

DRAFT CHAPTER 7.5.

ANIMAL WELFARE DURING SLAUGHTER

Australian Comments – indicated in blue font

GENERAL COMMENTS

Australia notes there have been significant revisions to the chapter. Of note is that the chapter has become much less prescriptive, which may allow members to determine what they deem is appropriate to meet welfare standards. Below are three examples:

1. Article 7.5.13, part 2 lists several measurable parameters but states they should be 'below an acceptable threshold'.
2. In the current version of this chapter, Article 7.5.2 details moving and handling of animals, stating it should be possible to move 99% of animals without their falling. However in the revised chapter, animals 'running, slipping and falling' is listed as a measurable but simply states "Animals are safely handled when these measures are below an acceptable threshold."
3. The revised version has also removed the extensive tables which summarise restraint, stunning and slaughter methods that provide a useful reference for various methods.

Australia questions the removal of detailed information, informative tables and measurable information as these form sound, evidence-based international standards for the slaughter of animals and it would be preferable to retain these in some form.

Australia notes that Article 7.5.18 provides guidance on the slaughter of pregnant animals. Australia suggests that guidance could also be provided in a new article for the slaughter of newborn animals, acknowledging the reality that many animals are born in lairage or just before slaughter.

Australia suggests that if the term '*hazard*' is going to be used when referring to animal welfare instead of risk, then the OIE glossary definition of *hazard* may require amendment. *Hazard* is currently defined as 'means a biological, chemical or physical agent in, or a condition of, an animal or animal product with the potential to cause an adverse health effect'. The current definition is only focused on health – a stronger emphasis may be required on animal welfare or an animal's mental state.

Australia notes that the term 'criteria (or measures)' is used in this chapter, as opposed to 'criteria (or measurables)'. For consistency, Australia suggests that this terminology should be harmonised through relevant animal welfare Code Chapters. Australia also notes that the phrase 'Animal-based and other measurables include' is frequently used as a title in this chapter. Australia suggests removal of the term 'include' in this phrase to improve readability.

Article 7.5.1.

Introduction

Providing good welfare to the animals at *slaughter* is ethically and economically beneficial. The implementation of animal welfare measures contributes to the improvement of workers' safety and product quality, and is essential for food safety [Blokhuis *et al.*, 2008; Lara and Rostagno, 2018].

Article 7.5.2.

Scope

This chapter identifies potential *animal welfare hazards* during *slaughter* and provides recommendations for arrival and *unloading, lairage*, handling, *restraint, stunning* and bleeding of animals in *slaughterhouses/abattoirs*. It provides animal-based measures to assess the level of welfare and recommends remedial actions to be applied, when necessary.

This chapter applies to the *slaughter* in *slaughterhouses/abattoirs* of the following domestic animals: cattle, buffalo, bison, sheep, goats, horses, pigs, rabbits and *poultry*, hereafter referred to as "animals". Recommendations consider whether animals arrive at the *slaughterhouse/abattoir* in *containers* or are free-moving.

This chapter should be read with the guiding principles for animal welfare provided in Chapter 7.1. and relevant provisions of Chapters 6.2 and 6.3.

The principles underpinning these recommendations may also apply to the *slaughter* of other species and those slaughtered in other places.

Article 7.5.3.

Definition for the purpose of this chapter

Bleeding: means the act of severing major blood vessels that supply the brain, to ensure *death*.

Article 7.5.4.

Animal welfare hazards

Hazards to *animal welfare* during each of the pre-slaughter stages have an additive cumulative effect on the stress of the animals [Moberg and Mench, 2000].

At the *slaughterhouse*, animals are exposed to animal welfare hazards including fasting and water deprivation, mixing of unfamiliar *animals*, handling by humans, exposure to a novel environment (e.g. noise, lighting, flooring), forced movement physical exercise, limited space allowance, extreme weather conditions and ineffective inadequate stunning and bleeding. These *hazards* can have negative impacts on the welfare of the animals that can be assessed through animal-based measures. Animal welfare hazards can be minimised by appropriate design of premises and choice of equipment, and through good management, training and competency of personnel.

Rationale:

Australia suggests the use of the term 'cumulative' instead of 'additive' because this improves readability of the sentence.

Australia also suggests replacing the phrase 'physical exercise' with 'movement', as there is generally no forced exercise at abattoirs but forced movement through races, which can be stressful and injurious.

Australia suggests replacing the term 'inadequate' with 'ineffective', as this would be a more accurate descriptor in the paragraph context above.

Article 7.5.5.

Criteria (or measures)

The welfare of animals at *slaughter* should be assessed using outcome-based measures. Although consideration should be given to the resources provided as well as the design and management of the system, animal-based criteria are preferential.

Annex 23 (contd)

The routine use of these outcome-based measures and the appropriate thresholds should be adapted to the different situations in which animals are managed at a *slaughterhouse/abattoir*. It is recommended that target values or thresholds for animal welfare measurables be based on current scientific knowledge and appropriate national, sectorial or regional standards.

Article 7.5.6.

Management

The *slaughterhouse/abattoir* operator is responsible for the development and enforcement of a dedicated operating plan that should consider the following:

- design of premises and choice of equipment;
- [operation of equipment and facilities](#)
- training and competency of personnel;
- throughput (number of animals slaughtered per hour);
- [animal welfare](#);
- maintenance and cleaning procedures;
- contingency plans.

Rationale: Australia suggests that the operating plan needs to consider the operational requirements of equipment and facilities. Animal welfare should influence all aspects of design, training, unloading of animals, low-stress handling and movement of animals, throughput amount, contingency plans.

Article 7.5.7.

Training and competency of personnel

Animal handlers and other personnel have a crucial role to play in ensuring good *animal welfare* conditions from the time of arrival of the animals at the *slaughterhouse/abattoir* through to their *death*. Training for all personnel should emphasise the importance of *animal welfare* and their responsibility in contributing to the welfare of the animals that come through the *slaughterhouse/abattoir*.

Animal handlers should understand the behavioural patterns of animals and their underlying principles to carry out the required tasks whilst ensuring good *animal welfare*. They should be experienced and competent in handling and moving the animals [with knowledge of flight zone and point of balance](#) and able to identify signs of [stress, fear](#), pain and suffering. Personnel in charge of restraint and of *stunning* and bleeding operations should be familiar with the relevant equipment, their key working parameters and procedures. Personnel *stunning*, shackling and bleeding animals should be able to identify effective *stunning* of the animal and signs of recovery of consciousness, and should be able to take corrective actions, if necessary [EFSA, 2013a; EFSA 2013b].

Competencies may be gained through a combination of formal training and practical experience. These competencies should be assessed by the *Competent Authority* or by an independent body recognised by the *Competent Authority*.

Rationale: Australia suggests that knowledge of an animal's flight zone and point of balance are critical for good handling on slaughter plants and should be included in this article. Inclusion of signs of stress and fear in animals also help to provide important information on individual animal temperaments as well as handling techniques being used. Being able to accurately assess stress and fear levels in an animal is key to good handling and animal welfare.

