

Select Standing Committee on Agriculture, Fish and Food

Local meat production recommendations

BC SPCA

Submitted by:

Amy Morris, MPP

Manager, Public Policy and Outreach

amorris@spca.bc.ca

604-368-4034

1245 East 7th Avenue

Vancouver, BC V5T 1R1

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Subject: Meat inspection in British Columbia

Executive Summary

The level of training and monitoring for class A and B establishments is conditionally adequate, while class D, E facilities and personal consumption users would benefit from improved training and monitoring systems, including registration for personal consumption users. The *Meat Inspection Regulation* would benefit from improved language, including protection mechanisms around assessing and handling live animals, such as all items included in the ‘Humane Treatment’ section of the proposed federal *Safe Food for Canadians Regulations*¹ with modifications as referenced in Appendix 1. Transport times to slaughter are a concern for welfare reasons and can be reduced with more local slaughter opportunities for farmers.

Background

Licensing, training and monitoring: Current practice in B.C.

Four classes of provincial slaughter licenses, with varying capacity and restrictions:

Licenses available under the Graduated Licensing System					
License Type	Activities Permitted	Sales Permitted	Geographic Scope	# of Animal Units	Oversight
Class A	Slaughter, and cut and wrap	Retail and direct to consumer	B.C.	Unlimited	Pre and post slaughter inspection of each animal
Class B	Slaughter only	Retail and direct to consumer	B.C.	Unlimited	Pre and post slaughter inspection of each animal
Class D	Slaughter only (own animals and other peoples' animals)	Retail and direct to consumer	Sales restricted within the regional district where meat is produced	1 to 25	Periodic site assessments and audit of operational slaughter records
Class E	Slaughter only (own animals only)	Direct to consumer only	Sales restricted within the regional district where meat is produced	1 to 10	Periodic site assessments and audit of operational slaughter records
Personal use No license required	Slaughter only	None	For producer only	Unlimited	None

*Note: One animal unit means: combined weight, when measured alive, of 1000 lbs (454 kg) of meat (e.g., beef, poultry, bison, etc.).

¹ <http://www.gazette.gc.ca/rp-pr/p1/2017/2017-01-21/html/reg1-eng.html>

Current tally of licenses in B.C.:

Class A	46
Class B	21
Class D	20
Class E	31
Total	118

*Note that a small number of A/B facilities have both licenses, so there are fewer actual facilities than # of licenses

Classes A & B

Both Class A and Class B licenses have a Ministry of Agriculture meat inspector on site to inspect all animals/flocks prior to slaughter and all carcasses after slaughter. These inspectors undergo extensive training covering animal welfare, humane transportation, and humane animal handling. Inspectors hired by the Ministry of Ag are generally expected to have several years experience with meat inspection. Training, both academic and on the job, may take anywhere from 3 months to a year depending on initial competency. There is an integrated reporting system in place for these inspectors to formally report incidences of animal cruelty either in transportation or at the facility itself.

The regional Health Authorities oversee food safety audits in all slaughterhouses, conducted by Environmental Health Officers (EHOs). Classes A & B undergo annual facility audits and records check. These are facility audits where food is sold to the public, and do not include slaughter oversight. EHOs are also responsible for conducting audits where there has been a complaint of illegal slaughter with product being sold to the public.

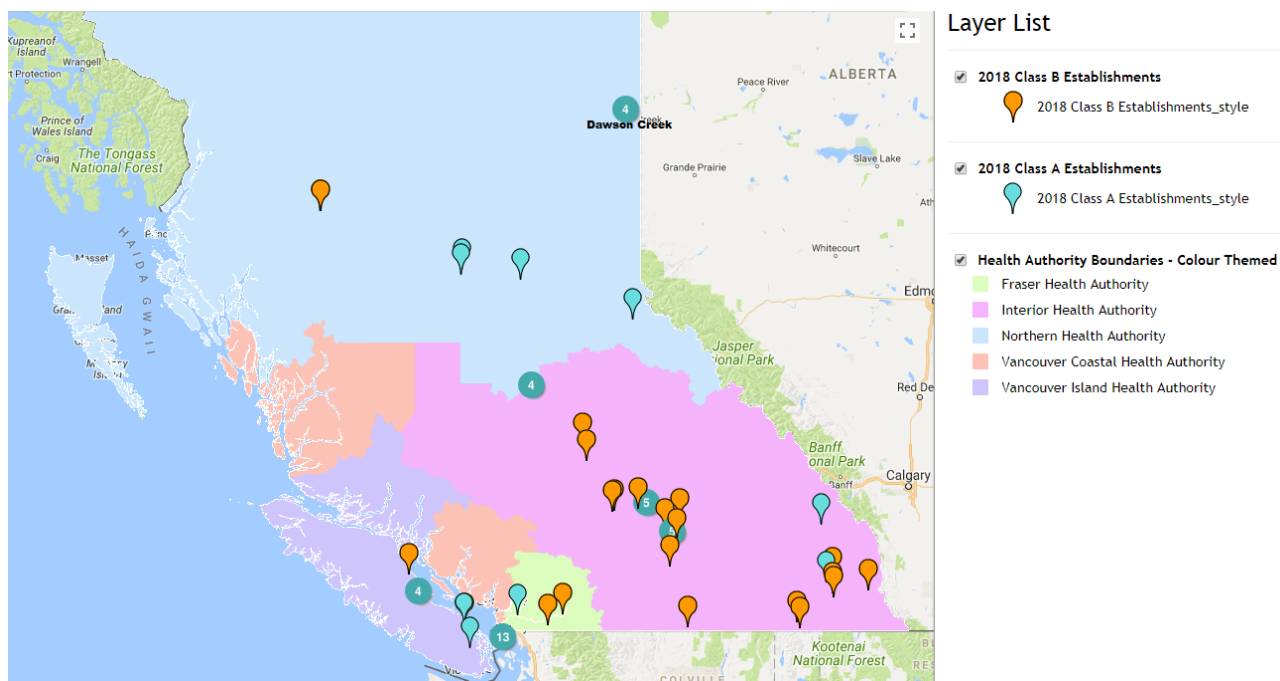
Classes D & E

Class D licenses can only be issued in designated areas of BC (see map. right. Blue = designated remote areas). In these areas, there are no Class A or B facilities. Abattoirs with a Class D license can sell to local retailers & restaurants as well as direct to consumer, but only within their designated region. They may slaughter their own animals, or other producers' animals.

