

It was found that sheep on average spent 62% of their time idle, 17% feeding, 1% drinking, 5% pacing, 10% chewing pen fixtures and 4% nosing pen fixtures. 71% of the sheep displayed one or more of the behaviours of pacing, and chewing and nosing pen fixtures for more than 10% of the day and 47% displayed one or more of these behaviours for more than 20% of the day. The prevalence and incidence of these ‘abnormal’ behaviours appeared to be high, especially in relation to that of sheep grazed outdoors on pasture, and raised the question of the welfare risk to these animals. However, the authors qualified their findings that ‘without a more comprehensive appreciation of other aspects of the animal’s biology, such as stress physiology and fitness characteristics, it is difficult to understand the welfare implications of these behaviours.’¹⁵⁸

¹⁵⁵ See Table A1.1 for source of estimates

¹⁵⁶ The record of 11.5 microns was achieved last year

¹⁵⁷ Lauber, M et al, “Prevalence and Incidence of Abnormal Behaviours in Individually Housed Sheep”, *Animals* 2012, Vol.2, pp.27-37

¹⁵⁸ Ibid, p.27

Under this proposed standard any enterprise that has sheep individually housed in pens would be required to reconstruct larger pens for group housing. However, according to the president of the Australian Superfine Wool Growers Association (ASWGA) there are *no known single pen shed sheep operations left in the country*. The proposed standard is a defensive standard aimed to communicate the undesirability of this practice and prevent any return to commercial use or any use of single penning for non-commercial purposes.

Consequently, the incremental cost of proposed standard 9.7 would entail the unknown foregone opportunity of not being able to place sheep in single pens in future. However this opportunity cost is not likely to be significant, as, according to the president of ASWGA, market forces will mitigate against single pens. The cost of production for shed sheep is in the order of \$280 per kg wool and few producers receive this. Furthermore, this small market is under pressure by large volumes of 14 to 19 micron wool from paddock sheep. According to the president of Wool Producers Australia (WPA) – ‘The real winners are the middle microns. Finer wools are more for luxury buyers in Europe and the US, and they have their economic problems.’¹⁵⁹ Moreover, one of the largest buyers of super fine wools in the world Loro Piana, has recently banned the purchase of wool from single penned sheep.

A2.9 Summary of 10-year quantifiable costs of the proposed standards – Option B

A summary of 10-year quantifiable costs of the proposed standards under Option B is summarised in Table A2.13. The total 10-year net incremental quantifiable cost is estimated to be **\$7.85m** or **\$5.33m** in present value dollars using a 7% discount rate.

Table A2.13 – Summary of quantifiable 10-year incremental cost of proposed standards under Option B –2012-13 dollars

Proposed standard	10-year cost	PV cost - 7% discount rate	PV cost - 3% discount rate	PV cost - 10% discount rate
5.2	\$65,742	\$57,422	\$61,968	\$54,332
5.7	\$7,319,422	\$4,965,140	\$6,146,434	\$4,286,816
6.1	\$186,145	\$122,187	\$154,161	\$103,980
9.4	\$275,589	\$180,899	\$228,236	\$153,943
Total	\$7,846,898	\$5,325,648	\$6,590,799	\$4,599,071

A summary of 10-year quantifiable costs of the proposed standards by state and territory under Option B in 2012-13 present value dollars (using a 7% discount rate) by state and territory is summarised in Table A2.14.

Table A2.14 – Summary of quantifiable 10-year incremental cost of proposed standards under Option B by state and territory – 2012-13 dollars

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403		\$33,266					\$180,899
Total	\$4,071,135	\$336,071	\$201,466	\$252,498	\$231,500	\$232,850	\$9	\$120	\$5,325,648

¹⁵⁹ Thistleton, J, March 14, 2012, *Market none-too-sheepish about Australian wool*, Sydney Morning Herald (see: <http://www.smh.com.au/national/market-nonetoosheepish-about-australian-wool-20120313-1uyto.html> accessed 28 December 2012)

A2.10 Summary of 10-year quantifiable benefits of the proposed standards – Option B

A summary of 10-year quantifiable benefits of the proposed standards by state and territory under Option B in 2012-13 present value dollars (using a 7% discount rate) by state and territory is summarised in Table A2.15 and given as **\$2.66m** over 10-years.

Table A2.15 – Summary of quantifiable 10-year incremental benefit of proposed standards under Option B by state and territory – 2012-13 dollars¹⁶⁰

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
6.4	-	\$46,657	-	-	-	-	-	-	\$46,657
7.1	\$1,032,120	\$573,567	\$79,492	\$434,643	\$409,771	\$75,979	\$0	\$3,019	\$2,608,591
Total	\$1,032,120	\$620,224	\$79,492	\$434,643	\$409,771	\$75,979	\$0	\$3,019	\$2,655,248

Taking the total 10-year incremental benefit of the proposed standards (in Table A2.15) and subtracting the cost of the proposed standards (in Table A2.14) and then dividing by the total flock of sheep in each state or territory (in Table A2.1) – gives the average net impact per sheep ranging from a savings of \$0.05 per sheep in the ACT to a cost of \$0.11 per sheep in NSW, as shown in Table A2.16.

Table A2.16 – Average net 10-year impact per sheep as a result of the proposed standards under Option B by state and territory –2012-13 dollars

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost of proposed standards	\$3,039,015	-\$284,153	\$121,973	-\$182,145	-\$178,271	\$156,871	\$9	-\$2,899	\$2,670,400
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.11	-\$0.02	\$0.03	-\$0.02	-\$0.01	\$0.07	\$0.00	-\$0.05	\$0.04

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

¹⁶⁰ See Table A2.11 and part A2.4 for source of estimates for proposed standard 7.1 and 6.4, respectively

Appendix 3 – Estimates of Quantifiable costs – Options C1, C2, C4, C5 and C7

The purpose of this appendix is to estimate the quantifiable costs of Options C1 to C7 to the proposed standards under Option B. It is not proposed that a variation or combination of Options would become a possible option/alternative to Option B. These options are estimated in the following sections.

A3.1 Incremental cost of pain relief for all mulesing – Option C1

Option C1 would provide a variation to proposed standard 7.3 and would require pain relief for *all mulesing* and not just for sheep that are six months to 12 months of age. Recent scientific research has examined strategies for pain relief for mulesing and the effectiveness of these approaches.

The first paper, published was by Paull *et al* 2007, concluded that the topical anaesthetic formulation applied immediately after the mulesing cut provided some benefits, but that a combination of non-steroidal anti-inflammatory drug (Carprofen) and topical anaesthetic would be required for full and pain relief.

A subsequent study was published by Lomax *et al* 2008 showed that the application of the topical anaesthetic significantly reduced the sheep responses to wound touching and also reduced behaviour scores in mulesed sheep in the four to eight hours after mulesing. They also showed that the mulesed sheep treated with the topical anaesthetic did not differ in their behaviour scores from unmulesed lambs.

Paull *et al* 2008 concluded that a combination of short- and long-acting pain relief drugs may be needed to provide more complete pain relief. The administration of some NSAIDs offers the potential for good analgesia in sheep for the inflammatory phase following the tissue trauma of surgical husbandry procedures. Other pain relief options need to be considered if the acute stress response to the procedure is to be reduced.

Taken together, these studies suggest that it is possible to achieve pain relief in conjunction with mulesing, but this would be most effectively be achieved through a combination of approaches such as the pre-mulesing administration of systemic pain relief followed by a post-mulesing application of topical anaesthetic.

However, given there are no non-steroidal anti-inflammatory drugs that are currently registered for sheep in Australia; pain relief is recommended in the form of topical anaesthetic post-cut. Current pain relief products that could be used in conjunction with mulesing are only available through a veterinarian. The most widely used product is Tri-Solfen, which was available as an S4 product at the time of these cost calculations. It is now more widely available as an S5 product but there is no evidence of a change in price at the time of publication.

The cost of pain relief would be 8 mls per lamb at a cost of \$0.10 per ml (i.e. \$0.80 per lamb) and a time cost of \$0.10 cents per lamb to apply. Disposables cost would be \$0.05 per lamb. Therefore, the total cost of applying anaesthetic would be \$0.80 plus \$0.05 disposal cost plus time cost of \$0.10 per lamb = **\$0.95 per lamb**.

Table A3.1 shows the proportion of mulesed lambs and the proportion mulesed without pain relief by sire type and jurisdiction for 2010.