References:

- Belk K, Scanga J, Smith G et al (2002) The relationship between good handling/ stunning and meat quality in beef, pork, and lamb. Animal Handling and Stunning Conference on February 21-22.
- Grandin T (1996) Factors that impede animal movement at slaughter plants. Journal American Veterinary Medical Association 209:757:759.
- Grandin T (1994) Solving livestock handling problems. Veterinary Medicine Pp:989-998.
- Grandin T (1997) Assessment of stress during handling and transport. Journal of Animal Science 75:249-257.

Article 7.5.8.

Design of premises and choice of equipment

The design of premises and the choice of equipment used in a *slaughterhouse/abattoir* have an important impact on the welfare of animals. They should consider the animals' needs, in terms of their physical comfort including thermal conditions, protection from extreme environmental conditions, protection from injury, protection from sudden or excessive noise, ability to perform natural and social behaviours as well as watering and feeding needs. Premises should be designed to eliminate distractions that may cause approaching animals to stop, baulk or turn back.

Rationale: Australia suggests amendments to the above text in Article 7.5.8 to support physical comfort of animals in a broad range of environmental conditions, including thermal conditions or other impacts such as extreme weather.

The design of the *slaughterhouse/abattoir* and choice of equipment should take into consideration the species, categories, quantities, and size or weight of the animals. *Restraint, stunning* and bleeding equipment is critical for the welfare of an animal at the time of *slaughter*. Appropriate back-up equipment should be available for immediate use in case of failure of the *stunning* equipment initially used.

Article 7.5.9.

Throughput (number of animals slaughtered per hour)

The throughput of the *slaughterhouse/abattoir* should never exceed the maximum specification of the design of the facilities or equipment and may be reduced depending on the welfare outcomes.

Personnel allocation should be adequate for the anticipated throughput and be sufficient to implement the *slaughterhouse/abattoir* operating plan as well as *ante mortem* and *post mortem* inspections. [The minimum number of personnel to perform the required tasks should be present to avoid unnecessary stress, fear, noise and distractions while handling animals.](#)

Rationale: Australia suggests this insertion to Article 7.5.9 as too many people attempting to move animals can result in confusion, excessive noise and force when handling animals, increasing stress in animals at slaughterhouses/abattoirs.

References:

- Grandin T (1994) Solving livestock handling problems. *Veterinary Medicine* Pp:989-998.
- Grandin T (1996) Factors that impede animal movement at slaughter plants. *Journal American Veterinary Medical Association* 209:757:759.
- Grandin T (1989) Behavioural principles of livestock handling with 1999, 2002, 2010, 2014, 2015, 2016, 2017, and 2018 Updates on Vision, Hearing, and Handling Methods in Cattle and Pigs. *Professional Animal Scientist* Pp:1-11.

Article 7.5.10.

Maintenance and cleaning procedures

All equipment should be clean and well maintained in order to ensure *animal welfare* and safety of personnel.

Maintenance and cleaning of *unloading, lairage* and moving facilities contributes to ensuring that animals are handled smoothly, preventing pain and fear.

Maintenance and cleaning of restraining, stunning and bleeding equipment is essential to ensure reliable and efficient stunning and slaughter, thereby minimising pain, fear and suffering.

Article 7.5.11.

Contingency plans

Contingency plans should be in place at the *slaughterhouse/abattoir* to protect the welfare of the animals in the event of an emergency. The contingency plans should consider the most likely emergency situations given the species slaughtered and the location of the *slaughterhouse/abattoir*

Contingency plans should be documented and communicated to all responsible parties. [These may include considerations for biosecurity, feed and water supply to animals, natural disasters, animal holding and processing capacity, back up stunning and slaughter methods.](#)

Rationale: Australia suggests that Article 7.5.11 may benefit from more detail. Australia suggests potential insertions for consideration as above.

Article 7.5.12.

Arrival of free-moving animals

On arrival at the *slaughterhouse/abattoir*, animals will already have been exposed to *hazards* that may have negative impacts on their welfare. Any previous *hazards* will have a cumulative effect that may affect the welfare of the animals throughout the *slaughter* process. Therefore, animals should be transported to the *slaughterhouse/abattoir* in a manner that minimises adverse animal health and welfare outcomes, and in accordance with Chapters 7.2. and 7.3.

1. Animal welfare concerns:

Delay in *unloading* of animals is ~~a major~~ the main *animal welfare* concern at arrival [NAMI, 2017].

Rationale: Australia suggests the above edit to Article 7.5.12 point 1, as it considers injuries during unloading to be of equal concern as delay in unloading at arrival. Australia notes that the following Article 7.5.13.'Displacements of free-moving animals' contains detail about injuries during unloading.

References:

- Scientific Committee on Animal Health and Animal Welfare (2002) The welfare of animals during transport (details for horses, pigs, sheep and cattle). European Commission.
- Animal Health Australia (2012) Land transport of livestock. Australian animal welfare standards and guidelines version 1.1.

Animals in *vehicles* have smaller space allowances than on farm, undergo water and feed deprivation, may have suffered from an injury and may be exposed to ~~thermal stress due to adverse weather conditions~~ stress due to environmental exposure. In addition, stationary vehicles may have insufficient ventilation. Delays in *unloading* animals will prolong or exacerbate the impact of these *hazards*. Under these circumstances, injured or sick animals requiring urgent attention ~~will~~ may not be identified or dealt with appropriately and therefore the duration of their suffering will be increased.

Rationale: Australia notes that animals can be commonly injured during transport and therefore could be included in the text above.

Australia also suggests replacing 'thermal stress due to adverse weather conditions' with 'stress due to environmental exposure' because this may capture a broader range of factors that impact welfare.

Australia also notes that depending on the type of transport system used, ease of identification may differ considerably. Subsequently, Australia suggests replacing 'will' with 'may' and insertion of 'or dealt with appropriately.'

References:

- Scientific Committee on Animal Health and Animal Welfare (2002) The welfare of animals during transport (details for horses, pigs, sheep and cattle). European Commission.
- Animal Health Australia (2012) Land transport of livestock. Australian animal welfare standards and guidelines version 1.1.
- Mitchell M, Kettlewell P (2009) Welfare of poultry during transport – a review. Poultry Welfare Symposium.
- Broom D (2008) The welfare of livestock during road transport. Long Distance Transport and the Welfare of Animals Pp:157-181.

2. Animal-based and other measurables include:

It can be difficult to assess animal-based measures while animals are in the *vehicle*. Some measures that may be assessed include animals with injuries, or those that are sick or have died. Panting, shivering and huddling may indicate thermal stress. Drooling and licking may indicate prolonged thirst.

Animals dead on arrival or condemned on arrival should be recorded and monitored as an indicator of *animal welfare* prior to and during transport. [Similarly, it is desirable for mortalities and injuries to be reported to the competent authority responsible for animal welfare.](#)

Rationale: Australia suggests that recording and reporting of incidences of mortalities and injuries during transportation are important in monitoring and improving animal welfare transport standards.