Designated Areas Map



Class E licenses can be issued anywhere in BC, but if the proposed facility is in a non-designated area (green), the applicant must first complete a [feasibility study](#) to determine if they are eligible to apply. They are categorized as “most favourable” or “unfavourable”. If a proposed Class E facility is within a 2 hour drive of a current or proposed Class A or B licensed slaughterhouse that accepts the species in question, the license will not be issued. Farmers can provide proof that the closest Class A/B abattoir is at full capacity and will not accept their animals, or show that they need specialty services (organic, ritual slaughter, different species than closest abattoir accepts). See map for areas with A or B facilities:



*Note: top of BC is cut off – no more A or B facilities north of Dawson Creek.

Class E license holders cannot sell product to restaurants, butcher shops, grocers, or other retail establishments. They may sell direct to consumer or at local temporary food markets within their region only. They may slaughter only their own animals.

Neither Class D nor E facilities are required to have Ministry of Agriculture meat inspectors on site at any time. There is no slaughter oversight. When the license is issued, the facility is assigned a risk level that determines the frequency of routine site or record audits by an EHO. Depending on risk level, site audits will be every 1-5 years. In addition to routine audits, additional site visits may be conducted in the case of complaints, to follow-up on non-compliances, or by request.

As part of the application process, Class D & E applicants must take the SlaughterSafe food safety training course. It is taught by the regional Health Authority EHOs, who themselves receive a one-day “how to train the trainer” course on how to teach SlaughterSafe to producers. This course lists acceptable stunning and slaughter methods for each species, defines and describes what constitutes good animal welfare for humane transportation, handling, stunning, and slaughter. However, there is no practical training or verification of competency. EHOs have no animal welfare training and do not oversee slaughter. No

demonstration kill is done and producers are expected to be competent in humane slaughter and handling, or to hire a competent person to conduct slaughter for their facility. All individuals planning to slaughter are encouraged to complete a slaughter [self competency self evaluation](#).

Legislation

The current provincial *Meat Inspection Regulation* references the federal *Meat Inspection Regulations*. The federal government is in the process of updating these standards in the *Safe Food for Canadians Regulations*. The updated regulations are due in spring/summer 2018.

Training and monitoring best practices

Tyco², Cargill³, and JBS Canada⁴ all use remote video auditing (RVA) as part of their standard practice. They have trained off-site auditors conduct random audits, analyze the video feed and provide results of their audits on a daily basis. This advanced technology is a powerful tool that increases slaughter facilities' ability to oversee animal human contact and drive improvements in their animal welfare practices.

Remote video auditing has broad applications. It is used to ensure hand washing hygiene and operating room best practices in the health industry⁵. A number of studies published on RVA have demonstrated the effectiveness of behaviour change when feedback is provided. Some benefits include the ability to overcome geographic obstacles, the ability to observe handling and slaughter without creating a bias based on presence and the marked improvements in human and animal behaviour, leading to more confidence in job performance.

Temple Grandin provides clear guidance on the content and approach to audits in a number of publications, including the journal article '*Auditing animal welfare and making practice improvements in beef-, pork- and sheep-slaughter plants*.'⁶ Recommendations include measuring percentages related to stunning, insensibility, vocalizing, animals that fall, animals moved with an electric goad, and acts of abuse. Additional resources are available from the North American Meat Institute at http://animalhandling.org/producers/guidelines_audits.

² <http://www.tyco.com/resource-library/case-studies/remove-video-auditing-at-a-industrial-company-u.s>

³ <https://www.cargill.com/sustainability/beef/beef-health-welfare>

⁴ <https://jbsfoodcanada.ca/images/master/JBSCanadaAdvantage.pdf>

⁵ <http://qualitysafety.bmj.com/content/early/2016/01/28/bmjqs-2015-005058.full>

⁶ Grandin T 2012 Auditing animal welfare and making practice improvements in beef-, pork- and sheep-slaughter plants. *Animal Welfare* 21(S2): 29-34

Stunning best practices

Slaughter without prior stunning has been scientifically demonstrated to cause unnecessary suffering^{7,8,9,10,11} and “overwhelming international scientific opinion has long been that slaughter by neck incision of conscious animals causes pain”¹². The Canadian Veterinary Medical Association is unequivocally opposed to slaughter without stunning, as it causes avoidable pain¹³.

Meat Hygiene Manual of Procedures

A number of the accepted (approved) euthanasia methods listed in the National Farm Animal Care Council (NFACC) Codes of Practice are not listed as acceptable or approved methods of euthanasia/slaughter in the Meat Hygiene Manual of Procedures (see Appendix 2).

