



Animal Welfare (Calves) Regulations 2016

Regulatory Impact Statement

ISBN No: 978-1-77665-332-4 (online)

July 2016

Disclaimer

While every effort has been made to ensure the information in this publication is accurate, the Ministry for Primary Industries does not accept any responsibility or liability for error of fact, omission, interpretation or opinion that may be present, nor for the consequences of any decisions based on this information.

Requests for further copies should be directed to:

Publications Logistics Officer
Ministry for Primary Industries
PO Box 2526
WELLINGTON 6140

Email: brand@mpi.govt.nz

Telephone: 0800 00 83 33

Facsimile: 04-894 0300

This publication is also available on the Ministry for Primary Industries website at <http://www.mpi.govt.nz/news-and-resources/publications/>

© Crown Copyright - Ministry for Primary Industries

Contents

Page

Agency Disclosure Statement	1
1. Executive summary	2
2. Status quo	3
3. Problem definition	4
4. Objectives	5
5. Options and impact analysis	6
Options Analysis	9
Impact of Proposed Regulations	11
6. Consultation	16
7. Conclusions and recommendations	17
8. Implementation plan	17
9. Monitoring, evaluation and review	18
Appendix 1 – Overview of the regulations	20
Appendix 2 – Summary of submissions and MPI’s response	23

Agency Disclosure Statement

This Regulatory Impact Statement (RIS) has been prepared by the Ministry for Primary Industries (MPI). It provides an analysis of options for safeguarding the welfare of young calves.

These options for safeguarding the welfare of young calves are based on minimum standards, recommended best practices and guidance in codes of welfare¹ under the Animal Welfare Act 1999 (the Act) and /or accepted good practice across the industry.

A quantitative assessment of the net economic impact of any change in practice is not possible due to the tight timeframe to have new measures in place before the bulk of 2016 calving season. Without detailed information and analysis the full impacts, including costs, cannot be determined on:

- those directly affected;
- the wider economy; and
- MPI's compliance and enforcement capacity.

In light of the lack of quantitative data MPI has:

- relied on advice provided by industry groups that represent those affected by change;
- made some assumptions that the advertising campaign undertaken in the United Kingdom, regarding serious ill treatment of young calves in New Zealand, hurt our international reputation; and
- estimated the levels of non-compliance with any new regulations and the extent to which this will impact MPI's and the Royal New Zealand Society for the Prevention of Cruelty to Animals' (RNZSPCA) compliance and enforcement capacity.

The Government has decided that further action needs to be taken to protect the welfare of young calves and that any actions should be in place by the bulk of 2016 calving season. Regulation making powers were inserted into the Act in 2015 to specifically address problems with enforcing non-compliance where the offending is of a low-to-medium level of seriousness. The regulations in this RIS are part of a wider programme to address non-compliance at this level of seriousness.

MPI considers that the regulations presented in this RIS will strengthen the welfare of young calves in New Zealand.

Deborah Roche
Deputy Director General Policy and Trade

13 July 2016

¹ Codes of welfare are developed by the National Animal Welfare Advisory Committee (NAWAC), which is a committee established under the Act to provide independent advice on animal welfare to the Minister for Primary Industries.

1. Executive summary

For the purposes of this RIS, a “young calf” is a bovine animal that is up to 14 days of age that has been separated from its mother. All the requirements, outlined in this document, relate to young calves. In addition, requirements specific to killing by blunt force trauma relate to all calves.²

The majority of young calves come from the dairy industry and are produced during the period from July to October. Some calves are also born during the autumn calving season. The term “bobby calf” is used to refer specifically to those young calves in the dairy industry that are destined for slaughter, although there are some beef calves that otherwise fit the young calf criteria.

Since 2008, MPI has been working with major stakeholder organisations to improve education about what is good practice for bobby calves and to help people put this into action. As a result, the proportion of bobby calves that died prematurely because of welfare issues (in transit or in lairage³) has declined from 0.68% in 2008 to 0.25% in 2015. Nonetheless, 0.25% represents a significant number of animals. In 2015, approximately 2.17 million bobby calves were presented for processing - 0.25% equates to 5,390 calves.

The welfare of these calves has had a particularly high public profile recently. In November 2015, the TVNZ Sunday programme released footage of bobby calves being seriously mistreated and an advertising campaign was run in the UK accusing New Zealand’s dairy industry of unacceptable levels of cruelty. Two sets of charges have been laid in relation to some of the activity in that footage and further investigations are continuing.

The exclusive use of non-regulatory options to protect the welfare of young calves was considered. Non-regulatory options were undertaken between 2008 and 2015 and these were effective, as demonstrated by the reduction in premature mortality of bobby calves described above. However, a firm regulatory response is required to back-up the non-regulatory options already in place.

The regulations are part of a wider suite of action to address ongoing concerns for young calf welfare. The regulations will help ensure that good standards of practice, which are common for most practitioners, become statutory requirements across all parts of industry and are directly enforceable. The regulations provide a mechanism to target the small minority of farmers, and other operators in the industry, who continue to mistreat calves and will ensure that the perpetrators of abuse against young calves can be held to account.

MPI considers that implementing regulations will send a clear signal of the Government’s intention to require owners of young calves, and persons in charge of young calves, to attend properly to the welfare of these animals. Regulations will enable the Government to respond effectively to offending through clear, consistent regulatory obligations and the ability to use infringement notices or regulatory prosecutions.

² For the purposes of this regulation a calf is a bovine animal that has not had milk (or milk replacer) permanently removed from its diet.

³ Lairage is a place where cattle or sheep may be rested on the way to market or slaughter.

2. Status quo

In 2015, approximately 2.17 million bobby calves were presented for processing, of which 5,390 were recorded as having died prematurely or were condemned for welfare reasons in the period from pick up at the farm to the period immediately before slaughter.

The majority of young calves up to 14 days old that have been separated from their mothers are bobby calves from the dairy industry, although there are a small number in the beef industry.

The Government has been working with industry stakeholders over the past several years to help educate and implement good practice for these calves to improve their overall welfare. During this period the premature mortality rate of bobby calves has declined steadily from 0.68 percent in 2008 to 0.25 percent in 2015 despite the overall number of calves presented for processing having increased over that same period.

In November 2015 a high profile TVNZ expose aired showing serious instances of ill treatment of young calves. An associated advertising campaign was run in the United Kingdom, including full page advertisements in the Guardian newspaper, accusing the whole of New Zealand's dairy industry of unacceptable levels of cruelty. Two sets of charges have been laid in relation to some of the activity in the footage and further investigations are continuing.