Table A3.1 the proportion of lambs mulesed and the proportion of those mulesed without pain relief by sire type and jurisdiction - 2010

Jurisdiction	% mulesed of Merino lambs (p1)	% mulesed without pain relief (of those mulesed) (q1)	% mulesed of meat lambs (r1)	% mulesed without pain relief (of those mulesed) (s1)
NSW	64%	30%	9%	51%
VIC	79%	25%	9%	43%
QLD	30%	100%	25%	100%
SA	88%	25%	24%	65%
WA	89%	42%	8%	67%
TAS	40%	71%	14%	62%

Source: Jones, A and Curnow, M (May 2012), *Sheep CRC: National Farmer Survey Results 2011*, Australian Government

Using the estimates in Table A3.1, the following number of mulesed lambs that would require pain relief under Option C1, are provided in Table A3.2 by jurisdiction and sire type.

Table A3.2 – Estimated number of lambs mulesed without pain relief by sire type and jurisdiction - 2010

Jurisdiction	Merino lambs [^] (t1)	No. Merino lambs mulesed (u1) = (t1)*(p1) ¹⁶¹	No. Merino lambs mulesed without pain relief (v1) = (u1)*(q1) ¹⁶²	Other lambs [^] (w1)	No. other lambs mulesed (x1) = (w1)*(r1) ¹⁶³	No. other lambs mulesed without pain relief (y1) = (x1)*(s1) ¹⁶⁴	Total number of lambs mulesed without pain relief (z1) = (v1)+(y1)
NSW	4,962,595	3,176,061	952,818	7,245,831	652,125	332,584	1,285,402
VIC	1,958,054	1,546,863	386,716	5,149,902	463,491	199,301	586,017
QLD	789,880	236,964	236,964	406,622	101,656	101,656	338,620
SA	2,138,822	1,882,163	470,541	2,972,653	713,437	463,734	934,275
WA	3,705,319	3,297,734	1,385,048	2,840,681	227,254	152,261	1,537,309
TAS	421,307	168,523	119,651	676,401	94,696	58,712	178,363
AUSTRALIA	13,991,112	10,308,308	3,551,738	19,298,151	2,252,659	1,308,246	4,859,985

[^] Source: ABS (2011) – *Agricultural Commodities by State & Territory* - Cat. No. 7121.0 2010-11

The incremental 10-year cost of requiring pain relief for all mulesing is estimated to be **\$46.17m** or **\$30.31m** in 2012-13 present value dollars, as shown in Table A3.3.

Table A3.3 – 10-year incremental cost of requiring pain relief for all mulesing by state and territory under Option C1 –2012-13 dollars

Jurisdiction	Lambs affected (z1) ¹⁶⁵	Annual cost of pain relief (a2)=(z1)*\$0.95	10-year cost (b2) = (a2)*10
NSW	1,285,402	\$1,221,132	\$12,211,318
VIC	586,017	\$556,716	\$5,567,160
QLD	338,620	\$321,689	\$3,216,885

¹⁶¹ See Table A3.1 for source of estimates

¹⁶² See Table A3.1 for source of estimates

¹⁶³ See Table A3.1 for source of estimates

¹⁶⁴ See Table A3.1 for source of estimates

¹⁶⁵ See Table A3.2 for source of estimates

Jurisdiction	Lambs affected (z1) ¹⁶⁵	Annual cost of pain relief (a2)=(z1)*\$0.95	10-year cost (b2) = (a2)*10
SA	934,275	\$887,561	\$8,875,610
WA	1,537,309	\$1,460,443	\$14,604,433
TAS	178,363	\$169,445	\$1,694,447
NT	-	\$0	\$0
ACT	-	\$0	\$0
Australia	4,859,985	\$4,616,985	\$46,169,853
Present value 7% discount rate			\$30,306,329
3% discount rate			\$38,236,719
10% discount rate			\$25,790,342

A3.1.1 Incremental cost of Option C1 from the base case

The total 10-year incremental cost of all standards under Option C1 as compared to the base case would be approximately **\$54.01m** or **\$35.62m** in 2012-13 dollars using a 7% discount rate, as shown in Table A3.4.

Table A3.4 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C1 – 2012-13 dollars

Proposed standard	10-year cost	PV cost - 7% discount rate	PV cost - 3% discount rate	PV cost - 10% discount rate
5.2	\$65,742	\$57,422	\$61,968	\$54,332
5.7	\$7,319,422	\$4,965,140	\$6,146,434	\$4,286,816
6.1	\$186,145	\$122,187	\$154,161	\$103,980
9.4	\$263,902	\$173,228	\$218,557	\$147,415
Pain relief all mulesing (variation on proposed standard 7.3)	\$46,169,853	\$30,306,329	\$38,236,719	\$25,790,342
Total	\$54,005,063	\$35,624,306	\$44,817,839	\$30,382,884

A summary of 10-year quantifiable costs of the proposed standards by state and territory under Option C1 in 2012-13 present value dollars by state and territory is summarised in Table A3.5.

Table A3.5 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C1 by state and territory – 2012-13 dollars

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$173,228
Pain relief all mulesing (Variation on proposed standard 7.3)	\$8,015,625	\$3,654,337	\$2,111,594	\$5,826,034	\$9,586,488	\$1,112,251	\$0	\$0	\$30,306,329
Total	\$12,086,760	\$3,990,408	\$2,313,060	\$6,078,533	\$9,817,988	\$1,345,101	\$9	\$120	\$35,624,306

Taking the total 10-year incremental cost of the standards (in Table A3.5) and subtracting the benefit of the standards (in Table A2.12 of Appendix 2) and then dividing by the total flock of sheep in each state or territory (in Table A2.1 of Appendix 2) – gives the net impact per sheep ranging from a cost savings of \$0.05 in the ACT to a cost of \$0.67 in WA, as shown in Table A3.6.

Table A3.6 – Average net 10-year impact per sheep as a result of the proposed standards under Option C1 by state and territory –2012-13 dollars

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$11,054,640	\$3,370,184	\$2,233,567	\$5,643,889	\$9,408,217	\$1,269,122	\$9	-\$2,899	\$32,969,058
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.41	\$0.22	\$0.61	\$0.51	\$0.67	\$0.54	\$0.00	-\$0.05	\$0.45

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

A3.1.2 Incremental cost of Option C1 from Option B

The total 10-year incremental cost all standards under Option C1 as compared to Option B (i.e. pain relief for all mulesing under Option C1) would be approximately **\$46.17m** or **\$30.31** in 2012-13 dollars. This is summarised in Table A3.7 by state or territory and estimates are taken from Table A3.3. The main impact of going to Option C1 as compared with Option B would be on WA followed by NSW and SA.

Table A3.7 – 10-year incremental cost of Option C1 as compared to Option B by state and territory –2012-13 dollars

Going from Option B to Option C1	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
<i>Plus</i> pain relief for all mulesing (Variation on proposed standard 7.3)	\$8,015,625	\$3,654,337	\$2,111,594	\$5,826,034	\$9,586,488	\$1,112,251	\$0	\$0	\$30,306,329
Net Difference between Option B and Option C1	\$8,015,625	\$3,654,337	\$2,111,594	\$5,826,034	\$9,586,488	\$1,112,251	\$0	\$0	\$30,306,329

A3.2 Incremental cost of restricting mulesing age to less than 6 months of age – Option C2

Option C2 would involve restricting the mulesing age to less than 6 months of age and this provides a variation to proposed standard 7.2 (which allows mulesing between 24hrs old and 12 months old). As with other similar husbandry procedures, upper age limits are appropriate for mulesing in order to optimise sheep welfare. When mulesing is done it is common practice to do this at marking to avoid extra mustering and handling but there can be valid reasons why it is not done in that time frame. Six months is a generally suitable age limit in Australia to accommodate all production systems.

Based on advice from AHA it is estimated that there are 30,000 lambs across Australia, which are mulesed beyond 6 months of age per year. A pro-rata estimate is provided for each jurisdiction

based on the prevalence of mulesing in that state for the purpose of estimation. The number of lambs that are mulesed beyond 6 months of age is illustrated in Table A3.8 by jurisdiction.