References:

- Scientific Committee on Animal Health and Animal Welfare (2002) The welfare of animals during transport (details for horses, pigs, sheep and cattle). European Commission.
- Animal Health Australia (2012) Land transport of livestock. Australian animal welfare standards and guidelines version 1.1.
- EFSA (2011) Scientific opinion concerning the welfare of animals during transport. EFSA Journal 9(1):1966.

Annex 23 (contd)

Time from arrival to unloading and the environmental temperature and humidity can be used to establish relevant thresholds for corrective action.

3. Recommendations:

Animals should be unloaded promptly on arrival. This is facilitated by scheduling the arrival of the animals at the *slaughterhouse/abattoir* to ensure that there are sufficient personnel and adequate space in the *lairage* [or unloading](#) area.

Rationale: Australia suggests the insertion of the above text to Article 7.5.12 point 3 because animals are not unloaded directly to the lairage at all establishments. In some facilities they are unloaded to wash areas, paddocks or pens on adjacent properties to be moved up to the lairage before the kill.

Consignments of animals assessed to be at greater risk of *animal welfare hazards* should be unloaded first. When no space is immediately available, creating space should be a priority. Provisions should be made to provide shelter, shade or additional ventilation during waiting periods, or animals transported to an alternative nearby location where such provision is available.

[Animals should be provided water as soon as possible after unloading.](#)

[Special consideration should be given to animals that have undergone long or arduous journey times, lactating or pregnant animals and young animals.](#)

[Ramps should be used when unloading animals from transport vehicles to facilitate ease of unloading and protect animals from injury](#)

Rationale: Animals during transport have often been deprived of feed and water for prolonged periods of time and are at risk of dehydration. Therefore, water should be provided as soon as possible.

Pregnant animals are more susceptible to thermal stress, dehydration, injury and metabolic disease during transport. Young animals are more susceptible to stress, disease and injury during transportation and therefore should be given priority for unloading and processing to minimise any suffering or extended periods of feed and water deprivation.

Australia suggests explaining what classes of animal are at greater risk so that there can be less misunderstanding about which animals are at greater risk of animal welfare hazards

Australia also suggests that the use of ramps for free moving animals greatly improves animal welfare outcomes during the loading and unloading process. The use of ramps facilitates easier handling of animals during unloading and minimising the risk of injury or distress to animals. The use of ramps also allows for safer handling of animals when unloading from the personnel standpoint.

References:

- Humane Slaughter Association (2013) Humane handling of livestock – loading and unloading ramps.
- Smith G, Grandin T, Friend T et al (2004) Effect of transport on meat quality and animal welfare of cattle, pigs, sheep, horses, deer and poultry.
- EFSA (2011) Scientific opinion concerning the welfare of animals during transport. EFSA Journal 9(1):1966.

4. Species-specific recommendations:

Pigs are especially sensitive to extreme temperatures and therefore special attention should be taken when dealing with delays in *unloading* this species.

[Recently shorn sheep are especially sensitive to extreme temperatures and therefore special attention should be taken when dealing with delays in unloading.](#)

Rationale: Recently shorn sheep are particularly susceptible to cold and heat stress, as well as being sun burnt if left exposed on trucks during delays.

References:

- EFSA (2011) Scientific opinion concerning the welfare of animals during transport. EFSA Journal 9(1):1966.
- Scientific Committee on Animal Health and Animal Welfare (2002) The welfare of animals during transport (details for horses, pigs, sheep and cattle). European Commission.
- Animal Health Australia (2012) Land transport of livestock. Australian animal welfare standards and guidelines version 1.1.

Article 7.5.13.

~~Displacements~~ Handling of free-moving animals

Rationale: Australia suggests that 'handling' may be a clearer term for the purpose of this article, rather than 'displacements'.

This article addresses the handling of animals during *unloading* and *lairage*, and in the killing area.

1. Animal welfare concerns:

During *unloading*, animals are exposed to similar *hazards* to those encountered when being loaded (see Chapters 7.2. and 7.3). Inappropriate equipment in the *vehicle* or the *slaughterhouse/abattoir*, such as a lack of lateral protection when unloading, [inappropriate ramp design such as](#) excessively steep ramps or an absence of foot battens, may result in animals slipping, falling or being trampled, causing injuries. These *hazards* can also be associated with inappropriate handling and forced physical movement of animals that are unable to move independently as a result of weakness or injuries. Exposure to novel environments (e.g. noise, lighting, flooring) will cause fear and reluctance to move, or turning back.

Rationale: Australia suggests insertion of the above words in Article 7.5.13 point 1 because excessively steep ramps may not be the only cause of inappropriate ramp design that can lead to hazards when unloading. Other factors that may contribute to an inappropriate ramp design could include; angle, width, lateral wall material, floor material, use of shiny material or loose chains that can act as distractions when unloading.

2. Animal-based and other measurables include:

- a) animals running, slipping and falling;
- b) animals with broken limbs or any other injuries;

Rationale: Australia suggests insertion of 'or any other injuries' in Article 7.5.13 point 2 because 'broken limbs' alone may be restrictive as a measurement, without consideration of other similar injuries that are also relevant as measurables.

- c) animals turning-back, reluctant to move;
- d) animals that are unable to move by themselves;
- e) animals that strike against the facilities;
- f) frequency of use of excessive force or noise by personnel;

Rationale: Noise is another stressor for the animals that should be avoided. See references above.

- g) frequency of use of electrical prods;

Animals are safely handled when these measures are below an acceptable threshold.

3. Recommendations:

Ramps should be provided at unloading and positioned so that the animals can be handled safely. There should be no gap between the *vehicle* and the ramp, the gradient should not be too steep, and side barriers should be in place.

Rationale: Australia notes that the chapter makes several references to ramps, but suggests that it is important to make the core point that ramps should be provided. The absence of ramps may lead to adverse animal welfare outcomes.

Reference:

- Humane Slaughter Association (2013) Humane handling of livestock – loading and unloading ramps.

Preventive measures such as foot battens, rubber mats and deep groove flooring can help animals to avoid slipping.

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The unloading area and raceways should be well lit so that animals can see where they are going.

The design of unloading areas and raceways should aim to minimise the potential for distractions that may cause animals to stop, balk or turn back when being unloaded (e.g. shadows, changes in flooring, moving objects). For details refer to Chapters 7.2. and 7.3.

Animals that are injured, sick or unable to rise require immediate action and, when necessary, should be euthanised without moving them, and without delay. Refer to Articles 7.5.19. and 7.5.20¹.

Rationale: Edit made to correct typological error of referring to Article 7.5.201 rather than 7.5.20.

Personnel should be calm and patient, assisting the animals to move using a soft voice and slow movements. They should not shout, kick, or use any other means that is likely to cause fear or pain to the animals. Under no circumstances should animal handlers resort to violent acts to move animals (see Article 7.5.20). [Personnel should have knowledge of and use the animal's flight zone and point of balance.](#)

[Personnel should also avoid standing between an animal and where they want it to move to as this may cause the animal to balk.](#)

Rationale: Australia suggests insertion of the text above in Article 7.5.13 point 3 because it describes the use of flight zone and point of balance, which are important factors to facilitate calm and methodical handling of animals. Standing between an animal and where one wants it to move can often result in personnel shouting and beating animals to force them to move – avoidable if flight zones and point of balance are exercised.