⁷ Gibson TJ et al 2009a Electroencephalographic responses of halothane-anaesthetised calves to slaughter by ventral-neck incision without prior stunning. *New Zealand Veterinary Journal* 57: 77-83

⁸ Gibson TJ et al 2009b Components of electroencephalographic responses to slaughter in halothane-anaesthetised calves: Effects of cutting neck tissues compared with major blood vessels. *New Zealand Veterinary Journal* 57: 84-89

⁹ Gibson TJ et al 2009c Electroencephalographic responses to concussive non-penetrative captive-bolt stunning in halothane-anaesthetised calves. *New Zealand Veterinary Journal* 57: 90-95

¹⁰ Gibson TJ et al 2009d Amelioration of electroencephalographic responses to slaughter by non-penetrative captive-bolt stunning after ventral-neck incision in halothane-anaesthetised calves. *New Zealand Veterinary Journal* 57: 96-101

¹¹ Mellor DJ, Gibson TJ and Johnson CB 2009 A re-evaluation of the need to stun calves prior to slaughter by ventral-neck incision: An introductory review. *New Zealand Veterinary Journal* 57: 74-76

¹² Johnson, C.B. *et al.* 2015. A Scientific comment on the welfare of domesticated ruminants slaughtered without stunning. *New Zealand Veterinary Journal* v. 63 pp. 58-65.

¹³ Canadian Veterinary Medical Association. 2016. *Humane Slaughter of Animals – Position Statement*. Retrieved from <https://www.canadianveterinarians.net/documents/humane-slaughter-of-animals-position-statement>

Recommendations

Below, we identify key training, monitoring and welfare issues with recommendations for resolution.

Policy gap	Recommendation
Lack of training for Class D & E license holders and personal consumption users. Currently it is assumed that producers have the necessary knowledge & experience with slaughter and animal welfare to conduct humane slaughter.	<p>Give Class D & E license holders and personal consumption users access to slaughter training and animal welfare training offered by the Ministry of Agriculture.</p> <p>Include animal welfare training for transportation, handling, and humane slaughter in SlaughterSafe manual.</p> <p>Prior to issuing license, have a demo kill as part of SlaughterSafe training with meat inspector present to demonstrate competency in humane handling, transportation and slaughter.</p>
Lack of oversight in Class D & E facilities and personal consumption users. No meat inspectors, only food safety audits by EHOs.	<p>Provide oversight by Ministry of Agriculture meat inspectors in person for Class D & E facilities (limited by resources & travel).</p> <p>Where in person oversight is not possible, provide oversight by Ministry of Agriculture meat inspectors via remote video auditing (RVA) systems. Require a RVA submission of handling and slaughter of at least one and up to 0.1% of animals slaughtered in one year dependent on the size of operation. Ensure all personal consumption users are registered/included. RVA auditing in Class A & B facilities as well would ensure equity in monitoring approach.</p>
Lack of animal welfare training for EHOs. Audits focus on food safety protocols, no animal welfare training.	<p>Option 1: Include animal welfare training in EHO “train the trainer” course regarding the SlaughterSafe manual, as well as how to spot animal cruelty.</p> <p>Option 2: Have EHOs continue with food safety focused audits, while adding oversight of slaughter by Ministry of Ag meat inspectors as above.</p>
Improvement opportunities for inspector training.	Enhance training programs with materials provided in Appendix 3.
Limited use of Class E licenses. Cannot sell to retail, slaughter only their own animals.	<p>Allow Class E license holders to sell to local retailers – limit type if necessary for supply management.</p> <p>Allow Class E license holders to slaughter more animal units per year to promote local business, reducing transport time and wait times for busy abattoirs.</p>
Distance for transport pre-slaughter, leading to animal welfare issues.	<p>Ensure humane slaughter as near as possible to the point of production.</p> <p>Increase local slaughter capacity.</p> <p>Reduce number of animals exported live to the US.</p>
Lack of pre-stunning and inefficient stunning methods.	<p>Option 1: Require pre-stunning for all slaughter.</p> <p>Option 2: Conditionally allow post-cut stunning for specific reasons, only if a remote video auditing program is in place.</p>
Federal legislation, referenced in provincial legislation, is in the process of being updated.	Ensure <i>Meat Inspection Regulation</i> references the most up to date <i>Safe Food for Canadians Regulation</i> provisions for the humane treatment of animals as soon as it is published and add any additional provisions as necessary based on submission in Appendix 1.
Inconsistencies in acceptable on-farm euthanasia methods.	Ensure methods listed as acceptable in both manuals are not in conflict. Reference the on-farm euthanasia standards found in the NFACC Codes of Practice in the MHMP.

Appendix 1: BC SPCA's April 2017 submission regarding the proposed *Safe Food for Canadians regulation*

1. Handling

Research demonstrates that there are meat quality benefits through careful, quiet animal handling (AMI Foundation, 2010).¹⁴ Belk, Scanka, Smith and Grandin (2002) summarized the scientific publications available on the relationship between good handling and meat quality¹⁵.

Handling methods that cause pain, bruising and bone breakages should be prohibited, unless necessary in emergencies, when animal or human safety is at risk. The electric prod section should be part of the greater section on **Handling (134)**.

The CFIA should explicitly discourage the use of known stressors like electric prods and whips. Competent, trained handlers do not need these tools to safely move animals, as has been acknowledged by every animal industry association and incorporated into requirements in each of the National Farm Animal Care Council's Codes of Practice¹⁶.

For consistency with Canada's Codes of Practice, a clause should be included stating, "prods may only be used if the safety of workers and animals is at risk" and "it is prohibited to use an electric prod repeatedly on the same animal."

Correa et al. (2010)¹⁷ found that vocalizations were louder and longer with an electric prod than a wooden paddle and that the blood of pigs who experienced an electric prod before death had more lactate concentrations, a determinant of stress in pigs (Benjamin et al., 2001, Hambrecht et al., 2004, Edwards, 2010). Jongman et al. (2000)¹⁸ found that pigs avoided an electric prod over being exposed to 90% CO₂, demonstrating the degree to which pigs find an electric prod aversive. Previous research by Calkins et al. in 1980 also found that pigs driven with a prod had significantly more haemorrhages. Electric prods are an unacceptable means of handling animals in slaughter facilities.

In accordance with OIE recommendations, a requirement should also state that animals are not forced to move at a speed greater than their normal walking pace¹⁹.