Table A3.8 – Estimated number of lambs mulesed over the age of 6 months by jurisdiction – 2010

Jurisdiction	No. Merino and other lambs mulesed (c2) = (u1)+(x1)	No. lambs mulesed > 6 months of age (d2) = 30,000/12,560,966*(c2)
NSW	3,828,186	9,143
VIC	2,010,354	4,801
QLD	338,620	809
SA	2,595,600	6,199
WA	3,524,988	8,419
TAS	263,219	629
AUSTRALIA	12,560,966	30,000

The main reason why mulesing may be delayed for these 30,000 animals is due to poor pastoral conditions during drought or heavy parasite or insect burdens. Mulesing is a major procedure and animals that are mulesed under conditions of poor feed are likely to achieve lower weight gain, longer time for achieving marketable conditions; a break in the wool (resulting in reduced wool value); and mortality estimated to be for around 10% of animals affected.

Under Option C2, the restriction of mulesing to less than 6 months of age for around 30,000 animals is likely to result in the above costs. However, it is unknown what the incidence of lower weight gain, delayed marketable conditions, and reduced wool value might be. Therefore, the estimation of costs for this variation is based on mortality with the replacement cost of a lamb assumed to be \$80.

The incremental 10-year cost savings of restricting mulesing to less than 6 months of age is estimated to be **\$2.4m** or **\$1.58m** in 2012-13 present value dollars, as shown in Table A3.9.

Table A3.9 – 10-year incremental cost of restricting mulesing to less than 6 months of age by state and territory under Option C2 –2012-13 dollars

Jurisdiction	No. Lambs affected by mortality due to pre mature mulesing in drought conditions (e2) = (d2)*10%	Annual cost of mortality (f2) = (e2)*\$80	10-year incremental cost (g2) = (f2)*10
NSW	914	\$73,144	\$731,444
VIC	480	\$38,411	\$384,114
QLD	81	\$6,470	\$64,699
SA	620	\$49,594	\$495,936
WA	842	\$67,351	\$673,513
TAS	63	\$5,029	\$50,293
NT	-	\$0	\$0
ACT	-	\$0	\$0
Australia	3,000	\$240,000	\$2,400,000
Present value 7% discount rate			\$1,575,383
3% discount rate			\$1,987,620
10% discount rate			\$1,340,633

A3.2.1 Incremental cost of Option C2 from the base case

The total 10-year incremental cost of all standards under Option C2 as compared to the base case would be approximately **\$4.77m** or **\$3.54m** in 2012-13 dollars using a 7% discount rate, as shown in Table A3.10.

Table A3.10 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C2 – 2012-13 dollars

Proposed standard	10-year cost	PV cost - 7% discount rate	PV cost - 3% discount rate	PV cost - 10% discount rate
5.2	\$65,742	\$57,422	\$61,968	\$54,332
5.7	\$7,319,422	\$4,965,140	\$6,146,434	\$4,286,816
6.1	\$186,145	\$122,187	\$154,161	\$103,980
9.4	\$263,902	\$173,228	\$218,557	\$147,415
Mulesing < 6 months only	\$2,400,000	\$1,575,383	\$1,987,620	\$1,340,633
Total	\$10,235,211	\$6,893,359	\$8,568,740	\$5,933,175

A summary of 10-year quantifiable costs of the proposed standards by state and territory under Option C2 in 2012-13 present value dollars by state and territory is summarised in Table A3.11.

Table A3.11 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C2 by state and territory – 2012-13 dollars

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$173,228
Mulesing < 6 months only	\$480,127	\$252,136	\$42,469	\$325,537	\$442,100	\$33,013	\$0	\$0	\$1,575,383
Total	\$4,551,262	\$588,207	\$243,935	\$578,036	\$673,600	\$265,863	\$9	\$120	\$6,893,359

Taking the total 10-year incremental cost of the standards (in Table A3.9) and subtracting the benefit of the standards (in Table A2.12 of Appendix 2) and then dividing by the total flock of sheep in each state or territory (in Table A2.1 of Appendix 2) – gives the net impact per sheep ranging from a cost a savings of \$0.05 in the ACT to a cost of \$0.13 in NSW, as shown in Table A3.12

Table A3.12 – Range of average 10-year cost per sheep as a result of the proposed standards under Option C2 by state and territory –2012-13 dollars

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$3,519,141	-\$32,017	\$164,443	\$143,392	\$263,829	\$189,884	\$9	-\$2,899	\$4,238,111
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.13	-\$0.00	\$0.05	\$0.01	\$0.02	\$0.08	\$0.00	-\$0.05	\$0.06

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

A3.2.2 Incremental cost of Option C2 from Option B

The total 10-year incremental cost of all standards under Option C2 as compared to Option B (i.e. mulesing < 6 months of age only under Option C2) would be approximately **\$2.4m** or **1.58m** in 2012-13 dollars. Table A3.13 shows the 10-year incremental cost of Option C2 as compared to Option B by state and territory. These estimates are provided from Table A3.9. The main impact of going to Option C2 as compared with Option B would be on NSW followed by WA and SA.

Table A3.13 – 10-year incremental cost of Option C2 as compared to Option B by state and territory –2012-13 dollars

Going from Option B to Option C2	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
<i>Plus</i> mulesing < 6 months only ¹⁶⁶	\$480,127	\$252,136	\$42,469	\$325,537	\$442,100	\$33,013	\$0	\$0	\$1,575,383
Net Difference between Option B and Option C2	\$480,127	\$252,136	\$42,469	\$325,537	\$442,100	\$33,013	\$0	\$0	\$1,575,383

A3.3 Incremental cost of banning sheep tethering – Option C4

Option C4 would involve banning tethering of sheep and this provides a variation to proposed standard 5.7 (which requires the daily exercise of tethered sheep). This variation deals with the real welfare issue of welfare of tethering which is the deprivation of social interaction with other sheep.

However, under Option C4 there would be an unquantifiable impact on the choice of individuals to keep sheep in the house paddock as pets (which a small percentage of farm families do). Banning tethering means that there would be no way for some families, who would otherwise wish to exercise sheep and do not wish to fence them, to keep sheep from trampling and eating gardens and therefore, they would be prevented from being able to enjoy the benefits of sheep as pets.

With a ban on tethering under Option C4, it is assumed for the purpose of costing that 5% of current permanently tethered sheep (i.e. half of those currently exercised under Option B) would be fenced and provided companion sheep and another 5% of current permanently tethered sheep (i.e. the other half of those currently exercised under Option B) would be disposed of. The outcome would be to dispose of 55% of current permanently tethered sheep and to create suitable fenced areas and provide companion sheep for 45% of current permanently tethered sheep.

As shown in Table A3.14, the 10-year cost of providing for fencing and companion sheep for 45% of current permanently tethered sheep under Option C4 is estimated to be approximately \$0.83m or \$0.73m in 2012-13 present value dollars.

Table A3.14 – 10-year incremental cost of fencing and providing companion sheep for 45% of current permanently tethered sheep under Option C4 –2012-13 dollars

Jurisdiction	45% of currently permanently tethered sheep (q [^]) ¹⁶⁷	10-year one-off cost (r [^]) = (q [^])*\$1,480
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¹⁶⁶ See Table A3.9 for source of estimates

¹⁶⁷ See Table A2.3 of Appendix 2 for source of estimates

Jurisdiction	45% of currently permanently tethered sheep (q [^]) ¹⁶⁷	10-year one-off cost (r [^]) = (q [^])*\$1,480
NSW	450	\$666,000
VIC	23	\$33,300
QLD	23	\$33,300
SA	23	\$33,300
WA	23	\$33,300
TAS	23	\$33,300
NT	0	\$0
ACT	0	\$0
Australia	563	\$832,500
Present value 7% discount rate		\$727,138
3% discount rate		\$784,711
10% discount rate		\$688,017

For 55% of current permanently tethered sheep, the other alternative for persons in charge would be to dispose of sheep and incur a lawn moving cost of \$25 per standard lawn once every 3 weeks (i.e. 17 times a year). The cost of mowing lawns would therefore be equivalent to \$425 per annum. However, it is understood that these sheep are not maintained in a commercial sense and that simply disposing of sheep does not consider their sentimental value to the person in charge.

As shown in Table A3.15, the 10-year quantifiable cost (not including loss in sentimental value) of getting rid of 55% of current tethered sheep under Option C4 is estimated to be approximately \$2.67m or *\$1.74m* in 2012-13 present value dollars.

