

ICFAW comments are indicated in text boxes below suggested additions, which are highlighted in the text in **turquoise**.

Annex 23

## DRAFT CHAPTER 7.5.

### ANIMAL WELFARE DURING SLAUGHTER

#### 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, **donkeys, mules**, pigs, rabbits and *poultry*, hereafter referred as "animals". Recommendations consider whether animals arrive at the *slaughterhouse/abattoir* in *containers* or are free-moving.

##### **ICFAW comment**

Donkey slaughter is now a global concern with the donkey skin industry using 4.8 million donkeys skins annually. Donkeys must be specified so that the standards can be applied to donkey slaughterhouses worldwide.

##### References

The Donkey Sanctuary (2019) Under the Skin. Retrieved from <https://www.thedonkeysanctuary.org.uk/news/donkeys-face-population-collapse-due-to-skin-trade>

Kenya Agriculture and Livestock Research Organisation (2019), The Status of Donkey Slaughter in Kenya and its Implications on Community Livelihoods. Retrieved from <https://www.thebrooke.org/sites/default/files/Kalro%20Report-Final.pdf>

Brooke (2019) The Donkey Skin Trade: Policy Brief on the Worldwide Impact. Retrieved from : <https://www.thebrooke.org/sites/default/files/Brooke%20Donkey%20Skin%20Policy%20Brief.pdf>

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 **rapid death**.

Article 7.5.4.

#### Animal welfare hazards

*Hazards to animal welfare* during each of the pre-slaughter stages have an additive 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 physical exercise, limited space allowance, extreme weather conditions and 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 **and operation** of premises and choice of equipment, and through good management, training and competency of personnel.

Article 7.5.5.

#### Criteria (or measures)

The welfare of animals at *slaughter* should be **regularly** 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.

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**
- **management**, training and competency of personnel;
- throughput (number of animals slaughtered per hour);
- **animal welfare (including the type and age of animals, animal behaviour and handling):**
- maintenance and cleaning procedures;
- contingency plans.

**ICFAW comment**

The operating plan needs to consider the operational requirements of equipment and facilities. Management of staff day to day is also a critical component at a slaughterhouse/abattoir. Animal welfare should influence all aspects of design, training, unloading of animals, low-stress handling and movement of animals, throughput amount, contingency plans. The age and type of animal will have critical impacts on operating aspects at the slaughterhouse/abattoir.

## 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 animal **species they are working with** 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].

**ICFAW comment on 1st insertion in previous paragraph**

Different species have different handling needs and animal handlers should understand the behaviour and best handling practices of each species they deal with

**References:**

Brooke (2019) Compassionate Handling for Life. Retrieved from <https://www.thebrooke.org/sites/default/files/Animal%20Welfare/Compassionate-Handling-for-Life.pdf>

Grandin T. 1994. Solving livestock handling problems. Vet Med 89: 989– 98

### ICFAW comment on 2<sup>nd</sup> & 3<sup>rd</sup> insertions in previous paragraph

Knowledge of an animal's flight zone and point of balance are critical for good handling at slaughter plants. Stress levels have been shown to directly impact meat quality as well as obviously impacting animal welfare. 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.

*"Stress during preslaughter handling at the abattoir is detrimental to meat quality and animal welfare."*

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

*"Handlers need to be trained in the basic principles of livestock behavior. The most important principles relate to the animal's flight zone and point of balance. The point of balance is located at the animal's shoulder. To make an animal move forward, the handler must be positioned behind the point of balance. To make an animal move backward, the handler must stand in front of the point of balance. Handlers often make the mistake of standing in front of an animal while attempting to move it forward. Handlers must also learn to position themselves on the edge of the animal's flight zone. The flight zone is the animal's personal space, and its size is determined by the wildness or tameness of the animal. When a person enters the flight zone, the animal will move away. The animal's experiences have a tremendous effect on its current behavior and response to stress."*

Temple G (1997) Assessment of stress during handling and transport. Journal of Animal Science 75:249-257. *"Animals can be stressed by either psychological stress: restraint, handling or novelty; or physical stresses: hunger, thirst, fatigue, injury, or thermal extremes."*

*"Fear is a very strong stressor, and the highly variable results of handling and transportation studies are likely to be due to different levels of psychological stress. Psychological stress is fear stress."*

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*.