2. Overcrowding, Feed and Compatible Animals

The BC SPCA agrees with the inclusion of provisions regarding overcrowding (132) and water and feed (135) in the draft regulations. We request that the overcrowding provision be more specific, requiring that pens

¹⁴ <http://www.animalhandling.org/ht/a/GetDocumentAction/i/63215>

¹⁵ <http://grandin.com/meat/hand.stun.relate.quality.html>

¹⁶ <http://www.nfacc.ca/codes-of-practice>

¹⁷ Correa et al. 2010. Effects of different moving devices at loading on stress response and meat quality in pigs. *Journal of Animal Science*. 88(12): 4086-4093.

¹⁸ Jongman, E.C., Barnett, J.L. and Hemsworth, P.H. 2000. The aversiveness of carbon dioxide stunning in pigs and a comparison of the CO₂ stunner crate vs. the V-restrainer. *Appl. Anim. Behav. Sci.* 67: 67-76.

¹⁹ http://www.oie.int/index.php?id=169&L=0&htmfile=chapitre_aw_slaughter.htm

be filled only half full to give pigs and cattle room to turn without creating conflict, based on findings of an audit of Canadian facilities by Dr. Temple Grandin²⁰.

The current feed requirement does not meet the needs of animals that have traveled to reach a slaughter facility. While the BC SPCA recognizes that animals to be slaughtered same day do not require feed, the BC SPCA asks that animals receive feed within 12 hours of arrival at any processing facility. This provides an opportunity for facilities, for example, to provide feed at 6pm for animals received at 6am that have still not made it through the slaughter process. While we recognize that some facilities are 24-hour operations, no animal should go without food for longer than 12 hours, taking into consideration the amount of time they have been without feed prior to arriving on site.

The issue of housing compatible animals has not been addressed in the regulations. Housing animals that are unfamiliar (e.g., different truck loads) or incompatible (e.g. intact boars with sows) will lead to unnecessary conflict and could result in injury and even death. Standards developed around animal housing consistently address these issues as a result of the extensive body of research available on animal behaviour. These conflicts are extremely preventable with adequate pen sizes and appropriate grouping. The BC SPCA asks that a provision be included which states “Unfamiliar or incompatible animals are not contained within the same pens and have enough separation as to mitigate preventable conflict.”

3. Monitoring

The CFIA’s commitment to food safety respects Canadian’s need to have safe and healthy food. The BC SPCA recognizes that the CFIA will be restructuring the food safety monitoring initiatives to be more efficient and impactful without contributing additional resources. The BC SPCA requests that the CFIA incorporate animal care inspections into the food safety inspection process, ensuring the CFIA is committed to having staff veterinarians observe animals that are unloaded and slaughtered. These are two points of distress for animals. On unloading, animals are most susceptible to injury due to handling or fighting, as well as illness due to dehydration, exhaustion and overexposure to poor climatic conditions while in transit. At slaughter, animals are at risk of being handled in a stress-inducing manner and being killed in a manner that may cause significant pain^{21,22}.

Additionally, the BC SPCA asks that the CFIA mandate a Remote Video Auditing Program (RVAP). RVAPs have demonstrated significant improvements in consistency and efficiency in slaughter facilities. They are cost effective and allow for a decrease in employee accidents (lowering the cost of safety insurance) and a decrease in contamination and cosmetic defects. They also ensure better animal handling practices. Cargill is already using these programs and Dr. Mike Siemens has confirmed that RVAP can reduce E. coli and salmonella contamination²³.

²⁰ <http://grandin.com/survey/canada.audit.html>

²¹ Grandin, T. 2010. Improving Livestock, Poultry and Fish Welfare in Slaughter Plants with Auditing Programmes. In: *Improving Animal Welfare: A Practical Approach*. CAB International: Cambridge, MA.

²² Gregory, N. G. 1996. *Animal Welfare and Meat Science*. CAB International: Cambridge, MA.

²³ <https://www.agcanada.com/daily/cargill-beef-plants-install-video-gear-for-audits-2>

On January 12, 2017, the French national assembly passed a bill requiring video monitoring in slaughterhouses.

4. Standards

The *Recommended Animal Handling Guidelines*, published by the American Meat Institute Foundation and written by Dr. Temple Grandin is a PAACO certified audit program for slaughter facilities. These guidelines are the most up to date evidence-based standards for the treatment of animals in slaughter facilities. The BC SPCA requests that the CFIA incorporate this reference into the Safe Food for Canadians Regulations. Further, the BC SPCA asks that the CFIA use these standards to conduct risk-based third party audits on slaughter facilities and make the results available to the public.

5. Training

Given the CFIA's commitment in the regulatory impact analysis statement to developing a national training and certification curriculum for food safety, the BC SPCA requests that the training be mandated by legislation and incorporate relevant animal care standards.

The benefits and impact of training and its evaluation is proven and demonstrated in a recent study by Salas et al. (2012) in the *Psychological Science in the Public Interest* peer-reviewed journal.²⁴ Certified training is required in modern society for driving, working as a plumber, and being a hairdresser.

Mandatory training is a minimal condition for ensuring food safety and adequate animal care in providing safe food for Canadians. Further, government licensed training ensures that the training is consistent and up-to-date with current evidence-based knowledge.

Our recommended wording is to add to the humane treatment section: "Every license holder shall ensure that government licensed training is received annually by its employees and agents unloading, handling or slaughter of animals and those who take part in decision making or advising the person unloading, handling or slaughter of animals."

Confirmation of adequate training must be third party verified and detail how to identify suffering or injury, animal behaviour related to stress and injury, animal handling, restraint and euthanasia methods.