Reference:

- Grandin T (1994) Solving livestock handling problems. Veterinary Medicine Pp:989-998.

~~Handling Mechanical aids and electric goads~~ should be used in a manner to encourage and direct movement of the animals without causing distress and pain. Preferred mechanical aids include panels, flags, plastic paddles, flappers (a length of cane with a short strap of leather or canvas attached), [and](#) plastic bags ~~and metallic rattles.~~

Rationale: Australia suggests that handling aids may be more appropriate here than mechanical aids. Australia also suggests the omission of electric goads as they cause fear and distress and unlike mechanical aids, can't be used in a way that does not cause pain. Metal rattles can also frequently create excessive noise that distresses animals.

Mechanical aids and electric goads should not be used as a substitute for good facility design and handling. They should not be used repeatedly if an animal fails to respond or move. In such cases it should be determined whether some physical or other impediment is preventing the animal from moving. [Examples of impediments include foreign objects, poor facility design and noise.](#)

Rationale: Australia suggests inclusion of further detail in this paragraph to provide better guidance to member countries on impediment for animal movement.

Electric goads should only be used in extreme cases and not on a routine basis to move animals.

The use of electric goads should be limited to battery-powered goads applied to the hindquarters of adult pigs and large ruminants, and never to sensitive areas such as the eyes, mouth, ears, anogenital region or belly. Such instruments should not be used on horses, sheep and goats of any age, or on calves or piglets.

The manual lifting of animals should be avoided; if it is necessary, animals should not be grasped or lifted in a manner which causes pain or suffering and physical damage (e.g. bruising, fractures, dislocations).(See Article 7.5.20).

4. Species-specific recommendations:

~~None identified.~~

[Calves may not have developed following behaviours yet and may be easily fatigued. Therefore, special care should be taken when unloading and handling these animals.](#)

Rationale: Calves are stressed and easily fatigued when handled therefore it should be noted that special care must be given when handling calves at abattoirs.

Reference:

- Animal Health Australia (2012) Land transport of livestock. Australian animal welfare standards and guidelines version 1.1.

Article 7.5.14.

Lairage of free-moving animals

1. Animal welfare concerns:

Animals during lairage may be exposed to several animal welfare hazards including:

- a) food and water deprivation leading to prolonged hunger and thirst,
- b) absence of protection against environmental extremes, ~~including in climate leading to~~ thermal stress,

Rationale: Australia suggests amendments to the text of Article 7.5.14 point 1.b) to support physical comfort of animals in a broad range of environmental conditions, including thermal conditions or other impacts such as extreme weather.

- c) sudden or excessive noises, including from personnel, leading to fear,
- d) insufficient space to lie down and move freely leading to fatigue and aggressive behaviour,
- e) poor design and maintenance leading to distress and injuries,
- f) mixing of unfamiliar animals leading to aggressive behaviour,
- g) limited access to resources (e.g. drinkers, bedding) leading to aggressive behaviour.
- h) Prolonged exposure to hard or abrasive surfaces leading to injury or lameness.

Rationale: Australia suggests insertion of the above text as Article 7.5.14 point 1.h) because leaving cattle on hard surfaces for long periods may cause pain, and is an important factor in inducing lameness and decreasing animal welfare outcomes.

Reference:

- Sadiq MB, Ramanoon SZ, Mossadez WMS, Mansor R & Syed-Hussain SS 2017, 'Association between lameness and indicators of dairy cow welfare based on locomotion scoring, body and hock condition, leg hygiene and lying behavior', *Animals (Basel)*, vol. 7, no. 11

Annex 23 (contd)2. Animal-based and other measurables include:

- a) thermal stress (e.g. panting, sweating, shivering, huddling behaviour)
- b) space allowance,
- c) excessive soiling with faeces,
- d) injuries (e.g. lameness, open wounds, fractures)
- e) illness (e.g. limping, diarrhoea, coughing)
- f) aggressive behaviours (e.g. mounting, fighting).

3. Recommendations:

Animals should have constant access to clean water. Water supply points should be designed according to the species and age of the animal, with environmental conditions that allow for effective consumption. The number and location of the water supply points should minimise competition.

Animals should be provided with feed in lairage if the duration between loading and expected time for slaughter exceeds 24 hours.

The lairage should provide animals with protection against adverse weather conditions.

Animals should be protected from excessive noise (e.g. ventilation fans, alarms, or other indoor or outdoor equipment).

Lairage areas should be free from sharp edges and other hazards that may cause injury to animals.

The lairage should provide enough space for all animals to lie down at the same time, to move freely and to move away in case of aggressive behaviours.

Lairage areas should have adequate lighting levels to allow inspection of the animals.

Animals from different groups (or different species) should not be mixed.

4. Species-specific recommendations:

None identified.

Article 7.5.15.

Restraint for stunning or bleeding (free-moving animals)1. Animal welfare concerns:

The purpose of *restraint* is to facilitate the correct application of the stunning or bleeding equipment. Incorrect *restraint* may not only lead to ineffective stunning or bleeding, but also cause pain and distress.

Other hazards include:

- a) slipping or falling of animals entering the restraining area,
- b) struggling or escape attempts caused by insecure *restraint*,
- c) injuries-and pain caused by excessive force of *restraint*,

- d) fear caused by prolonged *restraint*, which may exacerbate insecure or excessive *restraint*.

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In addition, slaughter without stunning increases the risk of pain and fear due to the need for robust *restraint* of conscious animals for neck cutting, especially if animals are turned on their sides or backs [von Holleben *et al.*, 2010; Pleiter, 2010], but also due to the noxious stimulation associated with the neck cut [Zulkifli *et al.*, 2014]. Animals should be stunned before bleeding, however an immediate post-cut stun for both cattle and sheep can be performed to minimise welfare risks associated with unstunned slaughter.

Rationale: Slaughter without stunning causes pain and fear not just due to the need for restraint, but due to the noxious stimulation associated with the neck cut, as noted later in this article. Immediate post-cut stunning of cattle and sheep is a second-best option to pre-slaughter stunning, and can ameliorate some of the conscious pain and distress experienced by the animal during bleeding.

The Code Commission could also consider moving this paragraph to Article 7.5.16 as this may be more relevant in that context.

Reference:

- Zulkifli, I., Sazili, A., Goh, Y., Small, A., Norbaiyah, B. (2014). *Effects of stunning and thoracic sticking on welfare and meat quality of halal-slaughtered beef cattle*. [online] North Sydney: Meat and Livestock Australia. Available at: <https://www.mla.com.au/research-and-development/search-rd-reports/final-report-details/Animal-Welfare/Effects-of-Stunning-and-Thoracic-Sticking-on-Welfare-and-Meat-Quality-of-Halal-Slaughtered-Beef-Cattle/935> [Accessed 20 Oct. 2019].

2. Animal-based and other measurables include:

- animal slipping or falling;
- struggling;
- escape attempts;
- vocalisation (cattle and pigs);
- reluctance to enter the restrainer;
- frequency of use of electric goads.