The presence of more personnel in the slaughterhouse than are needed to perform the required tasks should be avoided as this leads to stress, fear and confusion for the animals.

**ICFAW comment**

This is a common problem in many countries. It usually results in excess noise, shouting and movement. This frightens animals and makes them confused as to where they are being asked to move to and so can result in animals being beaten to force them to move.

**References**

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. *“Unexpected loud or novel noises can be highly stressful to livestock. In facilities where livestock are handled, loud or novel noises should be avoided because they distress livestock.”*  
*“Researchers in Canada found that sounds from people such as yelling or whistling had a greater effect on the heartbeat of cattle than equipment sounds such as gates clanging. Handlers can keep animals calmer if they avoid the visual and auditory stimuli that scare them. Sudden intermittent sounds and sudden jerky movement should be avoided.”*

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 weather 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 and operated to eliminate distractions such as shadows, reflections, shiny surfaces or objects, vehicles, and loose objects that may cause approaching animals to stop, baulk or turn back. Flooring should be non-slip to prevent injury and stress due to slipping.

**ICFAW comment**

Animals should be provided shade/shelter in lairage areas to protect them from weather conditions and thermal conditions (heat and cold stress).

Examples of potential distractions should be provided to clarify what is meant by distractions – some examples include moving or parked vehicles, clothing on a fence, hose lying on the floor, flapping plastic, a loose piece of chain, shadows, shiny metal surfaces or objects, reflections on wet floors.

**Reference**

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.

**ICFAW comment on non-slip flooring**

Flooring type does not seem to be specified within the document except in reference to unloading but is listed as one of the top welfare problems in many slaughterhouses

**References**

Cockrum, M.S. & Corley, K.T.T. (1991). Effect of pre-slaughter handling on the behaviour and blood composition of beef cattle. *British Veterinary Journal* 147: 444-454.

Grandin T, Collins F. 1996. Animal welfare in slaughter plants. In Proceedings of the 29th Annual Conference of American Association of Bovine Practitioners. 22– 6.

The design of the *slaughterhouse/abattoir* and choice of equipment should take into consideration the species, categories, quantities, and size or weight **and age** 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.

#### **Comment by ICAW**

Include age of an animal for consideration as young animals have different welfare needs, handling and management considerations than adult animals. Young animals are more susceptible to thermal stress, injury, feed and water deprivation, as well as more easily stressed during transport and handling.

#### **Reference:**

Adzitey F (2011) Effect of pre-slaughter animal handling on carcass and meat quality. *International Food Research Journal* 18:485-491.

*"Females and young animals are also more susceptible to stress compared to males and older animals. This was demonstrated by Tarrant (1990) who reported that young calves are more susceptible to transportation stress and encountered problems such as with morbidity (e.g. from diarrhoea and pneumonia) and mortality."*

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.

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.

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 the main *animal welfare* concern at arrival [NAMI, 2017].

Animals in *vehicles* have smaller space allowances than on farm, undergo water and feed deprivation, and may have suffered from an injury and may be exposed to thermal stress due to adverse weather conditions. 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 not be identified and therefore the duration of their suffering will be increased.

Animals should be provided with water as soon as possible after unloading.

Special consideration should be given to animals that have undergone long journey times, lactating or pregnant animals and young animals.

**Comment by ICAFW**

Animals can be commonly injured during transport and therefore should be included.

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. Heavily pregnant animals and unweaned/new-born animals should not be transported.

**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. Mortalities and injuries and the transport of sick, heavily pregnant and newborn animals or animals that were not fit for transport should be reported to the competent authority responsible for animal welfare during transport.

**Comment by ICAFW**

This will enable welfare during transport to be improved as the competent authority can press and encourage the transporter concerned to improve their transport practices and also not to load unfit animals.

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* area.

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.

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.

Sheep recently shorn are especially sensitive to extremes of cold and heat and therefore special attention should be taken when dealing with delays in unloading.