6. Ritual Slaughter

Slaughter without prior stunning has been scientifically demonstrated to cause unnecessary suffering^{25,26,27,28,29} and "overwhelming international scientific opinion has long been that slaughter by neck

²⁴ <http://journals.sagepub.com/doi/pdf/10.1177/1529100612436661>

²⁵ Gibson TJ et al 2009a Electroencephalographic responses of halothane-anaesthetised calves to slaughter by ventral-neck incision without prior stunning. *New Zealand Veterinary Journal* 57: 77-83

²⁶ Gibson TJ et al 2009b Components of electroencephalographic responses to slaughter in halothane-anaesthetised calves: Effects of cutting neck tissues compared with major blood vessels. *New Zealand Veterinary Journal* 57: 84-89

²⁷ Gibson TJ et al 2009c Electroencephalographic responses to concussive non-penetrative captive-bolt stunning in halothane-anaesthetised calves. *New Zealand Veterinary Journal* 57: 90-95

incision of conscious animals causes pain”³⁰. The Canadian Veterinary Medical Association is unequivocally opposed to slaughter without stunning, as it causes avoidable pain³¹.

Accordingly, our position is that the Federal government should take more substantial action by eliminating the practice in Canada, or by at the very least, requiring immediate post-cut stunning of every animal.

In 2013, the UK government’s independent advisory body, the Farm Animal Welfare Council (FAWC), undertook a comprehensive review of slaughter methods, including religious slaughter practices, and observed various method of slaughter. They published their findings in two reports^{32,33}. For the portion of their study regarding slaughter without stunning, FAWC focused on three animal welfare issues in particular: pre-slaughter handling and restraint, the potential for pain and distress, and the time to loss of brain responsiveness. FAWC indicated concern “about the effectiveness of restraint and the distress caused to animals”. Overall, they consider “that slaughter without pre-stunning is unacceptable and that the [UK] Government should repeal the current exemption”. Furthermore, “until the current exemption which permits slaughter without pre-stunning is repealed, [FAWC] recommends that any animal not stunned before slaughter should receive an immediate post-cut stun”. They also indicated they are “in agreement with the prevailing international scientific consensus that slaughter without pre-stunning causes pain and distress. On the basis that this is avoidable and in the interests of welfare, FAWC concludes that all birds should be pre-stunned before slaughter.”

²⁸ Gibson TJ et al 2009d Amelioration of electroencephalographic responses to slaughter by non-penetrative captive-bolt stunning after ventral-neck incision in halothane-anaesthetised calves. *New Zealand Veterinary Journal* 57: 96-101

²⁹ Mellor DJ, Gibson TJ and Johnson CB 2009 A re-evaluation of the need to stun calves prior to slaughter by ventral-neck incision: An introductory review. *New Zealand Veterinary Journal* 57: 74-76

³⁰ Johnson, C.B. et al. 2015. A Scientific comment on the welfare of domesticated ruminants slaughtered without stunning. *New Zealand Veterinary Journal* v. 63 pp. 58-65.

³¹ Canadian Veterinary Medical Association. 2016. *Humane Slaughter of Animals – Position Statement*. Retrieved from <https://www.canadianveterinarians.net/documents/humane-slaughter-of-animals-position-statement>

³² Farm Animal Welfare Council (FAWC). 2003. Report on the welfare of farmed animals at slaughter or killing, Part 1, Red meat animals. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

³³ Farm Animal Welfare Council (FAWC) 2009. Report on the welfare of farmed animals at slaughter or killing, Part 2, White meat animals. Retrieved from https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/326745/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_two_white_meat_species.pdf

Appendix 2: Farm animal euthanasia and slaughter methods used in British Columbia

Methods of euthanasia and slaughter by animal type

Method (Primary Step)	Recipient Animals	Comments
Captive bolt stunning devices (pneumatic and cartridge fired)	Red meat species	<ul style="list-style-type: none"> Section 12.7.5 of the Meat Hygiene Manual of Procedures, applicable to red meat species See also: Annex A, Species-Specific Stunning Guidelines – Red Meat Species Listed as an acceptable form of on farm euthanasia in the Codes of Practice for the following red meat species: beef cattle (section 6.2), dairy cattle (section 6.2), veal calves (Appendix I), bison (section 7.3), equine (section 10.2), sheep (section 7.2), pigs (Appendix N)
Firearms (typically via gunshot to the head)	Red meat species	<ul style="list-style-type: none"> Section 12.7.6 of the Meat Hygiene Manual of Procedures, applicable to red meat species See also: Annex A, Species-Specific Stunning Guidelines – Red Meat Species Listed as an acceptable form of on farm euthanasia in the Codes of Practice for the following red meat species: beef cattle (section 6.2), dairy cattle (section 6.2), veal calves (Appendix I), equine (section 10.2), preferred method for deer (section 3.13), sheep (section 7.2), goats (Appendix D), pigs (Appendix N)
Electrical stunning	Red meat species	<ul style="list-style-type: none"> Section 12.7.7 of the Meat Hygiene Manual of Procedures, applicable to red meat species See also: Annex A, Species-Specific Stunning Guidelines – Red Meat Species Listed as an acceptable form of on farm euthanasia in the Codes of Practice for the following red meat species: pigs (Appendix N)
Gas and gas mixtures (controlled atmospheric stunning (CAS))	Red meat species	<ul style="list-style-type: none"> Section 12.7.8 of the Meat Hygiene Manual of Procedures, applicable to red meat species See also: Annex A, Species-Specific Stunning Guidelines – Red Meat Species Annex A: Gases “are not commonly used to stun sheep as the wool absorbs a lot of gas, making the system very inefficient” Listed as an acceptable form of on farm euthanasia in the Codes of Practice for the following red meat species: pigs (Appendix N)
Blunt force trauma (followed by exsanguination (bleeding out))	Red meat species	<ul style="list-style-type: none"> Not listed in Meat Hygiene Manual of Procedures Listed as an acceptable form of on farm euthanasia in the Codes of Practice for the following red meat species: sheep (section 7.2), pigs (Appendix N)
Ritual slaughter: Halal, kosher	Red meat species	<ul style="list-style-type: none"> Section 12.7.10 of the Meat Hygiene Manual of Procedures, applicable to red meat species
Unacceptable methods	Red meat species	<ul style="list-style-type: none"> Section 12.8 of the Meat Hygiene Manual of Procedures lists the following methods as unacceptable for slaughtering red meat species: hitting/beating, use of a defective stunner