The footage highlighted that a small minority of farmers, and other operators in the industry⁴, continue to mistreat their young calves. In response to concerns about young calf welfare, MPI convened the 'Bobby Calf Action Plan Group'⁵. The Group identified current science and best practice, education, training and communication needs across the supply chain for young calves. By April 2016, 14 actions had been identified to assist with education and communication needs, facility and data requirements. These actions will be implemented by August 2016.

Regulatory environment

The Act establishes the fundamental obligations relating to the care of animals in general terms. Codes of welfare then expand on the basic obligations of the Act by setting minimum standards and recommended best practices relating to all aspects of the care and management of an animal.

The existing requirements for young calf management are either generally or specifically included within the Act and four separate codes of welfare: the Dairy Cattle Code of Welfare 2014, the Transport within New Zealand Code of Welfare 2011, the Commercial Slaughter Code of Welfare 2010 and the Sheep and Beef Code of Welfare 2010⁶. These codes set the minimum standards to which owners or persons in charge of young calves must adhere to meet their obligations under the Act. They also detail examples of best practice.

⁴ Other operators include: transporters, meat processors and stock/sale yard operators.

⁵ The Bobby Calf Action Group includes MPI, the Dairy Companies Association of New Zealand, DairyNZ, the Road Transport Forum, the Meat Industry Association, Federated Farmers, the New Zealand Veterinary Association and the New Zealand Petfood Manufacturers Association.

⁶ Codes of welfare are available on MPI's website at: [Codes are available on MPI's website: www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare](http://www.mpi.govt.nz/protection-and-response/animal-welfare/codes-of-welfare)

Minimum standards within codes of welfare are not directly enforceable. However, a breach of a minimum standard in a code of welfare can be put forward as evidence in a prosecution under the Act and adherence to a minimum standard can be relied on as a defence for an offence against some provisions of the Act.

Amendments to the Act in 2015 created the power to make regulations. Regulations will complement codes of welfare by specifying mandatory animal welfare standards with associated penalties. Penalties can either be a fine and a criminal conviction as a result of a prosecution under the regulations or an infringement fee without conviction. Regulations will be used in response to offending that is of a lower-level of seriousness, where prosecution under the Act would not be warranted, but which still causes, or risks causing, pain or distress to animals.

In April and May 2016 MPI consulted on a package of 91 regulatory proposals under the Act—including eight proposals specifically designed to address the welfare of young calves. This is the first time a substantive suite of regulations has ever been made under the Act.

3. Problem definition

Young calves are vulnerable. The majority of young calves are treated with care, however, in a small minority of cases they are mistreated. In 2015, 0.25% (5,390 animals) young calves in the dairy industry, which were presented for slaughter, died prematurely because of welfare issues.

Minimum standards or general requirements under the Act are difficult to enforce. Minimum standards within codes of welfare are not directly enforceable and require a prosecution to be taken under the Act. Prosecutions under the Act are resource intensive⁷ and generally only appropriate for serious offending.

As a result, the majority of offending is dealt with through the provision of verbal advice, educational information or by issuing a warning. These types of enforcement tools are not effective when dealing with frequent or repetitive offending that is of a lower level of seriousness because there are limited consequences for the offender of not complying.

Without direct consequences, the small minority of people who are not attending properly to young calves are likely to continue to place their welfare at risk—potentially causing unnecessary pain or distress to the animals.

If this treatment is allowed to continue it is also likely to have negative impacts on New Zealand's reputation in animal welfare practices both locally and internationally. In 2014, the global charity World Animal Protection ranked New Zealand first equal alongside the United Kingdom, Austria and Denmark for its animal welfare regulatory system. If New Zealand's reputation is harmed our access to high value markets and new markets is likely to be affected.

⁷ Prosecutions under the Act may require proof of matters such as pain and distress and failure to provide for physical and behavioural needs. As regulations are intended to be more specific, prosecution under regulations should be more straightforward and potentially less resource intensive.

4. Objectives

The overarching objective is to ensure owners and persons in charge of young calves attend properly to the welfare of those calves.

A solution that achieves this objective needs to be:

- effective – the intervention will achieve the desired change in outcome and / or update practice, including through enforcement and /or education;
- efficient – any action will be the minimum necessary to ensure that the purposes of the Act will be met, be practical, economically viable and administratively efficient to deliver;
- equitable – the level of the offence will be proportionate to the level of penalties available; and
- clear – the actions or omissions will be specific and measurable.

In particular, we will know that the intervention has been effective when:

- there is a higher level of compliance with animal welfare standards;
- there are fewer instances where the physical, health and behavioural needs of young calves are not met; and
- the world leading reputation of New Zealand's animal welfare regulatory system is maintained and enhanced.

In respect of young calves, the Government has made the decision that further action needs to be taken to protect the welfare of these animals.

In addition, the Government has previously determined that regulations are an effective tool to address problems with enforcing non-compliance where the offending is of a low-to-medium level of seriousness. In 2015, the Act was amended to, among other things, provide the ability to make directly enforceable regulations that have appropriate penalties for low to medium offending. The offences set out in the regulations are designed to complement the codes of welfare and the more general and serious offences that will continue to be dealt with primarily through the Act itself.

5. Options and impact analysis

Options

MPI considered four options:

- Option 1: **Status quo** – Codes of welfare and education/awareness training for farmers, and other operators in the industry, on their obligations to improve calf welfare.
- Option 2: **Implement regulations** – implement regulations specific to young calves to complement existing codes of welfare and educational / training initiatives.
- Option 3: **Further training and education/awareness** – undertake additional training and education for farmers, and other operators in the industry, on their obligations to improve calf welfare.
- Option 4: **Amend the relevant Codes of Welfare** – amend codes of welfare to reflect accepted good practice across industry. This may include amending existing minimum standards and /or developing new minimum standards.

Regulatory requirements

Regulations under option 2 would include a package of seven requirements in the areas outlined below. The requirements reflect those areas where there are particular concerns with calf welfare or problems with enforcement. The requirements are based on minimum standards, recommended best practices, and guidance in codes of welfare under the Act and /or accepted good practice across the industry. Details on how these regulations relate to current requirements, the penalties for each regulation and commencement dates are outlined in Appendix 1.