Table A3.15 – 10-year incremental cost of getting rid of 55% of current permanently tethered sheep under Option C4 –2012-13 dollars

Jurisdiction	55% of current permanently tethered sheep (q [^])	Lawn mowing cost for average size law (h')	Annual cost of lawn mowing (r [^]) = (q [^])*(h')*17	10-year cost (s [^]) = (r [^])*10
NSW	550	\$25	\$233,750	\$2,337,500
VIC	28	\$25	\$11,688	\$116,875
QLD	28	\$25	\$11,688	\$116,875
SA	28	\$25	\$11,688	\$116,875
WA	28	\$25	\$11,688	\$116,875
TAS	28	\$25	\$11,688	\$116,875
NT	-	\$25	\$0	\$0
ACT	-	\$25	\$0	\$0
Australia	688		\$292,188	\$2,921,875
Present value 7% discount rate				\$1,917,946
3% discount rate				\$2,419,824
10% discount rate				\$1,632,151

Table A3.16 summarises the 10-year quantifiable cost (not including loss in sentimental value) of fencing and disposing of 45% and 55% of current permanently tethered sheep, respectively, under Option C4 and is estimated to be approximately **\$3.75m** or **\$2.65m** in 2012-13 present value dollars. Moreover, there would be an unquantifiable loss in benefit as compared to the base case with families, who would otherwise choose to exercise sheep and unable to fence them, not being able to keep sheep as pets.

Table A3.16 – 10-year quantifiable incremental cost of banning tethering under Option C4 –2012-13 dollars

Jurisdiction	One-off cost of fencing and companion sheep for 45% of current permanently tethered sheep	Annual cost of disposing 55% of current permanently tethered sheep and mowing	10-year cost
NSW	\$666,000	\$233,750	\$3,003,500
VIC	\$33,300	\$11,688	\$150,175
QLD	\$33,300	\$11,688	\$150,175
SA	\$33,300	\$11,688	\$150,175
WA	\$33,300	\$11,688	\$150,175
TAS	\$33,300	\$11,688	\$150,175
NT	\$0	\$0	\$0
ACT	\$0	\$0	\$0
Australia	\$832,500	\$292,188	\$3,754,375
<i>Present value 7% discount rate</i>			\$2,645,084
3% discount rate			\$3,204,535
10% discount rate			\$2,320,167

A3.3.1 Incremental cost of Option C4 from the base case

The total 10-year incremental cost all standards under Option C4 as compared to the base case would be approximately **\$4.28m** or **\$3.01m** in 2012-13 dollars using a 7% discount rate, as shown in Table A3.17. This does not include the unquantifiable loss in benefit as compared to the base case with families, who would otherwise choose to exercise sheep and unable to fence them, not being able to keep sheep as pets.

Table A3.17 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C4 – 2012-13 dollars

Proposed standard	10-year cost	PV cost - 7% discount rate	PV cost - 3% discount rate	PV cost - 10% discount rate
5.2	\$65,742	\$57,422	\$61,968	\$54,332
Variation to 5.7 (banning tethering)	\$3,754,375	\$2,645,084	\$3,204,535	\$2,320,167
6.1	\$186,145	\$122,187	\$154,161	\$103,980
9.4	\$275,589	\$180,899	\$228,236	\$153,943
Total	\$4,281,851	\$3,005,593	\$3,648,900	\$2,632,423

A summary of 10-year quantifiable costs of the variation of the proposed standards by state and territory under Option C4 in 2012-13 present value dollars by state and territory is summarised in Table A3.18.

Table A3.18 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C5 by state and territory – 2012-13 dollars

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
Variation to 5.7 (banning	\$2,116,067	\$105,803	\$105,803	\$105,803	\$105,803	\$105,803	\$0	\$0	\$2,645,084

Proposed standard (tethering)	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$180,899
Total	\$2,250,474	\$231,626	\$112,907	\$165,412	\$131,910	\$113,135	\$9	\$120	\$3,005,593

Taking the total 10-year incremental cost of the standards (in Table A3.18) and subtracting the benefit of the standards (in Table A2.15 of Appendix 2) and then dividing by the total flock of sheep in each state or territory (in Table A2.1 of Appendix 2) – gives the average net impact per sheep ranging from a cost a savings of \$0.05 in the ACT to a cost of \$0.05 in NSW, as shown in Table A3.19.

Table A3.19 – Range of average 10-year cost per sheep as a result of the proposed standards under Option C4 by state and territory –2012-13 dollars

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$1,218,354	-\$388,598	\$33,415	-\$269,231	-\$277,861	\$37,156	\$9	-\$2,899	\$350,345
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.05	-\$0.03	\$0.01	-\$0.02	-\$0.02	\$0.02	\$0.00	-\$0.05	\$0.00

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

A3.3.2 Incremental cost savings of Option C4 from Option B

The total 10-year incremental cost savings under Option C4 as compared to Option B (i.e. banning of tethering under Option C4) would be approximately **\$3.57m** or **2.32m** in 2012-13 dollars. Table A3.20 shows the 10-year incremental cost of Option C4 as compared to Option B by state and territory. These estimates are provided from Table A3.16. The main impact of going to Option C4 as compared with Option B would be on NSW followed by TAS and VIC.

Table A3.20 – 10-year incremental cost of Option C4 as compared to Option B by state and territory –2012-13 dollars

Going from Option B to Option C4	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Less cost of proposed standard 5.7 under Option B ¹⁶⁸	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
Plus cost of banning tethering (Variation to proposed standard 5.7) under Option C4 ¹⁶⁹	\$2,116,067	\$105,803	\$105,803	\$105,803	\$105,803	\$105,803	\$0	\$0	\$2,645,084
Net Difference between Option B and Option C4	-\$1,820,660	-\$104,445	-\$88,558	-\$87,086	-\$99,590	-\$119,715	\$0	\$0	-\$2,320,055

¹⁶⁸ See Table A2.14 of Appendix 2 for source of estimates

¹⁶⁹ See Table A3.16 for source of estimates

A3.4 Incremental cost of mandating pain relief for laparoscopic LAI and ET – Option C5

Proposed standard 8.1 notes that a person performing artificial breeding procedures on a sheep must not cause unreasonable pain, distress or injury to a sheep. Option C5 would mandate pain relief for laparoscopic artificial insemination (LAI) and embryo transfer (ET). LAI and ET are important methods for genetic gain (i.e. producing genetically improved progeny) not guaranteed with conventional breeding methods. In reality however, LAI and ET are minority breeding methods and an anaesthetic is used as existing practice for ET.

LAI, which requires the use of a laparoscope, is an invasive procedure used to inject semen directly into the uterus in order to provide for reliable conception with thawed semen. ET represents the collection and transfer of embryos from ewes to donor ewes. ET involves an invasive procedure where the abdominal cavity of ewes is penetrated and collected embryos are transferred to donor ewes with the use of a laparoscope - again through the abdominal cavity. This procedure is more invasive and demanding than LAI and a deeper level of anaesthesia is required.

Under Option C5 – pain relief for LAI and ET is taken to be most commonly in the form of a single dose sedative analgesic (Xylazine 20) and a local anaesthetic (lignocaine). Other combinations of sedative and anaesthetic drugs are possible. There are an estimated 300,000 sheep, which undergo the LAI procedure, and it is estimated that 50% of these procedures are performed without pain relief¹⁷⁰ under the base case. Furthermore, there are an estimated 30,000 sheep involved with the ET procedure, however it is noted that none of these procedures are performed without pain relief¹⁷¹ and in this context Option C5 becomes a defensive standard for ET.

LAI would require a single dose sedative analgesic (i.e. Xylazine 20) taken to be \$0.40 for 0.4ml delivered per lamb plus \$0.50 disposal (needle costs) plus time cost of \$80¹⁷² per hour for a competent contractor. Noting that it would take around 30 seconds to administer the analgesic per sheep, this would mean a time cost of \$0.66 per sheep. Therefore, the cost of Xylazine 20 would be \$0.40 plus \$0.50 disposal cost plus a time cost of \$0.66 per sheep = **\$1.57 per sheep**.

The incremental 10-year cost savings of requiring pain relief for LAI under Option C5 is estimated to be **\$2.4m** or **\$1.55m** in 2012-13 present value dollars, as shown in Table A3.21.