Lactating animals should be given special attention and given priority when unloading and processing.

Young animals are especially sensitive to extreme temperatures and can find it difficult to regulate their body temperature. They are very susceptible to dehydration, illness and stress after transportation and handling. These animals must be given special attention and be given priority when unloading and processing.

Avoid overhead restrictions for horses (less than 2.1m) to limit risk of injury.



**ICFAW Comment**

Sheep recently shorn are particularly susceptible to cold and heat stress, as well as being sun burnt if left exposed on trucks during delays.

Priority must be given to lactating animals, this is especially an issue with dairy cattle in which they have often been transported for prolonged periods without being milked. These animals must be unloaded and given priority when processing to avoid any suffering due to extended painful udders. See rationale above re young animals and the extra welfare concerns that must be considered.

Horses naturally struggle to walk down slopes and can easily become unsettled. Door heights should be a minimum of 2.1 metres to avoid injury.

**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.

Cottle, D. and Pacheco, D. (2017). Prediction of fleece insulation after shearing and its impact on maintenance energy requirements of Romney sheep. *Small Ruminant Research*, 157, pp.14-22.

Article 7.5.13.

**Displacements of free-moving animals**

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).

Lack of ramps results in animals being pushed or thrown off the vehicle. Inappropriate equipment in the *vehicle* or the *slaughterhouse/abattoir*, such as a lack of lateral protection when unloading, 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.

**ICFAW Comment**

This is a common problem in many countries. The absence of a ramp results in extremely poor unloading practices and often to injuries.

2. Animal-based and other measurables include:

- a) animals running, slipping and falling;
- b) animals with **injuries or** broken limbs;
- c) animals turning-back, **attempting to escape** 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 by personnel;
- g) frequency of use of electrical prods;
- h) frequency of vocalisations for pigs and cattle**

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

**ICFAW Comment**

The use of broken limbs is too narrow on its own as a measurement. Recommend injuries be added as a more comprehensive measurable outcome. We also recommend the Inclusion of attempting to escape and vocalisation as both are easy to observe and known behavioural indicators of distress.

**References**

Grandin T (1997) Assessment of stress during handling and transport. *Journal of Animal Science* 75:249-257.

Smith G, Grandin T, Friend T et al (2004) *“Behavioral indicators of discomfort are attempting to escape, vocalization, kicking, or struggling”* Effect of transport on meat quality and animal welfare of cattle, pigs, sheep, horses, deer and poultry.

Cordeiro, A., Nääs, I., da Silva Leitão, F., de Almeida, A. and de Moura, D. (2018). Use of vocalisation to identify sex, age, and distress in pig production. *Biosystems Engineering*, 173, pp.57-63.

3. Recommendations:

**Ramps should be provided and used.** Ramps should be 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.

**ICFAW Comment**

The Chapter’s text makes various comments about ramps but does not make the core point that they should be provided. The absence of ramps leads to animals being pushed or thrown off vehicles and often to injuries.

**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.*

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

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, baulk or turn back when being unloaded (e.g. shadows, changes in flooring, moving objects, loud noises). 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. Such animals should never be dragged; nor should they be lifted or handled in a way that might cause further pain, suffering or exacerbate injuries.

#### **ICFAW Comment**

Limiting noise as much as possible will help to keep animals from being startled or stressed.

Non-ambulatory animals are often dragged to the place of slaughter by personnel, or a chain is wrapped round a leg which is then attached to a vehicle that drags the animal along.

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 not stand between an animal and where they want it to move to as this may cause the animal to baulk.

#### **ICFAW Comment**

This is a common problem in many countries. It often results in personnel shouting and beating animals in order to force them to move.

Mechanical aids and electric goads must ~~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), plastic bags and metallic rattles.

Mechanical aids and electric goads ~~should~~ must not be used as a substitute for good facility design and handling. They should not be used repeatedly (i.e. no more than once on a single animal in a single event) 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.

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

The use of electric goads must ~~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 must ~~should~~ not be used on horses, donkeys, mules, sheep and goats of any age, or on calves or pigs piglets.

**ICFAW Comment**

As previously, donkeys and mules should be mentioned specifically.