3. Recommendations:

The restrainer should be narrow enough that the animals cannot move either backwards or forwards or turn around.

The restrainer being used should be appropriate to the size of the animals and the restrainer should not be loaded beyond its design capacity.

When restrainers are used that hold an animal with its feet off the floor, the animal must be held in a balanced, comfortable, upright position.

~~When a restrainer is used to rotate an animal from an upright position, the body and head must be securely held and supported to prevent struggling and slipping within the device. Restrainers used to rotate an animal from an upright position and trip-floor restraint boxes are undesirable and should be avoided as they cause distress and can lead to injuries prior to slaughter. However, if used, the restrainer must secure and support the body and head to prevent struggling and slipping within the device.~~

Rationale: Australia suggests the above edits to Article 7.5.15 point 3, as Australia considers that the use of restrainers that rotate or invert animals prior to slaughter can lead to adverse animal welfare outcomes and as such, should be recognised as an undesirable management practice.

References:

- Holleben *et al.* 2010, Report on good and adverse practices – animal welfare concerns in relation to slaughter practices from the viewpoint of veterinary sciences. DIALREL Report 1.3
- Petty D *et al.* 1991, Concentrations of blood variables in cattle after Shechita and conventional slaughter. South African Jnl of Science. 65, pp. 397-398
- Tagawa, M. *et al.* 1994, Effect of change in body position on cardiopulmonary function and plasma cortisol in cattle. J. Vet Med Sci 56 (1) 131-134
- Wagner, A. E. *et al.* 1990, Cardiopulmonary effects of position in conscious cattle. American Jnl of Veterinary Research 51 (1) 77-11

Restrainers should not have sharp edges.

Non-slip flooring should be used to prevent animals from slipping or falling.

Distractions (e.g. movements of equipment or people, [loose chains or objects, shiny surfaces or floors](#)) should be minimised to prevent [baulking](#) and improve ease of entry into the restrainer.

Rationale: Australia suggests inclusion of further examples of distractions to provide better guidance in this article.

Australia suggests using the spelling 'baulking' rather than 'balking'.

No animals should enter the restrainer until equipment and personnel are ready to slaughter that animal.

No animals should be released from the restrainer until the operator has confirmed loss of consciousness.

General Comment: Australia suggests that in this recommendation, the OIE could provide specific guidance on the use of hydraulic restraint devices to minimise adverse animal welfare impacts.

4. Species-specific recommendations:

Gondolas for gas stunning of pigs should not be overloaded and pigs should be able to stand without being on top of each other.

Head *restraint* is recommended for cattle.

[If shackled, the time during which birds are inverted and conscious should be minimised. Shackling systems for poultry should be designed and appropriate for the size and species of bird. It is undesirable for conscious poultry with dislocated/broken legs or wings, or poultry too small to enter the waterbath, to be shackled. Instead, these birds should be euthanased.](#)

Rationale: Shackling systems that are inappropriately designed, can result in injuries, fractures and pain/distress. Minimising time spent during the shackling process may reduce the risk of adverse animal welfare outcomes.

Australia notes that shackling conscious birds with leg or wing abnormalities can exacerbate existing injuries and lead to pain and distress. Australia suggests that these birds could be euthanased instead.

References:

- EFSA (2019) EFSA Panel on Animal Health and Animal Welfare: scientific opinion on slaughter of animals: poultry. EFSA Journal 17(11):5849-5891.
- Gentle M, Tilston V (2000) Nociceptors in the legs of poultry: implications for potential pain in pre-slaughter shackling. Animal Welfare 9:227-236.
- Humane Slaughter Association (2016) Electrical waterbath stunning of poultry.

Article 7.5.16.

Stunning of free-moving animals1. Animal welfare concerns:

The main animal welfare concern associated with stunning is 'ineffective stunning' which results in pain, distress or fear during induction of unconsciousness and possible recovery before *death*.

The most common methods for stunning are mechanical, electrical and exposure to controlled atmosphere.

[Stunning prior to slaughter is preferred due to improved welfare outcomes for animals.](#)

Rationale:

Australia notes that the purpose of this chapter is to provide recommendations for good welfare outcomes for animals during slaughter. Slaughter without stunning is directly correlated to an increased risk of pain and fear and slaughter with stunning should be clearly identified as the preferred method. Therefore, Australia suggests pre-slaughter stunning is identified in Article 7.5.16 point 1 as the preferable slaughter method for optimum animal welfare outcomes.

Reference:

- Sabow et al. 2018, 'Electroencephalographic and blood parameters changes in anaesthetised goats subjected to slaughter without stunning and slaughter following different electrical stunning methods', *Animal Production Science*, vol. 59, no. 5, pp. 849-860

Annex 23 (contd)

Mechanical stunning is divided into penetrating [stunning](#) and ~~non-penetrating~~ [non-penetrative percussive stunning](#) applications. Both applications [use different types of devices](#) aimed to induce immediate loss of consciousness as the impact of the bolt on the skull results in concussion and disruption of normal brain function [Daly et al., 1987; EFSA, 2004]. [Penetrative stunning devices propel a bolt which penetrates the skull and enters the cranium damaging the brain. Non-penetrative percussive stunning devices propel a blunt bolt which does not penetrate the skull, but results in rapid loss of consciousness from impact.](#) The main hazards preventing effective mechanical stunning are incorrect shooting position and incorrect direction of the impact. These may cause ineffective stunning and pain or short-lasting unconsciousness. Low bolt velocity, narrow bolt diameter or short length of bolt leading to shallow penetration, may also affect the effectiveness of stunning. [In older animals with a thicker skull, low bolt velocity may result in an ineffective stun.](#) In ~~non-penetrating~~ [non-penetrative percussive stunning](#) applications, high bolt velocity may cause fracture of the skull and ineffective stunning. [If not applied correctly, fracture of the skull and ineffective stunning is more likely to occur with young animals such as calves, when a higher bolt velocity is used.](#)

Rationale:

Australia suggests the inclusion of the above amendments to improve readability of this article. The term 'captive bolt' is generally associated with penetrative stunning devices, and therefore this distinction between penetrating stunning and non-penetrating percussive stunning should be made clearer in the document.

Additionally, Australia suggests that definitions of these stunning methods could be moved to the Article 7.5.3 section entailing definitions to improve readability.

Australia suggests that skull thickness associated with age of the animal is another possible reason for ineffective stunning. For example, old bulls and buffalos have thicker skulls and/or bony ridges over the area of the brain, and percussive forces may not be effectively transferred. Also, the skulls of young cattle and old cows may crush, absorbing energy and detracting from concussive forces.

Reference:

- Meat and Livestock Australia (2010). *Review of stunning and halal slaughter*. [online] North Sydney: Meat and Livestock Australia. Available at: <http://www.livecorp.com.au/LC/files/98/98780c7e-2e95-4e45-98d9-74ff85c50281.pdf> [Accessed 20 Oct. 2019].

Electrical stunning involves application of an electric current to the brain of sufficient magnitude to induce immediate unconsciousness [EFSA, 2004; Grandin, 1980]. The main hazards preventing effective electrical stunning are: incorrect electrode placement, poor contact, dirty or corroded electrode, low voltage/current or high frequency [EFSA, 2004].