- Fitness for transport* - Requiring that a young calf must be at least four full days of age before it is transported for sale or slaughter. The calf must also display certain physical characteristics, including the ability to stand and walk and freedom from disease.
- Prohibition of killing calves by blunt force trauma to the head* – Prohibiting the killing of any calves by blunt force trauma except in emergency circumstances.
- Maximum duration of transport* – Setting a maximum total duration of 12 hours journey time for young calves that are being transported.
- Prohibition of transport by sea across Cook Strait* – Prohibiting the transportation of young calves by sea across the Cook Strait.
- Maximum time off feed before slaughter* – Requiring that young calves must be slaughtered as soon as possible after arrival at the slaughter premises, and within 24 hours of the last feed on farm (down from 30 hours).
- Requirements for loading and unloading facilities* - Requiring loading and unloading facilities be provided and used when young calves are transported for sale or slaughter.
- Shelter requirements before and during transportation and at points of sale or slaughter* - Requiring that suitable shelter be provided for young calves before and during transportation and at points of sale and slaughter.

A summary of the options analysis is outlined in Table 1.

Table 1: Summary of assessment of options against objectives and risks

Summary of proposed Regulations	Effective - the desired change in outcome and / or updated practice be achieved	Efficient - requirements are the minimum necessary, practical, economically viable and administratively efficient	Equitable – the level of the offence proportionate to the level of penalties	Clear – the actions or omissions are specific and measurable
Option 1: Status quo	<p style="text-align: center;">x</p> <p>Minimum standards not directly enforceable, therefore unlikely to change behaviour of those outliers that continue to mistreat their calves.</p>	<p style="text-align: center;">✓</p> <p>No short term costs to industry or changes to existing procedures and conventions. Potential long term cost, if outliers continue to mistreat calves, in terms of lost market access and future stringent regulations. Prosecutions under the Act may be more resource intensive than regulatory prosecutions, given the more general nature of the offences in the Act.</p>	<p style="text-align: center;">✓</p> <p>Generally limited consequences for offenders not complying with their obligations. Act prosecution could be taken but may not be proportionate to low – medium level offending.</p>	<p style="text-align: center;">✓</p> <p>Not all high risk activities are set as minimum standards within codes of welfare.</p>
Option 2: proposed Regulations	<p style="text-align: center;">✓✓</p> <p>Regulations provide directly enforceable standards.</p>	<p style="text-align: center;">✓</p> <p>Short term costs to industry in terms of new infrastructure. Requirements to change procedures and conventions in some cases. Potential long term benefit based on a strong reputation and therefore good market access. Regulations are intended to be more specific therefore potentially less resource intensive to enforce.</p>	<p style="text-align: center;">✓✓</p> <p>Penalties for non-compliance are available that are efficient and effective to administer and set at appropriate level.</p>	<p style="text-align: center;">✓✓</p> <p>Obligations updated clear and measurable.</p>
Option 3: Increased education/training	<p style="text-align: center;">x</p> <p>Minimum standards not directly enforceable, therefore unlikely to change behaviour of those outliers</p>	<p style="text-align: center;">x</p> <p>No short term costs to industry. Expectation, but no requirement, that some procedures and conventions are changed.</p>	<p style="text-align: center;">✓</p> <p>Generally limited consequences for offenders not complying with their obligations. Act prosecution</p>	<p style="text-align: center;">✓</p> <p>Not all high risk activities are set as minimum standards within codes of</p>

	that continue to mistreat their calves.	Potential long term cost, if outliers continue to mistreat calves, in terms of lost market access and future stringent regulations. Education and training can be resource intensive but unlikely to reach all outliers.	could be taken but may not be proportionate to low – medium level offending.	welfare.
Option 4: Code changes	<p style="text-align: center;">✓</p> <p>More specific minimum standards may change the behaviour of some outliers, but not, all as they not directly enforceable.</p>	<p style="text-align: center;">✘</p> <p>Likely to be short term costs to industry, in terms of new infrastructure. Also requirements to change procedures and conventions in some cases. However, this option lacks the potential long term benefit as it is less likely to change the behaviour of those outliers that continue to mistreat calves.</p> <p>Prosecutions under the Act may be more resource intensive than regulatory prosecutions, given the more general nature of the offences in the Act.</p>	<p style="text-align: center;">✓</p> <p>Generally limited consequences for offenders not complying with their obligations. Act prosecution could be taken but may not be proportionate to low – medium level offending.</p>	<p style="text-align: center;">✓✓</p> <p>Obligations updated and aligned within codes of welfare.</p>

Key: ✘ = criteria unlikely to be met; ✓ = criteria is partially met; ✓✓ = criteria is likely to be met.

Options Analysis

Option 1: Status quo

The existing system consists of general requirements under the Act, and a combination of codes of welfare and government and industry initiatives to improve education and training for the management of young calves.

The status quo is unlikely to provide the necessary incentives to a small minority of farmers, and other operators in the industry, who continue to mistreat their calves. Minimum standards within codes of welfare are difficult to enforce. They are not directly enforceable and a breach requires a prosecution under the Act, which can be resource intensive. In addition, not all of the high risk activities, identified in the proposed regulations (option 2), are set as minimum standards within codes of welfare. Currently the majority of offending at this level is dealt with through the provision of verbal advice, educational information or by issuing a warning. These types of enforcement tools are not effective when dealing with frequent or repetitive low to medium level of offending as there are limited consequences for the offender from not complying.

Under this option, short-term operating costs will be minimised as investment in loading facilities or suitable shelter is not required. Similarly, current industry practices, such as the coordination of feeding prior to transport, length of journey and scheduling at slaughter facilities would not need to change.

However, if negative practices continue, operating costs in the long term may increase as more stringent and / or more encompassing regulations may be needed than those proposed under option 2. A more stringent response is likely to be needed to address concerns that industry has not taken steps to respond to the welfare issues that have already been highlighted.

New Zealand's reputation would remain vulnerable to the small minority of farmers, and other operators in the industry, which continue to mistreat their calves. The impact on New Zealand's reputation may affect existing export revenue for animals or animal products and hinder our ability to develop new markets. In 2015, New Zealand earned \$23 billion from export revenue for animals and animal products—even a small reduction of this could have a significant economic impact.