In countries such as South Africa, the use of electric goads on pigs and calves at abattoirs is already prohibited according to the Meat Safety Act No 42 of 2000. Red Meat Regulations (2004) point 66 (3). Humane Treatment of animals and slaughter. It has been noted that when pigs are handled gently (with boards) at unloading, they were less stressed and adapted faster to the lairage environment than pigs being handled with electric goads.

**References**

Faucitano, L. (2010) Invited Review: Effects of lairage and slaughter Conditions on Animal Welfare and Pork Quality. Can.J.Anim.Sci .90:461-469

Red Meat Regulations 2004 Government. Gazette Notice No. 26779, Regulation. Gazette No. 8056. Parliament of the Republic of South Africa. Department of Agriculture No. 1072

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 are easily fatigued therefore special care should always be taken when unloading and handling these animals.

**ICFAW Comment**

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.

Maximum ramp angles for specific species:

Cattle- 26°

Calves- 20°

Pigs: 20°

Sheep and goats: 26°

Horses: 20°

#### **ICFAW Comment**

This is according to UK legislation.

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 extremes in weather or climate leading to thermal stress,
- 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.

#### 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 appropriate forage or feed in lairage if the duration between last access to feed before loading and expected time for slaughter exceeds 24 hours.

#### **ICFAW Comment**

The type of forage/feed made available should be suitable for the species and of reasonable quality. It should not be mouldy or dusty. This can increase the risk of problems such as colic in horses.

When determining feed deprivation time, it should be calculated from when an animal was first taken off feed which is usually prior to transport

#### **Reference**

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

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 e.g. horned/polled sheep.

#### 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*.

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].

2. Animal-based and other measurables include:

- a) animal slipping or falling;
- b) struggling;
- c) escape attempts;
- d) vocalisation (cattle and pigs);
- e) reluctance to enter the restrainer;
- f) frequency of use of electric goads.
- g) frequency of mis-stuns and/or re-stuns

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 that rotate bovines onto their backs or sides should preferably not be used as they distress the animals before they are slaughtered.

#### ICFAW Comment

These boxes result in:

- Inversion stress (Dunn, 1990; Grandin and Regenstein, 2004)
- Respiratory stress and increased plasma cortisol levels (Tagawa *et al.*, 1994)
- Hypoxemia (Wagner *et al.*, 1990).
- Rumen pressure on diaphragm at full inversion and pressure on internal organs in lateral restraint (Holleben *et al.*, 2010; Petty *et al.*, 1991; Tagawa *et al.*, 1994)
- Inhalation of blood and ingesta (Blokhuis *et al.*, 2004).

#### References

- Blokhuis H. *et al.* (2004)** Welfare aspects of animal stunning and killing methods. EFSA Scientific Report AHAW 04-027
- Dunn, C.S. (1990)** Stress reactions of cattle undergoing ritual slaughter using two methods of restraint. *Veterinary Record* 126, pp. 522-525
- Grandin, T. and Regenstein. J. (1994)** Religious slaughter and animal welfare: a discussion for meat scientists. *Meat Focus International* - March 1994 pages 115-123
- 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
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Restrainers should not have sharp edges.

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

Trip-floor restraint boxes designed to make animals lose their balance - i.e. a box with a floor that rises on one side upon entry to the box – should not be used.

#### ICFAW Comment

These boxes result in animals slipping and sliding and trying, but failing, to regain their balance.

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

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.



The restrainer should be in a clean and non-slip condition for each animal.

#### **Comment by ICAFW**

If there is faeces or blood present, then this should be hosed out before another animal enters.

#### 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.

Birds with injured or broken legs or wings, or leg abnormalities, or that are too small to enter the waterbath, should not be shackled but instead should be humanely killed.

#### **ICFAW Comment**

Placing birds in shackles causes pain and fear. A 2019 report by the European Food Safety Authority (EFSA) states that “pain associated with [shackling] is likely to be worse in birds with severe leg abnormalities or joint illness”. A similar provision is included in the current OIE Chapter and should be retained.