Table A3.21 – 10-year incremental cost of requiring pain relief for LAI by state and territory under Option C5 –2012-13 dollars

Jurisdiction	No. of breeding ewes affected (h2) = (i) ¹⁷³ / 41,821,781*300,000*50%	Annual cost of pain relief (i2) = (h2)*\$1.57	10-year cost (j2) = (i2)*10
NSW	55,302	\$86,823	\$868,234
VIC	30,992	\$48,657	\$486,569
QLD	7,043	\$11,057	\$110,569
SA	21,998	\$34,536	\$345,364
WA	29,893	\$46,932	\$469,320
TAS	4,669	\$7,331	\$73,310
NT	1	\$2	\$15

¹⁷⁰ Based on advice from AHA

¹⁷¹ Based on advice from AHA

¹⁷² Based on advice from AHA

¹⁷³ See Table A2.1 for source of estimates

ACT	103	\$162	\$1,618
Australia	150,000	\$235,500	\$2,355,000
<i>Present value 7% discount rate</i>			<i>\$1,545,844</i>
3% discount rate			\$1,950,352
10% discount rate			\$1,315,496

A3.4.1 Incremental cost of Option C5 from the base case

The total 10-year incremental cost all standards under Option C5 as compared to the base case would be approximately **\$10.2m** or **\$6.87m** in 2012-13 dollars using a 7% discount rate, as shown in Table A3.22.

Table A3.22 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C5 – 2012-13 dollars

Proposed standard	10-year cost	PV cost - 7% discount rate	PV cost - 3% discount rate	PV cost - 10% discount rate
5.2	\$65,742	\$57,422	\$61,968	\$54,332
5.7	\$7,319,422	\$4,965,140	\$6,146,434	\$4,286,816
6.1	\$186,145	\$122,187	\$154,161	\$103,980
9.4	\$275,589	\$180,899	\$228,236	\$153,943
Pain relief for all LAI and ET	\$2,355,000	\$1,545,844	\$1,950,352	\$1,315,496
Total	\$10,201,898	\$6,871,492	\$8,541,151	\$5,914,567

A summary of 10-year quantifiable costs of the proposed standards by state and territory under Option C5 in 2012-13 present value dollars by state and territory is summarised in Table A3.23.

Table A3.23 – Summary of quantifiable 10-year incremental cost of proposed standards under Option C5 by state and territory – 2012-13 dollars

Proposed standard	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
5.2	\$21,508	\$14,372	\$2,383	\$8,926	\$8,153	\$2,033	\$4	\$42	\$57,422
5.7	\$3,936,728	\$210,249	\$194,362	\$192,889	\$205,393	\$225,519	\$0	\$0	\$4,965,140
6.1	\$43,668	\$33,047	\$4,720	\$17,417	\$17,953	\$5,298	\$5	\$78	\$122,187
9.4	\$69,231	\$78,403	\$0	\$33,266	\$0	\$0	\$0	\$0	\$180,899
Pain relief for all LAI and ET	\$569,917	\$319,388	\$72,579	\$226,701	\$308,066	\$48,122	\$10	\$1,062	\$1,545,844
Total	\$4,641,052	\$655,459	\$274,044	\$479,199	\$539,566	\$280,972	\$19	\$1,182	\$6,871,492

Taking the total 10-year incremental cost of the standards (in Table A3.23) and subtracting the benefit of the standards (in Table A2.15 of Appendix 2) and then dividing by the total flock of sheep in each state or territory (in Table A2.1 of Appendix 2) – gives the average net impact per sheep ranging from a cost a savings of \$0.03 in the ACT to a cost of \$0.13 in NSW, as shown in Table A3.24.

Table A3.24 – Range of average 10-year cost per sheep as a result of the proposed standards under Option C5 by state and territory –2012-13 dollars

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total net cost	\$3,608,932	\$35,235	\$194,552	\$44,555	\$129,795	\$204,993	\$19	-\$1,837	\$4,216,244

	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Total flock	26,824,697	15,212,015	3,653,239	11,008,541	13,999,854	2,344,469	1,855	54,092	73,098,762
Cost per sheep	\$0.13	\$0.00	\$0.05	\$0.00	\$0.01	\$0.09	\$0.01	-\$0.03	\$0.06

Note: Care should be taken in using the average cost per sheep in a jurisdiction to interpret the impact of standards or variations on a particular industry sector or an individual farmer's herd.

A3.4.2 Incremental cost of Option C5 from Option B

The total 10-year incremental cost all standards under Option C5 as compared to Option B (i.e. pain relief for all LAI and ET procedures under Option C5) would be approximately **\$2.34m** or **1.55m** in 2012-13 dollars. Table A3.25 shows the 10-year incremental cost of Option C5 as compared to Option B by state and territory. These estimates are provided from Table A3.17. The main impact of going to Option C5 as compared with Option B would be on NSW followed by WA and SA.

Table A3.25 – 10-year incremental cost of Option C5 as compared to Option B by state and territory –2012-13 dollars

Going from Option B to Option C5	NSW	VIC	QLD	SA	WA	TAS	NT	ACT	TOTAL
Plus pain relief all LAI and ET ¹⁷⁴	\$569,917	\$319,388	\$72,579	\$226,701	\$308,066	\$48,122	\$10	\$1,062	\$1,545,844
Net Difference between Option B and Option C5	\$569,917	\$319,388	\$72,579	\$226,701	\$308,066	\$48,122	\$10	\$1,062	\$1,545,844

A3.5 Omission of various ways in which the manner of handling sheep would be considered unreasonable – Option C7

An additional Option C7 has been added in response to representations from the sheep industries at the SRG meeting. This option would omit standard S5.1b, which lists various ways in which the manner of handling sheep would be considered unreasonable.

The omission of S5.1b would not result in any incremental cost savings, because a similar standard was assessed in the Consultation RIS as entailing no incremental compliance costs compared to the base case. The reason for this assessment was that the acts being prohibited would all be regarded as cruelty under POCTA if done intentionally and repeatedly. These acts are:

- 1) lift sheep off the ground by only one leg, or by the head, ears, horns, neck, tail or wool, unless in an emergency; or
- 2) throw or drop sheep, except to land on its feet from a height less than 1.5 metres; or
- 3) strike sheep in an unreasonable manner, punch or kick; or
- 4) drag sheep that are not standing by only one leg, except in an emergency to allow safe handling, lifting, treatment or humane killing; or
- 5) drag sheep by only the ears, or tail; or
- 6) drag by mechanical means, except in an emergency, for the minimum distance to allow safe handling, lifting, treatment or humane killing.

¹⁷⁴ See Table A3.21 for source of estimates

Of course, non-compliance with such a standard could incur monetary penalties in the form of fines. However, the role of this RIS is to assess the incremental costs of compliance with the proposed standards, rather than the costs of non-compliance. If persons handling sheep wish to avoid the costs of non-compliance, they can do so by complying with this standard.

On the other hand, the omission of proposed standard S5.1b would be expected to result in a small but unquantifiable reduction of animal welfare benefits compared to Option B. The reason for this is that under Option C7, standard S5.1 would simply read:

S5.1 A person must handle sheep in a reasonable manner.

Under Option B, S5.1 would be read in conjunction with S5.1b. Without proposed standard 5.1b, standard S5.1 on its own is relatively vague and uninformative. S5.1b would perform a useful role in spelling out the sheep handling practices that are regarded as unreasonable for the purposes of S5.1.

Option C7 would be likely to result in a reduction of national consistency in standards compared to Option B because some regulators have advised that they would regard such a standard as a 'step backwards' in terms of animal welfare standards and inferior to existing codes of practice. On this basis, some jurisdictions may well be reluctant to implement such a standard.

In summary, Option C7 would be unlikely to result in any cost savings compared to the base case, and would be likely to result in a small unquantifiable reduction in animal welfare benefits due to a lower level of compliance than under Option B. It would also be likely to result in a reduction in national consistency of animal welfare standards compared to Option B as a result of the reluctance of some jurisdictions to implement it.

A3.6 Summary of incremental quantifiable costs and benefits of Options A, B, C1, C2, C4, C5 and C7

Table A3.26 summarises the incremental quantifiable costs and benefits of Options A, B, C1, C2, C4, C5 and C7. Option B and Option C4 entail identical quantifiable benefits and the same welfare outcomes, however Option C4 results in less incremental quantifiable costs than Option B (i.e. an estimated net quantifiable cost savings of \$2.32m as compared to Option B). However, banning tethering under Option C4 would result in higher unquantifiable costs than Option B. Under Option C4 there would be an unquantifiable impact on the choice of individuals to keep sheep in the house paddock as pets (which a small percentage of farm families do).

As compared to Option B where exercise is possible, under Option C4 there would be no way for some families, apart from fencing and a loss of aesthetic benefits of lawns and gardens, to keep sheep from trampling and eating gardens and therefore, they would be prevented from being able to enjoy the benefits of sheep as pets. According to the SRG, the impact is likely to be higher than the estimated quantifiable cost saving of \$2.32m. That is to say for sheep where the opportunity of tethering and exercise has been removed under Option C4, it has been considered by the SRG, that an unquantifiable impact¹⁷⁵ of at least \$2.32m over 10 years would be likely.