Option 2: Implementing the proposed Regulations

Under this option, regulations will target high risk activities within the sector. All the regulations relate to young calves. In addition, requirements specific to killing by blunt force trauma relate to all calves, not just young calves. The regulations will complement existing codes of welfare and educational / training initiatives. The following section, 'Impact of proposed regulations', outlines more detailed information on the potential economic impacts, and fiscal and compliance cost of the regulations.

As regulations are directly enforceable, they are likely to provide a stronger incentive to the small minority of farmers, and other operators in the industry, who continue to mistreat their calves. Breaching a regulation can result in financial penalties, prosecution and a criminal conviction. As regulations are intended to be more specific, prosecution under regulations should be more straightforward and potentially less resource intensive than prosecution under the Act.

Under this option some farmers, and other operators in the industry, may need to invest in new or adjusted equipment and take steps to revise and update operating practices to meet the proposed regulations' standards on suitable shelter, loading/unloading facilities and requirements around time off feed. While there are short term costs associated with some of the regulations, it is expected that industry stakeholders would benefit from retaining New Zealand's strong reputation for upholding robust animal welfare practices provided for by the regulations. A number of industry representative groups have emphasised this point.

Option 3: Further training and education/awareness

This option is non-legislative and would involve increased training and education/awareness for owners or persons in charge of young calves. Education and training can be resource intensive from both the government's and the industry's perspectives.

As with the status quo (option 1) this option is unlikely to change the behaviour of the small minority that continue to mistreat calves as minimum standards are difficult to enforce and current minimum standards do not cover all high risk activities. In addition, while ongoing education and training programmes have decreased the premature mortality of young calves, those that continue to mistreat their calves typically do not attend training sessions.

As with the status quo (option 1), this option minimises operating costs in the short-term and does not require changes to current industry practices. However, if negative practices continue:

- operating costs may increase in the future and operating practices may have to change because regulations, more stringent and / or more encompassing than those proposed under option 2, are likely to be required.
- New Zealand's reputation would remain vulnerable to the small minority of farmers, and other operators in the industry, who are mistreating young calves.

Option 4: Amend the relevant Codes of Welfare

This option would amend codes of welfare to reflect accept good practice across industry. This may include amending existing minimum standards and /or developing new minimum standards within the codes of welfare. See Table 2 for more detailed information on the potential compliance cost as they are likely to be similar to the costs of regulations (option 2).

More specific and up to date minimum standards may change the behaviour of some that continue to mistreat their calves. However, as codes of welfare are difficult to enforce, amending the codes without taking additional action to improve their enforceability is unlikely to impact the behaviour of all of those that continue to mistreat their calves.

This option is unlikely to minimise operating costs for farmers, and other operators in the industry, as it is likely that similar requirements, e.g. the need invest in loading facilities, and to slaughter young calves as soon as possible at meat works, would be applied through the codes of welfare as proposed through regulations (option 2). In addition, New Zealand's reputation would remain vulnerable to those minority of farmers, and other operators in the industry, who are mistreating young calves.

Impact of Proposed Regulations

Economic impact

Benefits

The primary economic benefit of the regulations relates to maintaining and enhancing New Zealand's international reputation. New Zealand's well-regarded international reputation is pivotal to its export success in primary sector products and increasing the use of New Zealand's strong and unique culture and brand. In 2014, New Zealand was ranked first equal alongside the United Kingdom, Austria and Denmark for our animal welfare regulatory system by the global charity World Animal Protection.

Incidents of poor animal welfare and deliberate animal cruelty, no matter how isolated, compromise our reputation. In 2015, New Zealand earned \$23 billion from export revenue for animals and animal products—even a small reduction of this could have a significant economic impact.

Costs

The costs of implementing the regulations include those costs associated with:

- modifying or building new infrastructure such as loading and unloading facilities and providing appropriate shelter. For example, it is estimated that more than half of farms will need to upgrade their loading facilities—the cost of a new loading facility is estimated to be up to \$2,500 but the cost may be less if existing facilities can be modified.
- changes to businesses practices. For example, to meet the new requirements for time off feed the meat processing industry will need to negotiate supply contracts to include requirements related to feeding times on-farm and the scheduling of transport.
- enforcing the new system. For example, there may be some costs associated with new computer systems required to support the application and administration of infringement notices and prosecutions under regulations.

The economic costs of the regulations relate to the benefits of an alternative activity that must be foregone in order to implement the regulations. MPI considers that these costs, compared to the potential impact on New Zealand's reputation of poor welfare, are likely to be minimal because:

- more than half the regulations reflect minimum standards, recommended best practices and guidance in relevant codes of welfare or accepted good practice across the industry;
- the costs to comply with the regulations, where change is required, are not expected to be substantial for individual operators (see Table 2);
- where change is required the regulations have a delayed commencement, of six to 12 months, to spread the load of any financial costs over time; and
- the processes and procedures developed by MPI and RNZSPCA to enforce the regulatory package for calves will help in developing and implementing the other 85 regulatory proposals publicly consulted on in tandem with the young calf proposals.

In addition, during consultation MPI did not receive any comment that complying with the regulations would prevent other opportunities from being progressed.

Fiscal costs – costs of administering the proposed regulations

In the long term, there may be some additional costs associated with enforcing and administering the regulations as compared with the status quo:

- there will be some costs associated with updating MPI's computer systems to deal with Animal Welfare Infringement Notices but these may be reduced by IT system efficiencies MPI is investigating across the management of its full compliance activity; and
- enforcement of the regulations, via infringement notices and regulatory prosecutions, will be more resource intensive than the educative process that has been taken to date. These costs should be mitigated by the fact that infringement notices and regulatory prosecutions are expected to be less resource intensive than taking prosecutions under the Act.

The majority of calves will come from commercial farms. Enforcement of the regulations will therefore primarily be undertaken by MPI officials holding animal welfare warrants, including animal welfare inspectors and veterinarians. The RNZSPCA will enforce the regulations in relation to the small number of calves on lifestyle blocks. Enforcement action by the RNZSPCA will be controlled by the RNZSPCA National Inspectorate.

In the short term, existing resources will be used to train MPI animal welfare inspectors, increase investigations of poor calf welfare, including autopsies of all dead/condemned calves prior to slaughter, and additional on farm visits either as part of an animal welfare investigation or as part of the On Farm Verification programme (a market access programme).

MPI is planning to visit a minimum of 1,200 farms (as part of the On Farm Verification programme) around the country to verify compliance with Animal Status Declaration requirements including animal welfare requirements. These will include at least 300 dairy farms audits. The majority of dairy farm audits will be targeted at those dairy farms where animal welfare issues have been identified for calves supplied to meat processing premises.