#### **Reference**

**EFSA, 2019**, AHAW Panel (EFSA Panel on Animal Health and Animal Welfare). Scientific opinion on Slaughter of animals: poultry. EFSA Journal 2019;17(11):5849, 91 pp.  
<https://doi.org/10.2903/j.efsa.2019.5849>

Birds should be secure in their shackle, but there should not be undue pressure on their shanks. The shackle size should be appropriate to fit the size of the shanks (metatarsal bones) of birds.

#### **ICFAW Comment**

Compression of the legs in shackles can cause pain. The 2019 report by the European Food Safety Authority states “to minimise pain in the case of shackling, the shackle size should be appropriate for the size of the birds”. It stresses the importance of avoiding compression of the birds’ legs while still maintaining good electrical contact. A similar provision is included in the current OIE Chapter and should be retained.

#### **Reference**

**EFSA 2019**. AHAW Panel (EFSA Panel on Animal Health and Animal Welfare). Scientific opinion on Slaughter of animals: poultry. EFSA Journal 2019;17(11):5849, 91 pp.  
<https://doi.org/10.2903/j.efsa.2019.5849>

The duration for which conscious birds are inverted on a shackle line should be minimised, whilst allowing them sufficient time to reduce their activity and settle down so that they enter the waterbath calmly and smoothly. In any event the maximum time for which conscious birds are inverted on a shackle line should not exceed one minute.

#### **ICFAW Comment**

Inverting birds and placing them in shackles causes pain and fear. Accordingly, the amount of time for which they are inverted in shackles should be minimised. A similar provision is included in the current OIE Chapter and should be retained.

#### **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.

<https://doi.org/10.2903/j.efsa.2019.5849>

**Humane Slaughter Association**, online guide – electrical waterbath stunning of poultry

<https://www.hsa.org.uk/downloads/publications/hsaonlineguidewaterbathpoultryapril2016.pdf>

Group stunning pens can be used for electrically stunning smaller mammals especially for highly gregarious species such as sheep. The shackle elevator should operate to ensure the animal is delivered to the staff member assigned to sticking within 15 seconds of stunning.

With poultry slaughter a breast comforter should be used from the point of shackling to the entrance to the waterbath to reduce wing-flapping and calm birds that have been shackled. In addition, the bird shackling area should have dim blue light to calm the birds.

#### **Comment by ICFW**

Breast comforters have been shown to reduce wing-flapping, injuries and improve comfort. A similar provision is included in the current OIE Chapter and should be retained. The European Food Safety Authority has recommended the use of dim blue light in the shackling area to calm the birds.

#### **Reference**

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

Article 7.5.16.

#### **Stunning of free-moving animals**

##### 1. 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.

Mechanical stunning is divided into penetrating and non-penetrating applications. Both applications aim 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]. 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 non-penetrating applications, high bolt velocity may cause fracture of the skull and ineffective stunning [Gibson *et al.*, 2014].

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]. The gas used to induce unconsciousness should be non-aversive.

#### ICFAW Comment

Aversive gases can cause considerable distress.

#### Reference

**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

High concentrations of carbon dioxide should preferably not be used to stun or kill pigs.

### ICFAW Comment

High concentrations of carbon dioxide cause severe respiratory distress (Raj & Gregory, 1996). EFSA has concluded, regarding pigs, that at concentrations above 30%, CO<sub>2</sub> “is known to be aversive and cause hyperventilation and irritation of the mucous membranes that can be painful, and elicits hyperventilation and gasping before loss of consciousness” (EFSA, 2004). Research has concluded that pigs suffer from fear, pain and/or stress during immersion into CO<sub>2</sub>.

Atkinson *et al* (2015) state: “CO<sub>2</sub> gas at high concentration is acidic when inhaled causing severe irritation of the eyes, nasal mucosa, lungs, and an overall painful experience due to the presence of chemoreceptors in the throat (Raj and Gregory 1995).<sup>1</sup> The lack of oxygen (O<sub>2</sub>) also causes a severe sense of breathlessness which may cause severe distress.”