¹⁷⁵ Recently a pet owner has spent \$200,000, facing bankruptcy, to fight a Melbourne Court ruling, to keep their 16-year old pet sheep See: <http://www.opposingviews.com/i/society/australian-man-goes-bankrupt-after-spending-200000-fight-keep-pet-sheep>

Option B and Option C7 entail identical quantifiable incremental costs and benefits, however as compared to Option B, Option C7 results in reduced compliance and welfare outcomes and a reduction in national consistency of animal welfare standards due to the reluctance of some jurisdictions to implement it.

Table A3.26 – 10-year quantifiable incremental costs and benefits of Options A, B, C1, C2, C4, C5 and C7 as compared to the base case, by state and territory –2012-13 dollars

Option/Variation	Description	Quantifiable costs	Quantifiable benefits	Quantifiable net cost
Option A	Guidelines	\$0	\$0	\$0
Option B	Proposed standards	\$5,325,648	\$2,655,248	\$2,670,400
Variation C1	Pain relief for all mulesing	\$35,624,306	\$2,655,248	\$32,969,058
Variation C2	All mulesing < 6 months	\$6,893,359	\$2,655,248	\$4,238,111
Variation C4	Banning of sheep tethering	\$3,005,593	\$2,655,248	\$350,345
Variation C5	Pain relief for all LAI and ET	\$6,871,492	\$2,655,248	\$4,216,244
Variation C7	Omission of various ways in which the manner of handling sheep would be considered unreasonable	\$5,325,648	\$2,655,248	\$2,670,400

Appendix 4 - List of relevant federal, state and territory legislation

Table A4.1: Summary of relevant state and territory legislation

State or Territory	Act	Existing regulations	Existing standards and guidelines
ACT	Animal Welfare Act 1992.	<i>Animal Welfare Regulation 2001</i>	Model Code of Practice for the Welfare of Animals – Sheep
NSW	Prevention of Cruelty to Animals Act 1979	<i>Prevention of Cruelty to Animals Regulation, 2006</i>	Model Code of Practice for the Welfare of Animals – Sheep
NT	Animal Welfare Act	<i>Animal Welfare Regulations</i> ¹⁷⁶	Model Code of Practice for the Welfare of Animals – Sheep
QLD	Animal Care and Protection Act 2001	<i>Animal Care and Protection Regulation 2012</i>	Model Code of Practice for the Welfare of Animals – Sheep
SA	Animal Welfare Act 1985	<i>Animal Welfare Regulations 2012</i>	Model Code of Practice for the Welfare of Animals – Sheep
TAS	Animal Welfare Act 1993	<i>Animal Welfare Regulations 2008</i>	Animal Welfare Guidelines – Sheep (October 2008) ¹⁷⁷
VIC	Prevention of Cruelty to Animals Act 1986 Livestock Management Act 2010	<i>Prevention of Cruelty to Animals Regulations 1997</i>	Vic Code of Accepted Farming Practice for the Welfare of Sheep (June 2007).
WA	Animal Welfare Act 2002	<i>Animal Welfare (General) Regulations 2003</i>	Code of practice for sheep in Western Australia (March 2003) ¹⁷⁸

¹⁷⁶ Regulations are not needed in NT to adopt standards. This can be done by the Minister by notice in the gazette. NT regulations do not have dates in their titles

¹⁷⁷ Based on the Model Code of Practice for the Welfare of Animals – The Sheep, (2nd edition 2006)

¹⁷⁸ Based on The Australian Model Code of Practice for the Welfare of Animals – Sheep (1st edition 1991) and adapted for use in Western Australia

Appendix 5 - List of proposed standards with negligible costs incremental to the base case

Std. No.	Subject matter	Base case
1	Responsibilities	
S1.1	A person must take reasonable actions to ensure the welfare of sheep under their care.	Market forces, TAS Act ¹⁷⁹ , (new general outcomes-based standard)
2	Feed and Water	
S2.1	A person in charge must ensure sheep have reasonable access to adequate and appropriate feed and water.	Market forces, POCTA, ¹⁸⁰ Tas Act, Vic Code ('must'), ¹⁸¹ Sheep MCOP guidelines only (new standard)
3	Risk management	
S3.1	A person in charge must take reasonable actions ¹⁸² to ensure the welfare of a sheep from threats including weather extremes, drought, fires, floods, disease, injury and predation.	Market forces, POCTA, Tas Act, Sheep MCOP guidelines only (new standard)
S3.3	A person in charge must ensure appropriate treatment or humane killing for a sick, injured or diseased sheep at the first reasonable opportunity.	POCTA, Tas Act, Sheep MCOP guidelines only (new standard)
4	Facilities and equipment	
S4.1	A person in charge must take reasonable actions in the construction, maintenance and operation of facilities and equipment to ensure the welfare of a sheep.	Market forces, POCTA, Tas Act, Vic Code ('must'), Sheep MCOP guidelines only (new standard)
5	Handling and husbandry	
S5.1	A person must handle sheep in a reasonable manner	To be read in conjunction with S5.1b. No incremental costs beyond S5.1b
S5.1b	A person handling sheep must not: 1) lift sheep off the ground by only one leg, or by the head, ears, horns, neck, tail or wool, unless in an emergency; or 2) throw or drop sheep, except to land on its feet from a height less than 1.5 metres; or 3) strike sheep in an unreasonable manner, punch or kick; or 4) drag sheep that are not standing by only one leg, except in an emergency to allow safe handling, lifting, treatment or humane killing; or 5) drag sheep by only the ears, or tail; or 6) drag by mechanical means, except in an emergency, for the minimum distance to allow safe handling, lifting, treatment or humane killing.	POCTA, ¹⁸³ Tas Act, Sheep MCOP guidelines only (new standard)
S5.3	A person in charge must ensure a sheep is shorn before the wool length is greater than twice the average annual growth for that breed.	Market forces (normal practice to shear annually). POCTA, Tas guidelines ¹⁸⁴ , Sheep MCOP guidelines only (new standard)
S5.4	A person must consider the welfare of sheep when using an electric prod, and must not use it:	POCTA, Tas Act, Sheep MCOP guidelines only (new standard).

¹⁷⁹ Duty of care provisions of Tasmanian *Animal Welfare Act 1993*

¹⁸⁰ The general cruelty provisions of the relevant Prevention of Cruelty to Animals Act or equivalent in each state and territory.

¹⁸¹ Victorian Code of Accepted Farming Practice for the Welfare of Sheep.

¹⁸² Note: The * means a defined term in the standards.

¹⁸³ Assuming that deliberate acts of this nature could result in a cruelty prosecution.

¹⁸⁴ Para 6.5 of Tas animal welfare guidelines says 'Sheep must be shorn annually' and warn of cruelty prosecution for excessively long fleeces.

Std. No.	Subject matter	Base case
	1) on genital, anal, or udder areas of sheep; or 1b) on facial areas, unless sheep welfare is at risk; or 2) on sheep less than three months old unless sheep welfare is at risk or; 3) on sheep that are unable to move away; or 4) in an unreasonable manner on sheep.	
S5.5	A person must not trim or grind the teeth of sheep.	POCTA, Tas Act, Vic Act, NSW Act, ¹⁸⁵ Vic Code ('must not'), Sheep MCOP guidelines only (new standard)
S5.6	A person must not alter the anatomy of the prepuce by incising the surrounding skin (pizzle dropping) on sheep.	POCTA, Tas Act, Sheep MCOP guideline only (new standard) Not banned in any jurisdiction, but regarded as an outmoded practice. Code defence to cruelty in Vic.
	Tail docking and castration	
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.	POCTA, Sheep MCOP 9.3, Tas Act, Vic Sheep Code 9.3, WA Code 10.2; Vet only ¹⁸⁶ over 6 months of age in NSW and QLD.
S6.3	A person must leave a docked tail stump of a sheep with at least two palpable free joints remaining.	POCTA, Tas guidelines, Sheep MCOP guidelines only (new standard)
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.	POCTA, Tas Act, Sheep MCOP 9.4, Vic Code ('must' and vet only), WA Code 10.4
	Mulesing	
S7.2	A person must not mules sheep that are less than 24 hours old or more than 12 months old.	POCTA, Tas Act, Sheep MCOP Appendix Three Para 3B.
S7.3	A person must not mules sheep that are 6–12 months old without using pain relief.	POCTA, Tas Act, Sheep MCOP Appendix Three Para 3B.
S7.4	A person must not mules sheep showing signs of debilitating disease, weakness or ill-thrift	POCTA, Tas Act, Sheep MCOP Appendix Three Para 3A.
S7.5	A person mulesing sheep must only remove wool bearing skin.	POCTA, Tas Act, Sheep MCOP guidelines only (new standard)
6	Breeding management	
S8.1a	A person performing artificial breeding procedures on sheep must have the relevant knowledge, experience and skills, or be under the direct supervision of a person who has the relevant knowledge, experience and skills.	Market forces and POCTA would be the main drivers here.
S8.1	A person performing artificial breeding procedures on a sheep must not cause unreasonable pain, distress or injury to a sheep	POCTA, Tas Act, (new standard)
S8.2	A person must be a veterinarian, or operating under veterinary supervision, to perform surgical embryo transfer or laparoscopic insemination of a sheep	POCTA, Tas Act, (new standard) Assume only vets or persons operating under vet supervision would do this anyway, with rare exceptions. (Note that direct supervision is not required).
	Intensive sheep production systems	
S9.1	A person in charge must ensure that feed and water is available daily to a sheep in intensive production systems	Market forces, POCTA, Tas Act, Sheep MCOP guideline only (new standard).
S9.2	A person in charge must ensure the inspection of sheep daily in the first week of confinement to ensure adaptation to the intensive production	Market forces, Tas Act, Sheep MCOP guideline only (new standard).