Controlled atmosphere stunning methods involve the exposure to high concentrations of carbon dioxide (hypercapnia), low concentration of oxygen (hypoxia) or a combination of the two (hypercapnic hypoxia). Loss of consciousness is not immediate following exposure of animals to controlled atmosphere stunning. The main hazards causing increased distress during induction of unconsciousness are irritant or aversive gas mixtures, low gas temperature and humidity. The main hazards causing ineffective controlled atmosphere stunning are incorrect gas concentration and short gas exposure time [Anon, 2018; EFSA, 2004; Velarde *et al.*, 2007].

2. Animal-based and other measurables include:

Effectiveness of stunning should be monitored at different stages: immediately after stunning, just before and during bleeding neck cutting, and during bleed-out [EFSA, 2013a; EFSA, 2013b; AVMA, 2016].

Rationale: Australia recommends the removal of the above text from Article 7.5.16 point 2. The definition of 'bleeding', as outlined in Article 7.5.3, implies that the act of neck cutting and subsequent bleed out are part of the process that ensures death. Therefore, if varying terms are used, it could raise other interpretations to what constitutes 'bleeding'.

No single indicator should be relied upon alone.

Mechanical stunning:

An effective stun is characterised by the presence of all the following signs: immediate collapse; ~~apnoea~~; tonic seizure; ~~absence of corneal reflex; absence of eye movements; immediate and sustained absence of rhythmic breathing, fixed, staring eye with no corneal or palpebral reflex, no righting reflex, no response to ear or nose pinch, no vocalisation.~~

The presence of any of the following signs may indicate an ineffective stun or recovery of consciousness: vocalisation; spontaneous blinking; righting reflex; presence of corneal reflex; rhythmic breathing.

Electrical stunning:

An effective stun is characterised by the presence of all the following signs: tonic-clonic seizures; loss of posture; ~~apnoea; and absence of corneal reflex.~~ immediate collapse, no rhythmic breathing; eyes rotated upwards; dilated pupils; no response to nose prick.

Rationale:

The absence of corneal reflex and eye movements to determine the effectiveness of electrical stunning may be problematic and should not be used as a singular sign. Similarly, spontaneous (non-rhythmic) agonal gasping can frequently occur in effectively stunned animals so apnoea may not be present.

Australia also suggests insertion of additional effective stun behavioural indicators for mechanical stunning in Article 7.5.16 point 2.

References:

- CSIRO Australia (2012). *Review of the welfare risks and the science that underpins welfare standards of cattle and sheep at slaughter*. [online] North Sydney: CSIRO, p.20. Meat and Livestock Australia. Available at: <https://www.mla.com.au/research-and-development/search-rd-reports/final-report-details/Live-Export/Review-of-the-welfare-risks-and-the-science-that-underpins-welfare-standards-of-cattle-and-sheep-at-slaughter/816> [Accessed 2 Dec. 2019].
- Verhoeven et al. 2015, 'Indicators used in livestock to assess unconsciousness after stunning: a review', *Animal journal*, vol. 9, no. 2, pp. 320-330

The presence of any of the following signs may indicate an ineffective stun or recovery of consciousness: vocalisation; spontaneous blinking; righting reflex; presence of corneal reflex; rhythmic breathing.

Gas stunning:

An effective stun is characterised by the presence of all the following signs: loss of posture; apnoea; absence of corneal reflex; absence of muscle tone.

The presence of any of the following signs may indicate an ineffective stun or recovery of consciousness: vocalisation; spontaneous blinking; righting reflex; presence of corneal reflex; rhythmic breathing.

3. Recommendations:

Animals should be stunned as soon as they are restrained.

In the case of ineffective stunning or recovery, animals should be re-stunned immediately using a backup system. Ineffective stunning or return to consciousness should be systematically recorded and the cause of the failure identified and rectified.

Annex 23 (contd)

Stunning equipment should be cleaned, maintained and stored following manufacturer's recommendations.

Slaughterhouses/abattoirs should have standard operating procedures that define key operating parameters or follow the manufacturer's recommendations for stunning, such as:

a) *Mechanical:*

- position and direction of the shot [AVMA, 2016];
- grain of the cartridge or air pressure appropriate to the type of animal (captive bolt) [Gibson 2014];
- length and diameter of the bolt (captive bolt);
- calibre and type of gun and ammunition (free bullet).

b) *Electrical:*

- shape, size and placement of the electrodes [AVMA, 2016];
- pressure between electrode and head;
- visual or auditory warning system to alert the operator to proper or improper function

c) *Controlled atmosphere:*

- gas concentrations and exposure time;
- temperature and humidity.

Rationale: Australia suggests insertion of 'gas' for clarity.

4. Species-specific recommendations:

~~Non-penetrating captive bolt should not be use in mature cattle and pigs [Finnie, 1993 and Finnie at al., 2003].~~

Rationale:

As currently written, the use of the term 'mature' in reference to cattle and pigs is ambiguous and as such is open to broad interpretation. If this text is retained, Australia requests that this definition be elaborated on for both cattle and pigs. Additionally, for electrical stunning it states that 'the competent authority should determine electrical parameters, based on scientific evidence for different types of animals'. As such, regardless of animal age and stunning method employed, the recommendation should be that stunning personnel should identify effective stunning parameters for the device/method being used as it will vary based on the species, breed and age of the animal.

The *Competent Authority* should determine effective electrical parameters, based on scientific evidence for different types of animals.

When poultry are stunned in electrical waterbaths, steps must be taken to avoid pre-stun electric shocks, for example by providing an electrically insulated entry ramp to the bath and avoiding overflow of water at the entrance.

Rationale: Australia recommends insertion of the above text to Article 7.5.15 point 4 as pre-stun electric shocks are painful and distressing to the birds.

References:

- EFSA, 2004. Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to welfare aspects of the main systems of stunning and killing the main commercial species of animals, *The EFSA Journal* (2004), 45, 1-29
- EFSA, 2019 AHAW Panel (EFSA Panel on Animal Health and Animal Welfare), 2019. Scientific opinion on Slaughter of animals: poultry. *EFSA Journal* 2019;17(11):5849, 91 pp.

High frequencies should not be avoided used in stunning poultry in electric waterbaths as often they do not provide an effective stun. In particular, frequencies over 600 Hz should not be used.

Rationale: High frequencies in electrical waterbaths fail to provide an effective stun in many birds. The 2019 EFSA Opinion recommends that frequencies over 600 Hz should not be used with poultry.

References:

- EFSA, 2012. Panel on Animal Health and Welfare (AHAW); Scientific Opinion on electrical requirements for waterbath equipment applicable for poultry. *EFSA Journal* 2012;10(6):2757
- EFSA, 2019. AHAW Panel (EFSA Panel on Animal Health and Animal Welfare), 2019. Scientific opinion on Slaughter of animals: poultry. *EFSA Journal* 2019;17(11):5849, 91 pp.

Direct currents should preferably not be used in electrical waterbath stunning of poultry as they may be less able to provide an effective stun than alternating currents.