### References

**Atkinson *et al*, 2015.** Group stunning of pigs during commercial slaughter in a Butina pasternoster system using 80% nitrogen and 20% carbon dioxide compared to 90% carbon dioxide. ResearchGate [https://www.researchgate.net/publication/280026394\\_Group\\_stunning\\_of\\_pigs\\_during\\_commercial\\_slaughter\\_in\\_a\\_Butina\\_pasternoster\\_system\\_using\\_80\\_nitrogen\\_and\\_20\\_carbon\\_dioxide\\_compared\\_to\\_90\\_carbon\\_dioxide](https://www.researchgate.net/publication/280026394_Group_stunning_of_pigs_during_commercial_slaughter_in_a_Butina_pasternoster_system_using_80_nitrogen_and_20_carbon_dioxide_compared_to_90_carbon_dioxide)

**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

**Raj A.B.M. & Gregory N.G., 1996.** Welfare implications of the gas stunning of pigs: 2. Stress of induction of anaesthesia. *Animal Welfare* 1996, 5: 71-78.

**Rodriguez P, 2008.** Assessment of unconsciousness during carbon dioxide stunning in pigs *Animal Welfare* 2008, 17: 341-349

## 2. Animal-based and other measurables include:

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

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.

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.

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.

**Electrical and mechanical stunning must always produce immediate unconsciousness.**

**ICFAW Comment**

Failure to achieve immediate unconsciousness with an electrical stun will result in the animal experiencing an electric shock. Mechanical stunning can result in skull fractures or severe head injuries which will cause significant pain and distress to a conscious animal.

**When a head-to-back electrical stun-kill method is used, the electrical current must reach the brain before it reaches the heart otherwise the animal will experience cardiac arrest while still conscious.**

**ICFAW Comment**

Experiencing cardiac arrest while still conscious will result in substantial pain.

**Reference**

**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

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.

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;
- electrical parameters (current, voltage and frequency, **current type (AC or DC) and waveform**);

**ICFAW Comment**

With poultry, the efficacy of stunning in an electrical waterbath varies with the waveform used.

**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.  
<https://doi.org/10.2903/j.efsa.2019.5849>

EFSA (2012) Scientific opinion on the electrical requirements for waterbath stunning equipment applicable for poultry. EFSA Journal 10(6):2757.

*“Induction of a generalised epileptiform fit or stun leading to an isoelectric EEG depends upon five key parameters: 1. Minimum current, 2. Minimum voltage, 3. Frequency of current, 4. Current type (AC/DC), 5. Waveform of the electricity.”*

- visual or auditory warning system to alert the operator to proper or improper function **such as a device that monitors and displays voltage and applied current.**

**ICFAW Comment**

This is a key piece of equipment that enables operators to ensure that effective electrical parameters are being used.

c) *Controlled atmosphere:*

- concentrations and exposure time;
- temperature and humidity.

4. Species-specific recommendations:

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

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.

#### ICFAW Comment

Pre-stun electric shocks are extremely 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 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.

#### ICFAW Comment

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 are less able to provide an effective stun than alternating currents.

#### ICFAW Comment

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.

The use of electrical waterbaths for stunning or killing poultry should preferably be avoided.

#### **ICFAW Comment**

Electric waterbaths present inherent welfare problems. EFSA (2004) states they cause “very poor welfare”. This system entails inverting the birds and forcing their legs into tight metal shackles; these processes causes great pain and distress. Also, the amount of current received by each bird varies depending on its electrical resistance. Some may receive insufficient current leading to ineffective stunning; others may receive too much leading to carcass damage.

EFSA (2019) states that inversion and shackling, which are an inherent component of waterbath stunning, cause pain and fear. It adds “Due to the complexity of multiple bird waterbath stunning (EFSA, 2004), it is very difficult to distinguish birds that are electrically immobilised but still conscious – a result of using inappropriate electrical stunning parameters – from those that are correctly rendered unconscious through use of appropriate parameters”. Birds that are electrically immobilised but still conscious will experience pain during neck cutting.

#### **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.

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 **will may** result in animals being released from the *restraint*, shackled, and further processed while they are still conscious or have the potential to recover consciousness.



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

In cases of bleeding without stunning 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 an indicator of death.