		<ul style="list-style-type: none"> Manually applied blunt trauma to the head and exsanguination without proper stunning first were listed as unacceptable bison euthanasia methods (Code of Practice, section 7.3) Manually-applied blunt trauma to the head, air embolism, electrocution and exsanguination without proper stunning first were listed as unacceptable beef cattle euthanasia methods (Code of Practice, section 6.2) Blunt force trauma to the head other than by use of a captive bolt gun was listed as unacceptable for veal calf euthanasia, as was any method not listed in Appendix I – Methods of Euthanasia (Code of Practice, section 8.2, Appendix I)
Electrical stunning (water bath or head only with handheld stunner)	Poultry	<ul style="list-style-type: none"> Section 12.14.1 of the Meat Hygiene Manual of Procedures, applicable to poultry
Gas and gas mixtures (controlled atmospheric stunning (CAS))	Poultry	<ul style="list-style-type: none"> Section 12.14.2 of the Meat Hygiene Manual of Procedures, applicable to poultry Listed as an acceptable form of on farm euthanasia in the Codes of Practice for: Layers (Appendix E), Chickens, Turkeys and Breeders (Appendix B)
Captive bolt	Poultry	<ul style="list-style-type: none"> Section 12.14.3 of the Meat Hygiene Manual of Procedures, applicable to poultry Listed as an acceptable form of on farm euthanasia in the Codes of Practice for: Layers – non-penetrating only (Appendix E), Chickens, Turkeys and Breeders (Appendix B)
Blunt force trauma	Poultry	<ul style="list-style-type: none"> Not included in the Meat Hygiene Manual of Procedures Listed as an acceptable form of on farm euthanasia in the Codes of Practice for: Layers (Appendix E), Chickens, Turkeys and Breeders (Appendix B)
Cervical dislocation	Poultry	<ul style="list-style-type: none"> Not included in the Meat Hygiene Manual of Procedures Listed as an acceptable form of on farm euthanasia in the Codes of Practice for: Layers (Appendix E), Chickens, Turkeys and Breeders provided no crushing of cervical vertebrae occurs (Appendix B)
Decapitation	Poultry	<ul style="list-style-type: none"> Section 12.14.4 of the Meat Hygiene Manual of Procedures, applicable to poultry Listed as an acceptable form of on farm euthanasia in the Codes of Practice for: Layers (Appendix E), Chickens, Turkeys and Breeders (Appendix B)
Neck cutting and bleeding	Poultry	<ul style="list-style-type: none"> Section 12.14.5 of the Meat Hygiene Manual of Procedures, applicable to poultry
Maceration	Poultry	<ul style="list-style-type: none"> Not included in the Meat Hygiene Manual of Procedures Listed as an acceptable form of on farm euthanasia in the Codes of Practice for unhatched eggs, chicks and poults: Chickens, Turkeys and Breeders (Appendix B)
Electrical stunning (water	Rabbits	<ul style="list-style-type: none"> Section 12.15.4.1 of the Meat Hygiene Manual of Procedures, applicable to rabbits

bath or head only with handheld stunner)		
Gas inhalation: Carbon dioxide (CO ₂)	Rabbits	<ul style="list-style-type: none"> • Not included in the Meat Hygiene Manual of Procedures • Listed as an acceptable form of on farm euthanasia in the Rabbit Code of Practice (Appendix G)
Captive bolt	Rabbits	<ul style="list-style-type: none"> • Section 12.15.4.2 of the Meat Hygiene Manual of Procedures, applicable to rabbits • Listed as an acceptable form of on farm euthanasia in the Rabbit Code of Practice (Appendix G)
Blunt force trauma	Rabbits	<ul style="list-style-type: none"> • Not included in the Meat Hygiene Manual of Procedures • Listed as an acceptable form of on farm euthanasia in the Rabbit Code of Practice (Appendix G)
Cervical dislocation	Rabbits	<ul style="list-style-type: none"> • Not included in the Meat Hygiene Manual of Procedures • Listed as an acceptable form of on farm euthanasia in the Rabbit Code of Practice (Appendix G) provided no crushing of cervical vertebrae occurs
Decapitation	Rabbits	<ul style="list-style-type: none"> • Not included in the Meat Hygiene Manual of Procedures • Listed as an acceptable form of on farm euthanasia for pre-weaned kits < 150g (< 0.3lb) in the Rabbit Code of Practice (Appendix G)
Ritual slaughter: Halal, kosher	Rabbits and poultry	<ul style="list-style-type: none"> • Section 12.16 of the Meat Hygiene Manual of Procedures, applicable to rabbits and poultry
Unacceptable procedures	Rabbits and poultry	<ul style="list-style-type: none"> • Section 12.17 of the Meat Hygiene Manual of Procedures lists the following methods as unacceptable for slaughtering rabbits and/or poultry: kicking, hitting, throwing, crushing, mutilation of poultry in/with equipment, washing crates containing live birds, use of defective stunner or automated knives, scalding of live birds
Firearm	Foxes	<ul style="list-style-type: none"> • Not included in the Meat Hygiene Manual of Procedures • Listed as an acceptable form of on farm euthanasia in the Fox Code of Practice (section 6.2) for foxes under 6 months of age
Electrocution	Foxes	<ul style="list-style-type: none"> • Not included in the Meat Hygiene Manual of Procedures • Listed as an acceptable form of on farm euthanasia in the Fox Code of Practice (section 6.2)
Carbon Monoxide (CO)	Mink	<ul style="list-style-type: none"> • Not included in the Meat Hygiene Manual of Procedures • Listed as an acceptable form of on farm euthanasia in the Mink Code of Practice (section 6.1)

*Note: Many of the above accepted methods have additional conditions (e.g. body weight limits, age) which must be adhered to in order for the method to be considered acceptable.