Rationale: Alternating currents are better able to provide an effective stun in electrical waterbaths than direct currents.

Reference:

- EFSA, 2019. AHAW Panel (EFSA Panel on Animal Health and Animal Welfare), 2019. Scientific opinion on Slaughter of animals: poultry. EFSA Journal 2019;17(11):5849, 91 pp

Article 7.5.17

Bleeding of free-moving animals

1. Animal welfare concerns:

The main animal welfare concern at the time of bleeding following stunning is the recovery of consciousness due to prolonged stun-to-stick interval or due to incomplete severance of the main blood vessels.

Bleeding without prior stunning increases the risk of animal suffering because the incision to sever blood vessels results in substantial tissue damage in areas well supplied with nociceptors. The activation of these nociceptors causes the animal to experience pain [Gregory, 2004; Gibson *et al.*, 2009]. Loss of consciousness due to bleeding is not immediate and there is a period during which the animal can feel fear, pain and distress [Gregory, 2004; Johnson *et al.*, 2015].

Absence of or ineffective stunning may result in animals being released from the restrainer restraint, shackled, and further processed while they are still conscious or have the potential to recover consciousness.

Rationale: Australia notes that ineffective stunning may not necessarily result in animals being released from the restrainer. As such, insertion of the term 'may' would be more appropriate here. Additionally, Australia considers the term 'restrainer' to be more appropriate than 'restraint'.

Annex 23 (contd)2. Animal-based and other measurables include:

The main animal-based measurable is the blood flow (rate and duration).

For animal-based and other measurables of return of consciousness after stunning see Article 7.5.16

The animal-based and other measurables that indicate loss of consciousness include all the following: absence of muscle tone; absence of corneal reflex; absence of rhythmic breathing. In addition, cessation of bleeding can be used as a final indicator of death.

Rationale : Australia suggests that cessation of bleeding could be considered a final indicator of death after loss of consciousness has been confirmed. Incomplete bleeding or cessation of bleeding can also be caused by 'false aneurysms' in cattle and sheep.

3. Recommendations:

a) both carotid arteries or the blood vessels from which they arise should be severed.

Rationale: Australia recommends insertion of an additional clause in Article 7.5.17 point 3. Severing these blood vessels is necessary to minimise the time to irreversible loss of consciousness and *death* and so reduce *suffering* and the risk of animals regaining consciousness during *bleeding*.

References:

- EFSA (2004) Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to welfare aspects of the main systems of stunning and killing the main commercial species of animals, The EFSA Journal 45:1-29.
- Humane Slaughter Association (2013) Bleeding and pithing. <https://www.hsa.org.uk/bleeding-and-pithing/bleeding>

~~ab)~~ continuous and rapid blood flow should be assured after bleeding;

~~bc)~~ ~~cessation of blood flow~~ death should be assured before further processing;

Rationale:

Australia notes that blood clots can prevent blood flow in cattle and sheep that are still alive, and slow drips can still be occurring from cattle with complete brain death. In this context, Australia suggests that the death of the animal is the important factor rather than just 'cessation of blood flow'.

~~cd)~~ bleeding ~~knives~~ knives should be sharpened for each animal.

Rationale: Spelling.

General comment:

Australia suggests that some guidance could be included in the recommendations here for optimal sticking procedures. For example : Gregory et al. (2012) found, in cattle, that neck cutting at the level of cervical vertebra 1 (C1) was less likely to result in vessel occlusion and early cessation of bleeding than neck cutting performed at the level of C2 – C4.

Reference:

- Gregory, N. G., Schuster, P., Mirabito, I., Kolesar, R. & Mcmanus, T. (2012). Arrested blood flow during false aneurysm formation in the carotid arteries of cattle slaughtered with and without stunning. *Meat Science*, p. 90, 368-372.

In addition, the following should be considered:

Slaughter with stunning:

- a) the stun-to-stick interval should be short enough to ensure that the animal will die before recovering consciousness;
- b) unconsciousness should be confirmed before bleeding.

General Comment:

Australia suggests that some concrete measurables could be included here for the stun to stick interval, with consideration to how 'sticking' is defined.

The following could be some concrete measurables for consideration:

In abattoirs, sticking of cattle should occur within 12 seconds of non-penetrative captive bolt stunning, and a maximum of 30 seconds. For penetrative captive-bolt, sticking should occur within 60 seconds for cattle. A shorter stun-stick interval is required for electrical stunning as recovery to sensibility can occur quickly (within 30 seconds for sheep and goats). In the field, the Humane Slaughter Association recommends a maximum stun to stick interval of 15 seconds.

References:

- Hewitt, L. (2016). *Final report - Review of percussive stunning*. [online] North Sydney: Australian Meat Processor Corporation. Available at: <https://www.ampc.com.au/2017/09/Review-of-Percussive-Stunning> [Accessed 20 Oct. 2019].
- <https://www.hsa.org.uk/bleeding-and-pithing/bleeding>

Slaughter without stunning:

- a) bleeding should be carried out by a single incision; any second intervention should be recorded and analysed to improve procedures.

4. Species-specific recommendations

None identified.

Cattle are at risk of prolonged bleed out times and regaining consciousness if the bilateral vertebral arteries are not cut during a neck cut. If they are not cut, the vertebral arteries will continue to provide blood to the brain and can cause occlusion of the cut major arteries, slowing exsanguination. Cattle that have been stunned and had a neck cut should have thoracic sticking performed wherever possible to ensure an effective bleed out and prevent regaining of consciousness.

Rationale: Special consideration should be given to cattle during *slaughter* due to bilateral vertebral arteries which can continue to provide the brain with blood and cause occlusions of the cut peripheral arteries (e.g. carotids) by clotting and/or constriction of the neck cut which can lead to the delay of bleeding out and death. This delay in bleeding out and death means cattle are at higher risk of regaining consciousness after *stunning*.

References:

- Department of Agriculture (2018) Meat Notice 2018-02 - Mandatory thoracic sticking of calves.
- Claudia Terlouw, Cécile Bourguet, Véronique Deiss, Consciousness, unconsciousness and death in the context of slaughter. Part I. Neurobiological mechanisms underlying stunning and killing, Meat Science, Volume 118, 2016, Pages 133-146.
- M. T. W. Verhoeven, M. A. Gerritzen, L. J. Hellebrekers and B. Kemp, Validation of indicators used to assess unconsciousness in veal calves at slaughter, Animal (2016), vol 10. Issue 9, pp 1457–1465

Article 7.5.18.

Slaughter of pregnant free-moving animals

1. Animal welfare concerns:

Foetuses in the uterus cannot achieve consciousness [EFSA, 2017; Diesch *et al.*, 2005]. However, if removed from the uterus the foetus may perceive pain or other negative impacts.

2. Animal-based and other measurables include:

None identified.

3. Recommendations:

Under normal circumstances, pregnant animals that would be in the final 10% of their gestation period at the planned time of unloading at the slaughterhouse/abattoir should be neither transported nor slaughtered. If such an event occurs, an *animal handler* should ensure that pregnant females are handled separately.