3. Recommendations:

- a) continuous and rapid blood flow should be assured after bleeding;
- b) cessation of blood flow should be assured before further processing;
- c) bleeding knives should be sharpened for each animal.
- d) both carotid arteries and jugular veins or the blood vessels from which they arise should be severed.

**ICFAW Comment**

This is necessary to ensure an effective and fast bleed-out. This is crucial 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* (2004), 45, 1-29

Humane Slaughter Association (2013) Bleeding and pithing. <https://www.hsa.org.uk/bleeding-and-pithing/bleeding>

*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. The recommended maximum stun-to-stick time for cattle is 60 seconds and for all other species 15 seconds.

**ICFAW Comment**

Animals can regain consciousness rapidly when using head only stunning, and it is recommended that the maximum stun to stick interval should be 15 seconds. It has been shown that if the stun to stick interval is longer than 15 seconds, the chances of regaining consciousness increases.

**References**

Spencer, T and Veary, C.M. (2010). A Study of Pre-Slaughter Pig Handling and Stunning in Selected SA Highveld Abattoirs. J.S.Afr.vet.Ass. 81(2)102-109

Faucitano, L. (2010) Invited Review: Effects of lairage and slaughter Conditions on Animal Welfare and Pork Quality. Can.J.Anim.Sci. 90:461-469

Captive-Bolt Stunning of Livestock (2013) **Humane Slaughter Association**, United Kingdom:

<http://www.hsa.org.uk/introduction/introduction>

- b) unconsciousness should be confirmed before 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.

After incision of the blood vessels, no scalding carcass treatment or dressing procedures should be performed on the animals for at least 30 seconds, or in any case until all brain-stem reflexes have ceased.

**ICFAW Comment**

There is no requirement for confirmation of death before further processing of an animal. The following was in the existing OIE chapter:

*After incision of the blood vessels, no scalding carcass treatment or dressing procedures should be performed on the animals for at least 30 seconds, or in any case until all brain-stem reflexes have ceased.*

We believe this should be retained as live scalding, severance of body parts and skinning regular occurs in conscious animals, in many countries.

4. Species-specific recommendations

None identified.

Calves are at risk of prolonged bleed out times due to bilateral vertebral arteries and the potential for occlusions of the major arteries when the neck is cut. Therefore, bleeding should always be performed by severing major blood vessels in the chest (immediately after the initial neck cut) to ensure an effective bleed out and prevent regaining of consciousness. Indeed, best practice for all red meat animals is a chest stick.

**ICFAW Comment**

Special consideration should be given to calves during slaughter due to the presence of bilateral vertebral arteries which can continue to carry blood to the brain after a neck cut and the potential for occlusions of the cut 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 calves are at high risk of regaining consciousness after stunning.

## Reference

Department of Agriculture (2018) Meat Notice 2018-02 - Mandatory thoracic sticking of calves.

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:

The main animal-based measurable includes an absence of breathing from the foetus. Rhythmic breathing of foetuses outside the uterus would be a major welfare concern and would suggest not enough time is being left between maternal slaughter and removal of the foetus.

**ICFAW Comment**

It is critical that foetuses do not breathe air and therefore do not have the opportunity to oxygenate their brain to levels compatible with consciousness. 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. Foetus should be left in the uterus until they are confirmed dead.

**References**

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.

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 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 before 30 minutes has elapsed euthanasia should be carried out immediately.

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.

Animals should not be lifted by their coat/fleece, head, horns, ears, tails or limbs, nor should they be dragged by machinery.

*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 with instruments such as large sticks, sticks with sharp ends, metal piping, stones, fencing wire or leather belts;
- 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;

6) dragging animals by any body part with chains or ropes

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 that does not span the brain;
- 5) suspending or hoisting conscious animals by the feet or legs or any other body part;
- 6) severing brain stem by piercing through the eye socket or skull bone;
- 7) equidae should not be cast (forced to the ground) using ropes
- 8) forcing animals to the ground by one or more handlers jumping on and lying across the animal's back

**ICFAW Comment**

This is a common practice in many countries. It results in fear, distress and often to injuries.

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]**

[...]

## References

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