Acceptable methods for stunning

This section contains excerpts from Table 4 and Appendix H of the SlaughterSafe Training manual Participant Guide (2012 v.3) where stated.

Table 4: Methods of Stunning

Acceptable Methods	Suitable for	Maximum Stun-to-Stick Interval
Correctly placed head shot with firearm of appropriate calibre and appropriate ammunition.	Cattle, bison, sheep, goats, pigs, and other small ruminants. See <i>Section 4 – Appendices</i> for a guide to appropriate selection and use.	60 seconds
Penetrating or nonpenetrating captive bolt stunner.	Appropriate models exist for all livestock and poultry. See <i>Section 4 – Appendices</i> for details.	60 seconds
Electrical stunning.	Possible for all livestock and poultry. See <i>Section 4 – Appendices</i> for details.	60 seconds
Rapid decapitation with appropriate restraint (killing cone).	Poultry and rabbits only.	Exempt from a two step stun/kill process.
Manual blunt force trauma for small animals only.	Poultry and rabbits.	60 seconds
Ritual slaughter under Islamic or Jewish law.	See information in <i>Section 4 – Appendices</i> for appropriate methods.	
<p>Other Methods</p> <p>If the slaughter method you want to use is not listed in the green section above, it may not be humane or legal. You must consult with the Ministry of Agriculture before using it.</p> <p>Animal Health Centre, Ministry of Agriculture (604) 556-3003 toll free: 1-877-877-2474</p>		

Note: For more information on animal welfare standards, see *Section 4 – Appendices*.

- Appendix H.1.4: Firearms

Gunshot is an acceptable means of stunning for all livestock, but is not recommended for rabbits and poultry. Gunshot kills by mass destruction of the brain. The degree of brain damage inflicted by the bullet is dependent upon the firearm, nature of the bullet (or shot shell) and accuracy of the shot. The correct selection of ammunition is vital to single step success.

- Appendix H.1.5: Captive Bolt Stunners

Penetrating captive bolt devices consist of a steel bolt, with a flange and piston at one end, which is housed in a barrel. On firing, the expansion of gases, propel the piston forward and force the bolt out of the muzzle

of the barrel. The bolt is retained within the barrel by a series of cushions that absorb the excess energy of the bolt and keep it within the barrel. The bolt is retracted back into the gun either automatically or manually depending upon the design of the device.

Captive bolt stunners are powered by gunpowder or compressed air, which must provide sufficient energy to penetrate the skull of the species on which they are being used. Accurate placement, energy of bolt (bolt velocity) and depth of penetration determines effectiveness. Bolt velocity is depends on maintenance (especially cleaning) and storage of the cartridge charges.

- Appendix H.1.6: Electrical Stunning

Electrocution induces death by physical disruption of the brain and/or hypoxia by rendering the brain insensible, followed by cardiac fibrillation. Electrocution is considered humane when adequate current passes through the brain to induce a grand mal seizure and fibrillation of the heart. For electrocution to be considered humane, it must be performed with appropriate equipment – preferably a constant current system.

For animal welfare and human safety reasons, only properly designed and tested devices should be used. Care must be taken that when using electrodes they are applied correctly, before the electrical shock is applied. When the wand is electrified before placement on the animal it is called hot-wanding and is considered inhumane.

- Appendix H.1.7: Manual Blunt-force Trauma for Small Animals Only

Manual blunt force trauma induces death by physical disruption of the brain. A blow to the head can be an effective means of euthanasia to small animals with thin craniums (i.e., rabbits and poultry). A single, sharp blow must be delivered to the central skull bones with sufficient force to produce immediate depression of the central nervous system and destruction of brain tissue, without breaking open the skull.

To meet humane standards, the object must be brought to the animals head, not the animal to the object. Striking the animal to the object significantly decreases the animal welfare standard. If animals are swung during the application of blunt force trauma, they will experience high stress and a much greater chance of injury with dislocated joints, broken legs, etc. Common acceptable tools used for manual blunt force include ball peen hammers, rebar, wooden clubs and pipes.

Note: Manual blunt force trauma was not listed as an acceptable method in the Meat Hygiene Manual of Procedures, and hitting/beating is listed as an unacceptable practice in the manual for red meat species (section [12.8](#)), rabbits and poultry (section [12.17](#)). Blunt force trauma followed by bleeding out is listed as acceptable in the Codes of Practice for sheep (section [7.2](#)), pigs ([Appendix N](#)), laying hens ([Appendix E](#)), chickens, turkeys and breeding birds ([Appendix B](#)) and rabbits ([Appendix G](#)).

- Appendix H.1.8: Rapid Decapitation with Appropriate Restraint (Killing Cone)

Decapitation is a legal slaughter method for poultry and rabbits, and involves severing the neck, close to the head, by using a sharp instrument. However, research has shown that there may be brain activity for up to 30 seconds after decapitation, and that loss of sensibility may not be immediate. The still-functioning brain may be experiencing significant pain and suffering. Consequently, a slaughter method that stuns the animals before bleeding or decapitation is preferable. However, if rapid decapitation is used, adequate restraint must be applied.

Note: The Meat Hygiene Manual of Procedures only indicates this is an acceptable method for poultry, not for rabbits or for other species.