¹⁸⁵ Sheep teeth grinding, clipping or trimming are expressly prohibited under Vic and NSW legislation

¹⁸⁶ Assume vets would use pain relief

Std. No.	Subject matter	Base case
	system	
S9.3	A person in charge must take reasonable action where a sheep has not adapted to an intensive production system	Market forces, Tas Act, Sheep MCOP guideline only (new standard).
S9.5	A person in charge must ensure an indoor housing system for a sheep has effective ventilation.	Market forces, Tas Act, Sheep MCOP guideline only (new standard). All systems already comply.
S9.6	A person in charge must ensure sufficient space to allow all sheep to lie on their sternums at the same time in an intensive production system	Market forces, Tas Act, Sheep MCOP guideline only (new standard).
S9.7	A person must not house a sheep in a single pen for fine wool production	Market forces, Tas Act, Sheep MCOP guideline only (new standard).
	Humane killing	
S10.1	A person in charge must ensure killing methods for a sheep result in rapid loss of consciousness followed by death while unconscious	POCTA, Tas Act, Vic ACT ¹⁸⁷ and WA Code ¹⁸⁸ ('musts'), Sheep MCOP guideline only (new standard).
S10.2	A person killing a sheep must have the relevant knowledge, experience and skills to kill the sheep humanely or be under the direct supervision of a person who has the relevant knowledge, experience and skills unless: <ul style="list-style-type: none"> • a sheep is suffering and needs to be killed to prevent undue suffering; and • there is an unreasonable delay until direct supervision by a person who has the relevant knowledge, experience and skills becomes available 	POCTA, Tas Act, Sheep MCOP guideline only (new standard). Assume necessary for compliance with S10.1.
S10.3	A person in charge must ensure sheep that are suffering from severe distress, disease or injury that cannot be reasonably treated must ensure that they are killed at the first reasonable opportunity	POCTA, Tas Act, Sheep MCOP guideline only (new standard).
S10.4	A person killing a sheep must take reasonable actions to confirm the sheep is dead.	POCTA, Tas Act, Sheep MCOP guideline only (new standard). Assume necessary for compliance with S10.1.
S10.5	A lamb must weigh less than 10 kilograms for a person to kill it by a blow to the forehead and only when there is no firearm, captive bolt or lethal injection reasonably available.	POCTA, Tas Act, Sheep MCOP guideline only (new standard).
S10.6	A person must only use bleeding-out by neck cut to kill a conscious sheep where there is no firearm, captive bolt or lethal injection reasonably available.	POCTA, Tas Act, Sheep MCOP guideline only (new standard).

¹⁸⁷ ACT Code of Practice for the Welfare of Animals – Sheep

¹⁸⁸ WA Code of Practice for Sheep 2003

Appendix 6 – Number of sheep annually affected by welfare standards under Option B by State and territory

The change of sheep farming/invasive procedures under Option B leading to additional welfare and the number of sheep affected is summarised in Table A6.1 by state and territory. However it is important to note the number of sheep alone does not reflect the severity of the consequences; but rather it is the combination of:

- Number of animals affected (small or large);
- Duration of practice (one-off or ongoing); and
- Impact of animal husbandry procedure (primarily invasive or less-invasive).

Moreover, the sheep numbers in Table A6.1 are not mutually exclusive whereby given sheep can be affected by different issues within a state or territory. Therefore, even if the number of sheep affected by each issue were known - any summation and inference from such a summation would be misleading and incorrect.

Table A6.1 – Number of sheep annually affected by Option B welfare standards as compared to the base case by state and territory

Jurisdiction	Welfare issue	Number of sheep affected
NSW	inspection of sheep at intervals	% of 26,824,697
NSW	handle sheep in a reasonable manner	% of 26,824,697
NSW	dog that habitually bites is muzzled	Unknown (minor)
NSW	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
NSW	consider the welfare of sheep when using an electric prod	Unknown
NSW	must not trim or grind the teeth of sheep	Unknown (minor)
NSW	no pizzle dropping	Unknown (minor)
NSW	sheep that are tethered are able to exercise daily	1,000
NSW	tail docking with skilled practitioner or under supervision	% of 12,208,426
NSW	castration with skilled practitioner or under supervision	% of 6,104,213
NSW	at least one palpable free joint remaining with tail docked sheep	% of 12,208,426
NSW	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
NSW	faeces and urine must not compromise the welfare of a sheep	20
VIC	inspection of sheep at intervals	% of 15,212,015
VIC	handle sheep in a reasonable manner	% of 15,212,015
VIC	dog that habitually bites is muzzled	Unknown (minor)
VIC	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
VIC	consider the welfare of sheep when using an electric prod	Unknown
VIC	must not trim or grind the teeth of sheep	Unknown (minor)
VIC	no pizzle dropping	Unknown (minor)
VIC	sheep that are tethered are able to exercise daily	50
VIC	tail docking with skilled practitioner or under supervision	% of 7,107,956
VIC	castration with skilled practitioner or under supervision	% of 3,553,978
VIC	at least one palpable free joint remaining with tail docked sheep	% of 7,107,956
VIC	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
VIC	faeces and urine must not compromise the welfare of a sheep	20
QLD	inspection of sheep at intervals	% of 3,653,239
QLD	handle sheep in a reasonable manner	% of 3,653,239
QLD	dog that habitually bites is muzzled	Unknown (minor)
QLD	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
QLD	consider the welfare of sheep when using an electric prod	Unknown
QLD	must not trim or grind the teeth of sheep	Unknown (minor)