Compliance costs – costs of complying with the regulations

The specific impacts of the seven regulations fall into one of three different types described below. Detailed compliance costs are outlined in Table 2.

- **Type 1 – four regulations** (regulations i, ii, iii, iv) – The regulations reflect minimum standards, recommended best practice and guidance in relevant codes of welfare or accepted good practice across the industry. Compliance would not involve any change for regulated parties who are already meeting these standards. The principal change is that animal welfare inspectors will now be able to enforce these standards for those who are non-compliant.
- **Type 2 – two regulations** (regulations vi and vii) – The regulations are relatively straightforward for regulated parties to comply with but they may require some additional investment in infrastructure. To minimise the impact they will not come into force until August 2017.

- *Type 3 – one regulation* (regulation v) – The regulations will require changes in business practice for meat processors and the re-negotiation of contracts of supply. To minimise the impact there will be delayed commencement until February 2017.

Table 2: Estimated compliance costs of regulation

Regulation	Level of Impact	Comment
<p><i>i. Fitness for transport</i></p> <p>Requiring that a young calf must be at least four full days of age before it is transported for sale or slaughter. The calf must also display certain physical characteristics, including the ability to stand and walk and freedom from disease.</p>	<p><i>Type 1</i></p>	<p>Feedback from farmers suggests that the majority already have systems in place to track the ages of batches of calves but some may need to review whether, and how, they will record the age of a calf. The materials and time necessary to keep records are not expected to be a significant cost compared to the status quo. MPI understands many farmers have suitable systems in place now and the requirements are not onerous.</p>
<p><i>ii. Prohibition of killing calves by blunt force trauma to the head</i></p> <p>Prohibiting the killing of any calves by blunt force trauma except in emergency circumstances.</p>	<p><i>Type 1</i></p>	<p>This practice has significantly decreased in recent years since the minimum standard prohibiting blunt force trauma was included in the Dairy Cattle Code of Welfare. As such this is unlikely to place a significant burden on the farming industry. A recent MPI survey of slink skin operations found that the incidence of calves showing blunt force trauma to the head had decreased from 11% in 2013 to 2% in 2015.</p>
<p><i>iii. Maximum duration of transport</i></p> <p>Setting a maximum total duration of 12 hours journey time for young calves that are being transported.</p>	<p><i>Type 1</i></p>	<p>This requirement is likely to have minimal impacts on existing operations. The twelve hour limit represents the current recommended best practice within the Transport Code of Welfare. In addition, while MPI data indicates some journeys may be over 12 hours most journeys are less than eight hours.</p>
<p><i>iv. Prohibition of transport by sea across Cook Strait</i></p> <p>Prohibiting the transportation of young calves by sea across the Cook Strait.</p>	<p><i>Type 1</i></p>	<p>This requirement is likely to have minimal impact on existing operations. The last known Cook Strait crossing took place several years ago and so it is unlikely that there will be a significant impact on the farming, transporting or processing industries.</p>
<p><i>v. Maximum time off feed before slaughter</i></p> <p>Requiring that young calves must be slaughtered as soon as possible after arrival at the slaughter premises, and within 24 hours of the last feed on farm (down from 30 hours)</p>	<p><i>Type 3</i></p>	<p>This proposal will require the meat processing industry to adopt new business practices and some will have to re-negotiate supply contracts that represent a change in current practice.</p> <p>Feedback received during consultation indicates that most processing plants currently operate on a same-day slaughter basis most of the time. Although it was noted that some processing plants may struggle to comply with this regulation based on the practicalities of their operations. Operational constraints may include: resource consent requirements that a plant may only operate within specified hours; and shift configurations—in the shoulder season not all shifts are potentially</p>

		<p>operating.</p> <p>Supply agreements will need to be updated to include clauses that will require feeding times on-farm and the scheduling of transportation for young calves to be organised in a way that will enable the 24 hour deadline to be met consistently. Having a delayed commencement will enable new contractual terms to be negotiated in the next round of contracts in 2017.</p> <p>In addition to the specific impacts noted above, non-compliance with the regulations could potentially affect supply agreements. The regulations have penalties attached⁸, including fines and the potential for a criminal conviction. Depending on the supply agreement, a financial penalty or criminal conviction could breach an agreement.</p>
<p>vi. Requirements for loading and unloading facilities</p> <p>Requiring loading and unloading facilities be provided when young calves are transported for sale or slaughter. People must also take all reasonable and practical steps to use these facilities.</p> <p>This will apply to vehicles with a loading height of 90cm or higher.</p>	<p><i>Type 2</i></p>	<p>Unlike meat processing plants, a significant proportion of farmers (probably more than half) will not currently have facilities that meet the requirements under the regulations. Setting the 90cm threshold will mean that loading and unloading from stock trucks will be covered by the regulation but utes and low trailers will not.</p> <p>The cost for new loading/unloading facilities is estimated to be up to \$2,500 per farm. However, this cost may be lower where farmers only need to adapt existing facilities to meet requirements.</p> <p>There may also be costs associated with gaining consent to build a structure over 1m. Requirements for consent differ throughout the country.</p>
<p>vii. Shelter requirements before and during transportation and at points of sale or slaughter</p> <p>Requiring that suitable shelter be provided for young calves before and during transportation and at points of sale and slaughter.</p>	<p><i>Type 2</i></p>	<p>Farmers are the group that are likely to be most affected by this regulation. However, other operators in the industry may also be affected. Facilities that are uncovered and exposed to the elements will need to be upgraded. This cost is difficult to estimate because it depends on the nature of the existing facilities, current equipment and innovation to meet the requirements. This regulation has a delayed commencement to allow participants to adapt existing structures.</p>

⁸ See Appendix 1 for the specific penalties that apply to each of the regulations.

6. Consultation

The proposed Regulations have been developed following extensive consultation with animal welfare experts, industry, animal advocacy groups and the general public.

The proposals received general support from industry stakeholders. The only significant changes to the regulations as result of the consultation relate to extending the maximum journey duration from eight to 12 hours, allowing for the use of blunt force trauma in emergency situations and setting a threshold, of 90cm, over which loading and unloading facilities are required. Other changes included an additional regulation to make it clear that people needed to **have** and **use** load and unloading facilities and delayed commencement for three of the proposals. For further information on these changes, and the summary of the overall submissions refer to Appendix 2.