- Cervical Dislocation – Poultry and rabbits (not included in SlaughterSafe manual)

Cervical dislocation induces death by physical disruption of the brain and spinal cord as the procedure dislocates the vertebral column from the skull, which causes damage to the lower brain region and near immediate unconsciousness. Cervical dislocation requires proper application and is best achieved using a stretching method rather than crushing the vertebrae.

Note: Cervical dislocation is permitted with crushing of cervical vertebrae listed as unacceptable in the following Codes of Practice: Laying hens ([Appendix E](#)), chickens, turkeys and breeder birds ([Appendix B](#)), rabbits ([Appendix G](#)). The Meat Hygiene Manual of Procedures does not list cervical dislocation as an acceptable method of slaughter for any species, though it does *not* specifically indicate it is an unacceptable method either.

- Ritual Slaughter – Appendix H.2: Confirming Insensibility and Appendix H.3: Ritual Slaughter, as they relate to Exsanguination (bleeding out) as a method of slaughtering animals

(H.2) For most animals, and in most situations, stunning before bleeding is a requirement for slaughter. However, there are two important exceptions:

1. Rapid decapitation for poultry and rabbits with appropriate restraint.
2. Animals killed by ritual slaughter under Islamic or Jewish law.

(H.3) Slaughter without prior stunning is one of the main animal welfare issues identified when performing ritual slaughter.

Exsanguination must be performed using a pointed, very sharp knife with a rigid blade at least twice the width of the neck in length. Properly performed, blood should flow freely with death occurring over a period of several minutes.

Note: the Meat Hygiene Manual of Procedures lists neck cutting and bleeding as an acceptable method of slaughter for poultry when preceded by stunning. It is also listed as an acceptable method during ritual slaughter of any species, further indicating that “*head only reversible stunning, before ritual slaughter or*

post-cut stunning is encouraged whenever possible” (Section [12.7.10.3](#) – red meat species). The SlaughterSafe training manual also encourages pre-slaughter stunning prior to cutting the animal’s neck (Appendix H.3.2.3) or post-cut stunning (Appendix H.3.2.4).

Objective criteria for humane slaughter

The following information was taken from [Annex C](#) of the Meat Hygiene Manual of Procedure: Objective Criteria for Humane Slaughter – Red Meat Species and Poultry.

Objective Criteria for Humane Slaughter – Red Meat Species

Criteria	Cattle	Pigs	Sheep	Horses
Stunning	95% or >	Placement 1% error allowed Hot wanding 1% error allowed Gondolas 4%	95% or > accuracy	95% or >
Insensibility on the bleed rail	100%	100%	100%	100%
Slips and falls	1% or < falls document slips but do not audit	1% or < falls document slips but do not audit	1% or < falls document slips but do not audit	1% or < falls document slips but do not audit
Vocalization	5% or less	5% or less	Do not audit in this species	Do not audit in this species
Prod use	25% or less	25% or less	Do not use	Do not use
Willful acts of cruelty	None	None	None	None
Water	Yes	Yes	Yes	Yes

Objective Criteria for Humane Slaughter – Poultry

Chickens	Stunner	Cut/neck slitter (automatic)	Entering Scalder ¹	Deliberate acts of cruelty
Sample Size	500	500	500	All birds observed
Minimum requirements	98% rendered insensible	98% birds killed	No sensible/uncut neck birds	None (zero tolerance)

¹ Birds must be monitored on the bleed line to ensure that they do not regain consciousness before death.

Turkeys	Stunner	Cut/neck slitter (automatic)	Entering Scalder ²	Deliberate acts of cruelty
Sample Size	100	100	100	All birds observed
Minimum requirements	98% rendered insensible	98% birds killed	No sensible/uncut neck birds	None (zero tolerance)

² Birds must be monitored on the bleed line to ensure that they do not regain consciousness before death.

Appendix 3: Education and training resources

- Each Code of Practice has a transport decision tree indicating if an animal is fit or unfit to be loaded. Unfit animals should not be loaded.
 - Bison ([Appendix G](#))
 - Beef cattle ([Appendix D](#), [Appendix E](#))
 - Dairy cattle ([Appendix G](#), [Appendix H](#))
 - Veal calves ([Appendix G](#))
 - Sheep ([Appendix K](#))
 - Goats ([Section 6 \(pg. 36-37\)](#), [Appendix G](#))
 - Equines ([Appendix H](#))
 - Pigs ([Appendix L](#))
 - Poultry: Broiler chickens, turkeys, laying hens ([Appendix C](#) of Laying Hen Code)
 - Rabbits ([Appendix E](#))
 - Mink ([Section 7.1.1](#))
 - Deer ([Appendix 4](#))

- Temple Grandin’s “glass walls” project videos demonstrate humane slaughter techniques from unloading live animals through to packing. Note: these videos were taken at American plants.
 - Sheep -
<https://www.youtube.com/watch?v=BoB3tf9Q2AA&t=0s&index=2&list=PLkBbso1kwZ3bZTqN5MBLqHWGpRqPCH7gK>
 - Pigs -
<https://www.youtube.com/watch?v=LsEbvwmipJI&index=2&list=PLkBbso1kwZ3bZTqN5MBLqHWGpRqPCH7gK>
 - Beef cattle -
<https://www.youtube.com/watch?v=VMqYYXswono&t=0s&index=4&list=PLkBbso1kwZ3bZTqN5MBLqHWGpRqPCH7gK>
 - Turkeys -
<https://www.youtube.com/watch?v=VQ2fDX76Mmc&t=0s&index=5&list=PLkBbso1kwZ3bZTqN5MBLqHWGpRqPCH7gK>

- Animal handling resources: www.animalhandling.org
 - Slaughter plant guidelines and audits, with manual and audit forms -
http://www.animalhandling.org/producers/guidelines_audits
 - Additional record forms for humane handling - www.animalhandling.org/producers/forms