Jurisdiction	Welfare issue	Number of sheep affected
QLD	no pizzle dropping	Unknown (minor)
QLD	sheep that are tethered are able to exercise daily	50
QLD	tail docking with skilled practitioner or under supervision	% of 1,196,502
QLD	castration with skilled practitioner or under supervision	% of 598,251
QLD	at least one palpable free joint remaining with tail docked sheep	% of 1,196,502
QLD	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
QLD	faeces and urine must not compromise the welfare of a sheep	-
SA	inspection of sheep at intervals	% of 11,008,541
SA	handle sheep in a reasonable manner	% of 11,008,541
SA	dog that habitually bites is muzzled	Unknown (minor)
SA	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
SA	consider the welfare of sheep when using an electric prod	Unknown
SA	must not trim or grind the teeth of sheep	Unknown (minor)
SA	no pizzle dropping	Unknown (minor)
SA	sheep that are tethered are able to exercise daily	50
SA	tail docking with skilled practitioner or under supervision	% of 5,111,474
SA	castration with skilled practitioner or under supervision	% of 2,555,737
SA	at least one palpable free joint remaining with tail docked sheep	% of 5,111,474
SA	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
SA	faeces and urine must not compromise the welfare of a sheep	10
WA	inspection of sheep at intervals	% of 13,999,854
WA	handle sheep in a reasonable manner	% of 13,999,854
WA	dog that habitually bites is muzzled	Unknown (minor)
WA	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
WA	consider the welfare of sheep when using an electric prod	Unknown
WA	must not trim or grind the teeth of sheep	Unknown (minor)
WA	no pizzle dropping	Unknown (minor)
WA	sheep that are tethered are able to exercise daily	50
WA	tail docking with skilled practitioner or under supervision	% of 6,546,000
WA	castration with skilled practitioner or under supervision	% of 3,273,000
WA	at least one palpable free joint remaining with tail docked sheep	% of 6,546,000
WA	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
WA	faeces and urine must not compromise the welfare of a sheep	-
TAS	inspection of sheep at intervals	-
TAS	handle sheep in a reasonable manner	% of 2,344,469
TAS	dog that habitually bites is muzzled	Unknown (minor)
TAS	sheep is shorn before the wool reaches 250mm in length	Unknown (minor)
TAS	consider the welfare of sheep when using an electric prod	Unknown
TAS	must not trim or grind the teeth of sheep	Unknown (minor)
TAS	no pizzle dropping	Unknown (minor)
TAS	sheep that are tethered are able to exercise daily	50
TAS	tail docking with skilled practitioner or under supervision	% of 1,097,709
TAS	castration with skilled practitioner or under supervision	% of 548,855
TAS	at least two palpable free joints remaining with tail docked sheep	% of 1,097,709
TAS	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
TAS	faeces and urine must not compromise the welfare of a sheep	-
NT	inspection of sheep at intervals	% of 1,855
NT	handle sheep in a reasonable manner	% of 1,855
NT	dog that habitually bites is muzzled	Unknown (minor)
NT	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
NT	consider the welfare of sheep when using an electric prod	Unknown
NT	must not trim or grind the teeth of sheep	Unknown (minor)
NT	no pizzle dropping	Unknown (minor)
NT	sheep that are tethered are able to exercise daily	-
NT	tail docking with skilled practitioner or under supervision	-

Jurisdiction	Welfare issue	Number of sheep affected
NT	castration with skilled practitioner or under supervision	-
NT	at least one palpable free joint remaining with tail docked sheep	-
NT	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
NT	faeces and urine must not compromise the welfare of a sheep	-
ACT	inspection of sheep at intervals	% of 54,092
ACT	handle sheep in a reasonable manner	% of 54,092
ACT	dog that habitually bites is muzzled	Unknown (minor)
ACT	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
ACT	consider the welfare of sheep when using an electric prod	Unknown
ACT	must not trim or grind the teeth of sheep	Unknown (minor)
ACT	no pizzle dropping	Unknown (minor)
ACT	sheep that are tethered are able to exercise daily	-
ACT	tail docking with skilled practitioner or under supervision	% of 21,197
ACT	castration with skilled practitioner or under supervision	% of 10,599
ACT	at least one palpable free joint remaining with tail docked sheep	21,197
ACT	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
ACT	faeces and urine must not compromise the welfare of a sheep	-
Australia	inspection of sheep at intervals	% of 70,754,293
Australia	handle sheep in a reasonable manner	% of 73,098,762
Australia	dog that habitually bites is muzzled	Unknown (minor)
Australia	sheep is shorn before the wool reaches twice average annual growth for that breed	Unknown (minor)
Australia	consider the welfare of sheep when using an electric prod	Unknown
Australia	must not trim or grind the teeth of sheep	Unknown (minor)
Australia	no pizzle dropping	Unknown (minor)
Australia	sheep that are tethered are able to exercise daily	1,250
Australia	tail docking with skilled practitioner or under supervision	% of 33,289,264
Australia	castration with skilled practitioner or under supervision	% of 16,644,632
Australia	at least one palpable free joint remaining with tail docked sheep	% of 33,289,264
Australia	AI or ET performed by veterinarian or under veterinary supervision only	Unknown (rare)
Australia	faeces and urine must not compromise the welfare of a sheep	50

Appendix 7 – Full list of questions asked during public consultation

Public consultation question 1: In your experience, to what extent does the existing MCOP and related regulations create uncertainty for industry? Does such uncertainty vary between different states and territories?

Public consultation question 2: Do you know the number or percentage of farm hands needing training for mulesing under the proposed standard S7.1? Do you have any information to improve the estimation of costs in relation to mulesing?

Public consultation question 3: Do you know the number or percentage of lambs that are affected by adverse welfare outcomes due to unskilled/unsupervised farmhands undertaking tail-docking and castration procedures? Do you have any other information to improve the estimation of costs under the proposed standard S 6.1?

Public consultation question 4: Do you know of the number or percentage of sheep not receiving pain relief for castration? Do you have any other information to improve the estimation of costs under the proposed standard S6.4?

Public consultation question 5: Do you know the number or percentage of sheep that have a tail that is less than two palpable joints long? Do you have any other information to improve the estimation of costs under the proposed standard S6.3?

Public consultation question 6: Do you know the number or percentage of ewes that are affected by insufficient pain relief during artificial breeding procedures? Do you have any other information to improve the estimation of costs under the proposed standards S8.1 and S8.2?

Public consultation question 7: Do you know the number of sheep that are tethered and will be affected under the proposed standard S5.7? Do you have any other information to improve the estimation of costs?

Public consultation question 8: Do you know the number or percentage of sheep that are affected by adverse welfare outcomes due to dog bites? Do you have any other information to improve the estimation of costs under the proposed standard S5.2?

Public consultation question 9: Do you know the number or percentage of sheep that are affected by adverse welfare outcomes due to poor hygiene in sheds? Do you have any other information to improve the estimation of costs under the proposed standard S9.4?

Public consultation question 10: Do you know the number or percentage of sheep, on average, that carry wool length greater than 250mm outside shearing periods? Do you have any other information to improve the estimation of costs under the proposed standard S5.3?

Public consultation question 11: Do you know the number or percentage of sheep, on average, that undergo tooth trimming? Do you any other information to improve the estimation of costs under the proposed standard S5.5?

Public consultation question 12: Do you know the number or percentage of sheep, on average, that are affected by the inappropriate use of electric prodders? Do you have any other information to improve the estimation of costs under the proposed standard S5.4?

Public consultation question 13: Do you know the number or percentage of sheep, on average, that are subjected to the pizzle dropping procedure? Do you have any other information to improve the estimation of costs under the proposed standard S5.6?

Public consultation question 14: Are there any poor risk management practices other than those already discussed in this Part of the RIS? Do you know the number or percentage of sheep that are subjected to adverse welfare outcomes from such other poor risk management practices?

Public consultation question 15: Do you know the number or percentage of sheep farming businesses that operate in more than one jurisdiction and how many sheep are likely to be affected? Please provide percentage estimates for various combinations of states and territories.

Public consultation question 16: Do you know of other differences in current state or territory welfare standards for sheep; and if so, what are these?

Public consultation question 17: Do you have information on how many times would a muzzle need to be replaced, on average, over the lifetime of a sheep dog under the proposed standard S5.2?

Public consultation question 18: Do you have any information on single penning sheep operations in Australia affected under the proposed standards in chapter 9?

Public consultation question 19: Do you believe that the net benefits achieved under Option A, including welfare benefits and reduction in excess regulatory burden, are justified?

Public consultation question 20: Do you believe that the net benefits achieved under option B, including welfare benefits and reduction in excess regulatory burden, are justified?

Public consultation question 21: Do you believe that the benefits achieved under Variation C1 of Option B, including the welfare benefits of pain relief with all mulesing and reduction in excess regulatory burden, are justified?

Public consultation question 22: Do you believe that the benefits likely to be achieved under Variation C2 of Option B, including the welfare benefits of requiring mulesing to be performed under 6 months of age and reduction in excess regulatory burden, are justified?

Public consultation question 23: Do you believe that the benefits likely to be achieved under Variation C3 of Option B, including the welfare benefits of banning single penning of sheep and reduction in excess regulatory burden, are justified?

Public consultation question 24: Do you believe that the benefits likely to be achieved under Variation C4 of Option B, including the welfare benefits of banning tethering of sheep and reduction in excess regulatory burden, are justified?

Public consultation question 25: Do you believe that the benefits likely to be achieved under Variation C5 of Option B, including the welfare benefits of mandating pain relief for laparoscopic artificial insemination (LAI) and embryo transfer (ET) and a reduction in excess regulatory burden are justified?

Public consultation question 26: Do you believe that the benefits likely to be achieved under Variation C6 of Option B including the welfare benefits of mandating one free palpable joint with respect to tail-docking procedures and a reduction in excess regulatory burden, are justified?

Prepared by:



On behalf of:

Australian and jurisdictional governments, livestock industries and related organisations.
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