Consultation with expert animal welfare advisers

MPI worked closely with the National Animal Welfare Advisory Committee (NAWAC), the Veterinary Council of New Zealand and the RNZSPCA in the development of the proposals that were publicly consulted on. Members of these organisations also took part in the stakeholder workshops MPI ran prior to and during public consultation and submitted formal responses to the public discussion document. The feedback from these organisations has been taken into consideration by MPI during the process of developing the proposals into draft regulations. In addition, the Minister for Primary Industries has formally consulted with NAWAC on the draft regulations themselves, as required under the Act.

Pre-consultation with industry and animal advocacy groups

In February 2016, the proposals were extensively workshopped with industry⁹ and advocacy groups¹⁰, prior to formal public consultation.

A significant degree of consensus was evident at these workshops on the broad areas where regulatory intervention was needed to bring about the required level of behaviour change. The proposals that were presented in the subsequent public consultation reflected the discussions at these workshops.

Public consultation

MPI released a discussion document on the proposed regulations and publicly consulted from 14 April to 19 May 2016. During public consultation, MPI facilitated six public meetings in Auckland, Wellington, Christchurch, Hamilton, Palmerston North and Invercargill. Two further workshops took place, one with animal welfare advocacy groups, and one with industry stakeholders, while the proposals were out for consultation.

To consider how regulations would work in practice and to better understand their potential impact on farmers, and others in the industry, MPI also had ongoing discussions with industry representatives of those most likely to be affected by the proposed regulations.

⁹ Attendees included ANZCO Foods, Beef + Lamb New Zealand, Dairy Cattle Veterinarians, DairyNZ, DCANZ, Federated Farmers, Fonterra, the Meat Industry Association (MIA), NZ Petfood Manufacturers, NZVA, RNZSPCA, Road Transport Association as well as independent farmers and transport operators.

¹⁰ Attendees included SAFE, Farmwatch and the RNZSPCA. (World Animal Protection, formerly WSPA, were unable to attend.)

7. Conclusions and recommendations

There is a small minority of farmers, and other operators in the industry, that continue to mistreat young calves. MPI's preferred approach to address this issue is option 2—the implementation of seven regulations targeted at areas of highest risk to young calf welfare.

Option 2 is the preferred approach because regulations are directly enforceable and therefore likely to be more effective and efficient than the other options at changing the behaviour of the small minority that continue to mistreat their young calves. Ensuring sufficient care is taken of these animals not only protects the welfare of the young calves themselves but also the reputation of New Zealand's primary sector both domestically and internationally.

Compared to implementing regulations (option 2), option 1 (status quo), option 3 (more education and training) and option 4 (amending codes of welfare) are unlikely to significantly change the behaviour of those that continue to mistreat their young calves.

Under options 1, 3 and 4 there are limited consequences of not complying with existing or new standards within codes of welfare. Without regulations, the majority of offending is likely to be dealt with through the provision of verbal advice, educational information or by issuing a warning. These types of enforcement tools are not effective when dealing with frequent or repetitive low to medium level offending.

In addition, options 1 and 3 do not set additional standards for the high risk activities that are currently affecting young calf welfare.

As with option 2, option 4 will target high risk activities and clarify a person's obligation towards a young calf. While this may change the behaviour of some who are currently mistreating their calves, as codes are not directly enforceable option 4 is unlikely to change the behaviour of all those who are mistreating their animals.

Overall MPI considers that the benefits of improved welfare for young calves and the maintaining and enhancing New Zealand's reputation for protecting animal welfare outweigh the short-term costs associated with the need, in some cases, to build new infrastructure and /or changes some business practices to meet the new requirements.

8. Implementation plan

While MPI considers that the economic and compliance costs of the regulations are likely to be minimal, it is cognisant that the regulations are being implemented in an environment where farmers and others in the industry are facing other stresses. Additional pressures include increasing compliance costs through changes in health and safety law and economic stress caused by consecutive poor dairy payouts.

The implementation plan has been designed to minimise the impact of the regulations on the regulated parties and increase the likelihood of uptake over the short term by:

- delaying commencement—some of the regulations will not come into effect immediately;
- MPI working closely with industry to ensure that educational and supporting advice, materials and activities are available; and
- applying a graduated approach to compliance.

Delayed commencement

Three of the seven regulations will not come into force until 2017 (regulations v, vi and vii) See Appendix 1 for further information. The delayed commencement dates allows the cost of any investment in new or adjusted equipment and processes to meet the new requirements to be spread out.

Support and educational activities

MPI will work with industry groups to ensure that educational material and supporting activities are available to regulated parties from a number of different sources. This will help ensure that most people meet their new obligations voluntarily. Activities include:

- DairyNZ's Tactics for Tight Times programme that offers practical advice and support to dairy farmers.
- Communication about the new regulations through:
 - the Bobby Calf Action Group to proactively promote the welfare of young calves across the supply chain; and
 - MPI's well established 'Safeguarding our Animals, Safeguarding our Reputation' communications programme.
- DairyNZ programmes and nationwide workshops for farmers to support them in the implementation of the regulations. DairyNZ is holding nationwide workshops for farmers specifically on the care for calving cows and the care for calves.

Compliance approach

While each case will be considered on its merits, MPI is planning to take a graduated approach to compliance whereby warnings will be used as well as infringements and regulatory prosecutions.

9. Monitoring, evaluation and review

To monitor the impacts of the changes from the regulations, MPI will use and review existing data sources together with new data and information collected, including:

- data collected from MPI's 220 veterinarians at processing plants—these veterinarians currently inspect calves on arrival and carry out audits; and
- autopsies on calves that have died prematurely—from 2016, MPI veterinarians will carry out autopsies on 100% on calves that have died premature.

The data will provide information on:

- calf mortality rates and injuries prior to slaughter; and
- the specific circumstances that led to calf mortality.

The information from calf mortalities will be entered into a national database to track the numbers and circumstances of the premature deaths to help determine, based on the state of the animal, the person most likely responsible for the poor welfare.

The additional information provided by autopsying 100% of premature deaths will also help provide evidence on whether there has been a change in behaviour by farmers, and other

operators in the industry, after the regulations are implemented. It will also allow MPI to monitor the changes more broadly to gauge whether they are meeting the objectives under the Act.