The foetus should be left undisturbed in utero for at least 30 minutes after the *death* of the dam [EFSA, 2017; Anon, 2017]

In cases where the foetus is removed from the uterus before 30 minutes has elapsed euthanasia should be carried out immediately. The foetus should be examined to ensure death has occurred.

Rationale:

Australia suggests inserting the words 'pregnant' and 'from the uterus' into Article 7.5.18 point 3 for clarity.

Australia also suggests that foetuses should be examined to ensure death has occurred. This is because research has suggested that as long as the foetus has not breathed air, the foetus is not conscious and therefore not at risk of suffering.

- Mellor D (2010) Galloping colts, fetal feelings, and reassuring regulations: putting animal-welfare science into practice. JVME 37(1):94-100.
- Mellor D (2003) Guidelines for the humane slaughter of the foetuses of pregnant ruminants. Surveillance 30:26-28.
- EFSA Panel on Animal Health and Welfare (2017) Scientific opinion: animal welfare aspects in respect of the slaughter or killing of pregnant livestock animals (cattle, pigs, sheep, goats, horses). EFSA Journal 15(5):4782.

Annex 23 (contd)4. Species-specific recommendations:

None identified.

Article 7.5.19.

Emergency killing of free-moving animals

This article addresses animals that show signs of severe pain or other types of severe suffering before being unloaded or within the *slaughterhouse/abattoir*. These animals may correspond to animals unfit to travel as listed in Article 7.3.7. Principles described may also apply to animals that are not suitable for slaughter for commercial reasons, even if they do not present signs of pain or suffering.

1. Animal welfare concerns:

Some animals can arrive at *slaughterhouses/abattoirs* with injuries or severe illnesses that can cause undue pain and suffering. This is more likely in animals of low economic value.

2. Animal-based and other measurables include:

Animals requiring emergency killing are unable to walk independently or present severe injuries such as fractures, large open wounds, or prolapses. They may also present clinical signs of serious illness or being in a state of extreme weakness. New-born animals or animals that gave birth within the last 48 hours may also belong in this category.

3. Recommendations:

Animals should not be moved unless it can be done without causing further pain or suffering.

Animal handlers should euthanise the animal as soon as possible.

Emergency killing should be systematically recorded and analysed in order to improve procedures and prevent recurrences.

4. Species-specific recommendations:

None identified.

Article 7.5.20.

Methods, procedures or practices unacceptable on animal welfare grounds for free-moving animals

None of the following practices for handling animals are acceptable and should not be used:

- 1) crushing or breaking tails of animals;
- 2) applying pressure using an injurious object or applying an irritant substance to sensitive areas such as eyes, mouth, ears, ano-genital region or belly;
- 3) hitting animals including with instruments such as large sticks, sticks with sharp ends, metal piping, stones, fencing wire or leather belts;
- 3) hitting animals with instruments such as large sticks, sticks with sharp ends, ~~metal~~ piping, stones, fencing wire or leather belts;

Rationale: Australia suggests the deletion of 'metal' from Article 7.5.20 point 3 because only specifying metal piping may infer that it is acceptable to hit animals with other types of piping.

4) throwing or dropping animals;

5) grasping, lifting or dragging animals only by some body parts such as their tail, head, horns, ears, limbs, wool or hair;

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Annex 23 (contd)

None of the following practices for restraining animals are acceptable and should not be used:

- 1) mechanical clamping of the legs or feet of the animals as the sole method of *restraint*;
- 2) breaking legs, cutting leg tendons or blinding animals;
- 3) severing the spinal cord, by using a puntilla or dagger;
- 4) applying electrical current to any part of the body without including the head that does not span the brain;

Rationale: Australia suggests that electrical current must be applied to the head to induce loss of consciousness, at the same time as or before being applied to any other part of an animal's body. An electrical current applied to (for example) the chest first to induce cardiac arrest is considered painful.

Reference:

- Wotton, S., Gregory, N., Whittington, P. and Parkman, I. (2000). Electrical stunning of cattle. *Veterinary Record*, 147, pp.681-684.

- 5) suspending or hoisting conscious animals by the feet or legs;
- 6) severing brain stem by piercing through the eye socket or skull bone;

Breaking the neck while the animal is still conscious during bleeding animals is also an unacceptable practice.

Article 7.5.XX.

Articles on animals arriving in containers [to be developed]

[...]

Annex 23 (contd)

References

- Anonymous (2017). Animal welfare aspects in respect of the slaughter or killing of pregnant livestock animals (cattle, pigs, sheep, goats, horses). EFSA Journal 15:4782.
- Anonymous (2018). Scientific Opinion on monitoring procedures at slaughterhouses for bovines. EFSA Journal 11:3460.
- Anonymous (2018). Technical Note No 19 Carbon Dioxide Stunning and Killing of Pigs. Humane Slaughter Association, UK. <https://www.hsa.org.uk/downloads/technical-notes/tn19-carbon-dioxide-stunning-and-killing-of-pigs.pdf>
- AVMA Guidelines for the Humane Slaughter of Animals (2016). Available from : <https://www.avma.org/KB/Resources/Reference/AnimalWelfare/Documents/Humane-Slaughter-Guidelines.pdf>
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- EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare) (2013a). Scientific opinion on monitoring procedures at slaughterhouses for bovines. EFSA Journal 2013. 11, 3460. Available from: <http://dx.doi.org/10.2903/j.efsa.2013.3460>.
- EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare) (2013b). Scientific opinion on monitoring procedures at slaughterhouses for sheep and goats. EFSA Journal 2013. 11, 3522. Available from: <http://dx.doi.org/10.2903/j.efsa.2013.3522>.
- EFSA AHAW Panel (EFSA Panel on Animal Health and Animal Welfare) (2017) Scientific Opinion on the animal welfare aspects in respect of the slaughter or killing of pregnant livestock animals (cattle, pigs, sheep, goats, horses). EFSA Journal 2017;15(5):4782, 96 pp. Available from : <https://doi.org/10.2903/j.efsa.2017.4782>
- Finnie, J.W. (1993). Brain damage caused by captive bolt pistol. J. Comp. Patholo. 109:253–258.
- Finnie, J.W, J. Manavis, G.E. Summersides and P.C. Blumbergs. (2003). Brain Damage in Pigs Produced by Impact with a Non-penetrating Captive Bolt Pistol. Aust. Vet. J. 81:153-5.
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- Johnson, C.B., Mellor, D.J., Hemsworth, P.H. and Fisher, A.D (2015). A scientific comment on the welfare of domesticated ruminants slaughtered without stunning. New Zealand Veterinary Journal 63 58-65.
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- Recommended Animal Handling Guidelines & Audit Guide: A Systematic Approach to Animal Welfare (2017). Rev. 1, North American Meat Institute (NAMI).
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- Lara, L. and Rostagno M. (2018). Animal welfare and food safety in modern animal production, in Advances in Agricultural Animal Welfare, Food Science, Technology and Nutrition, Pages 91-108.
- Blokhuis, H., Keeling, L., Gavinelli, A. and Serratos, J. (2008) Animal welfare's impact on the food chain. Trends in Food Science & Technology, 19 (2008), 79-88.