MPI intends to focus its compliance efforts on on-farm audits, gathering more information on calf mortality and serious offending. MPI will also be checking slink operators to audit farmers on the practice of blunt force trauma.

MPI plans to undertake an evaluation of the new monitoring and reporting regime by 2019. MPI's ability to undertake a review at that time will depend on available resources and other competing priorities. However, this date provides time for the new system to have been audited over a few years.

In addition, MPI has also contracted Massey University to undertake a significant operational research project, 'Dairy Calf Welfare Across the Supply Chain'. This project was initiated in late 2015 to provide MPI with more scientific information around better welfare parameters, other than calf mortality rate. It aims to identify causes of and contributing factors to dairy calf morbidity and mortality, and identify scientifically rigorous and practical welfare indicators for use on farm and at lairage, as an alternative to mortality rates. When the project finishes in 2018, it would be timely to align its findings with the monitoring data to further understand the effectiveness of the proposed Regulations and to determine whether enforcement needs to be strengthened. Welfare indicators identified within the project will also have potential for use as an on-going monitoring tool where they can be integrated into enforcement systems.

Appendix 1 – Overview of the regulations

Regulation	Currently state ¹¹	Implementation Date	Penalty
<p>i. Fitness for transport</p> <p>Requiring that a young calf must be at least four full days of age before it is transported for sale or slaughter. The calf must also display certain physical characteristics, including the ability to stand and walk and freedom from disease</p>	<p>No existing requirements for age of transport—general information in the Transport code refers to a check list that a calf must be ‘at least 4 days old’ before being transported.</p> <p>Minimum standards in a number of the codes identify physical characteristics that must be met when selecting animals for transport.</p>	1 August 2016	<p>\$500 infringement offence;</p> <p>no criminal conviction</p>
<p>ii. Prohibition of killing calves by blunt force trauma to the head</p> <p>Prohibiting the killing of any calves by blunt force trauma except in emergency circumstances</p>	<p>A minimum standard in the Dairy Cattle code states that blunt force trauma must not be used when calves are killed on farm except in unforeseeable or unexpected situations.</p>	1 August 2016	<p>Prosecutable offence. Penalty of up to \$3,000 individuals; \$15,000 for bodies corporate</p>
<p>iii. Maximum duration of transport</p> <p>Setting a maximum total duration of 12 hours journey time for young calves that are being transported</p>	<p>The Transport code of welfare includes a minimum standard that requires that journeys must be planned to minimise the risk of injury, fatigue etc. And a recommended best practice that young animals should not be transported for longer than 12 hours.</p> <p>In addition overall duty</p>	1 August 2016	<p>Prosecutable offence. Penalty of up to \$5,000 individuals; \$25,000 for bodies corporate</p>

¹¹ Currently, the existing requirements are dispersed in three separate codes of welfare: the Dairy Cattle Code of Welfare 2014, Sheep and Beef Code of Welfare 2010, the Transport within New Zealand Code of Welfare 2011, and the Commercial Slaughter Code of Welfare 2010. For a full summary of the current obligations related to each of these proposals refer to the supporting discussion document – Proposed Animal Welfare Regulations (Care & conduct and Surgical and Painful Procedures) April 2016.

	in Act that the welfare of transported animals must be attended to.		
<p>iv. Prohibition of transport by sea across Cook Strait</p> <p>Prohibiting the transportation of young calves by sea across the Cook Strait.</p>	<p>The Transport code of welfare includes a minimum standards that require that journeys must be planned to minimise the risk of injury, fatigue etc. And general requirements related to inspection and ventilation when transporting within New Zealand's waters.</p> <p>In addition overall duty in Act that the welfare of transported animals must be attended to.</p>	1 August 2016	<p>Prosecutable offence. Penalty of up to \$5,000 individuals; \$25,000 for bodies corporate</p>
<p>v. Maximum time off feed before slaughter</p> <p>Requiring that young calves must be slaughtered as soon as possible after arrival at the slaughter premises, and within 24 hours of the last feed on farm (down from 30 hours).</p>	<p>A number of existing minimum standards related to time of feed prior to slaughter. The current standards require a calf to be fed within 28 hours of being loaded for slaughtered.</p>	1 February 2017	<p>Prosecutable offence. Penalty of up to \$5,000 individuals; \$25,000 for bodies corporate</p>
<p>vi. Requirements for loading and unloading facilities</p> <p>Requiring loading and unloading facilities be provided when young calves are transported for sale or slaughter. People must also take all reasonable and practical steps to use these facilities.</p> <p>This will apply to vehicles with a loading height of 90cm or higher.</p>	<p>No existing requirements to have and use loading and unloading facilities. Existing requirements relate to how such facilities, if they are present, must be constructed, maintained and used. Also that animals must be loaded and unloaded in a way that minimises the risk of causing them pain, injury or distress. They must also not be thrown or dropped.</p>	1 August 2017	<p>Penalty for not having facilities:</p> <ul style="list-style-type: none"> - \$500 infringement offence; - no criminal conviction <p>Penalty for not using facilities:</p> <ul style="list-style-type: none"> - Prosecutable offence. Penalty of up to \$2,000 for individuals; \$10,000 for bodies corporate.

<p>vii. Shelter requirements before and during transportation and at points of sale or slaughter</p> <p>Requiring that suitable shelter be provided for young calves before and during transportation and at points of sale and slaughter.</p>	<p>There are a number existing minimum standards that require that shelter must be required for different classes of animals to protect them from adverse weather and / or adverse welfare outcomes.</p>	<p>1 August 2017</p>	<p>Prosecutable offence. Penalty of up to \$2,000 individuals; \$10,000 for bodies corporate</p>
---	--	----------------------	--

Appendix 2 – Summary of submissions and MPI’s response

Commentary on the proposed regulations

- **Four full day minimum prior to transport:** All advocacy groups and a number of public submissions opposed the four day minimum age, which they argued was too young. In Australia, the minimum age is five days and in the European Union, the minimum age prior to transport varies from 10 to 14 days. New Zealand’s situation is not analogous to that in the European Union, where a stronger veal market ensures that there is greater economic benefit to farmers in keeping their calves for the additional days.

In New Zealand, any increase in the minimum age would risk placing significant additional costs on farmers in feeding and caring for their calves without any opportunity to balance this against demand for the final product. Four days is the current minimum age recommended in the relevant code of welfare.

MPI decided to maintain this standard because any increase to the minimum age for transport could cause unintended welfare consequences. For example, more calves would be on farm at any given time, which may put pressure on housing facilities and result in overcrowding and potentially under-feeding. This would, in turn, risk increasing the number of calves that are killed on-farm, which carries risks of its own. These include ensuring that the animals are always killed humanely, the hygiene risks of having more dead animals on-farm, and health and safety concerns arising from the increased use of firearms or captive bolt guns.

- **Requiring loading and unloading facilities be provided and used when young calves are transported for sale or slaughter:** One industry stakeholder submitted that, in their view, requiring farmers to provide loading facilities may be a disproportionate response to the problem of rough handling while loading calves onto trucks. However, the great majority of industry representatives have endorsed the proposed regulation. MPI decided to implement this regulation from 1 August 2017 to help give operators time to ensure they have in place the facilities necessary to comply, and to assist in managing the additional costs that may be incurred.
- **Maximum journey time:** During consultation, MPI received feedback from industry stakeholders that the proposal to set a maximum journey time to eight hours was too short for transporters in some locations or routes in New Zealand. MPI has addressed this feedback and amended the maximum total journey time to 12 hours, which is the current recommended best practice in the Transport Code of Welfare. The 12 hour limit will be kept under review. MPI has commissioned Massey University to undertake a study into Bobby Calf Welfare across the supply chain. The impact of transport is one of the areas of study and the results (due over the next two years) will inform any future decisions about the maximum journey duration.
- **Prohibiting the killing of any calves by blunt force trauma except in emergency situations:** NAWAC and the Royal New Zealand Society for the Prevention of Cruelty to Animals (RNZSPCA) have opposed the prohibition of blunt force trauma on the grounds that, done properly, it is an effective and humane way of euthanizing calves. NAWAC submitted that the real welfare concerns arise when calves are not rendered immediately

insensible, by whatever means, and that a focus on blunt force trauma per se does not properly address the wider issue.

However, a number of other submitters supported the proposal subject to including a proviso allowing for use of blunt force trauma in an emergency.

The use of blunt force trauma to kill calves is declining in New Zealand and a recent survey by MPI of slink skin operations found that the incidence of calves showing blunt force trauma to the head had decreased from 11 percent in 2013 to 2 percent in 2015. While it is possible to kill a calf quickly and efficiently without causing unnecessary pain and distress using blunt force trauma, MPI considers that use of a captive bolt gun or firearm is more reliable in achieving a rapid, humane death.

The proposal has been amended post consultation to include an exemption to allow the use of blunt force trauma in emergency situations where a calf is in severe pain or distress and no reasonable alternative to the use of blunt force trauma is available.

- **Suitable shelter:** Feedback from stakeholders generally supported this proposal, but noted that some may need to invest in new or upgraded facilities to provide calves with the new shelter requirements. They requested a delayed commencement date to give members time to comply. Based on the feedback, the regulations provide for a delayed commencement of 12 months, to 1 August 2017.
- **Maximum time off feed before slaughter to 24 hours:** The Meat Industry Association (MIA) submitted that it is sometimes not practical for all processing plants to process calves within 24 hours due to resource management constraints, in which plants cannot operate beyond certain times; and shift configurations – in the shoulders of the season not all shifts are operating. MIA also noted that the proposal will require additional processes and monitoring to be put in place. Each farmer would be required to record the time of the last feed, which will then be recorded by the transporter at the time of pick-up with each individual have its own 24 hour window depending on the last time of feed. MIA noted that there was potential for this to be handled through commercial arrangements but that these were already in place for 2016 so, to implement new regulations mid-season, would be extremely difficult. Following discussion with MIA, the regulations provide for a delayed commencement of 6 months, to 1 February 2017. This will be sufficient enable new contracts of supply to be developed prior to autumn calving in March 2017.

Commentary on other matters

- **Better communication:** MPI also received feedback from farmers, transporters and processors that better communication was needed along the supply chain to ensure the calves are cared for at each stage. Stakeholders called for clear documentation along the supply chain. MPI has addressed this by incorporating specific provisions into several of the regulations requiring that systems be put in place that, if followed, will ensure compliance with the rules in question. For example, owners and persons in charge of young calves on farm will be required to have a system that ensures no calves that are under four days of age or which do not meet the physical criteria are presented for transportation for sale or slaughter.
- **Enforcement:** A risk was raised at the animal welfare advocacy stakeholder workshop that the regulations may not be adhered to unless there was an increase in enforcement. It was suggested that more spot checks and audits could encourage greater levels of

compliance. A concern was raised that there must be a focus on understanding the outliers and working alongside farmers and industry groups as farmers are already under a significant amount of pressure. In Budget 2015 the Government provided an additional \$10m for animal welfare over the next four years. In addition, DairyNZ and MPI will also be working with farmers through a range of initiatives later canvassed in the “Implementation” section, including nationwide workshops focusing on calf welfare.

NAWAC comment on the regulations

NAWAC’s formal independent submission on the regulations, in accordance with section 183A(10) of the Animal Welfare Act, highlighted the following three issues:

1. NAWAC consider that it is important to minimise the time between a calf’s last feed on farm and its eventual slaughter. NAWAC also submitted that the regulations should only allow calves to be fed once in lairage and that any such feed should be a higher standard than maintenance rations.

MPI’s response

MPI has subsequently revised the text of the regulation to require that slaughter take place as soon as possible after the arrival of a young calf at a slaughter premises. If they must be fed in lairage (to the standard recommended by NAWAC), slaughter should occur as soon as possible after that feed. We believe that these adjustments to the regulation are sufficient to drive the swift slaughter that NAWAC is seeking.

2. NAWAC suggested that stocking density should be covered by the regulations relating to fitness for transport and shelter, however they noted that this could be covered in guidance material rather than the regulations themselves.

MPI’s response

MPI considers that the regulations make sufficient provision in relation to stocking density. For example, the shelter regulation requires that any shelter must enable young calves to stand up or lie down in a natural posture. We believe that this high-level requirement is the appropriate level of detail for regulations that will need to cover a wide range of circumstances and locations. We will, however, consider how the Codes of Welfare could be revised to provide more guidance around this.

3. Finally, NAWAC submits that a journey across the Cook Strait may be a shorter route to slaughter for some animals from the top of the South Island than an alternative route by road to a processing plant on the South Island itself. However, the Committee acknowledges that calves have not been transported by ferry for some time and that this proposal is therefore unlikely to have adverse effects.