

BVA position on the welfare of animals at slaughter

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Executive summary

Slaughter processes should result in a humane death for animals, minimising avoidable pain, distress, fear, and suffering. Welfare at slaughter (including the harvesting of fish) begins on-farm, starting with preparation of animals for slaughter, ensuring they are fit for transport, and ending with slaughter at the abattoir or harvesting station.¹

We support the Farm Animal Welfare Committee's² principles of humane slaughter as set out in the FAWC opinion reports on the welfare of farmed animals at slaughter or killing^{3,4}:

“Slaughter [...] is the final event in a farm animal's life. The following principles must be observed if slaughter [...] is to be humane with minimal pain, suffering and distress:

- All personnel involved with slaughter [...] must be trained, competent and caring
- Only those animals that are fit should be caught [or penned], loaded and transported to the slaughter site
- Any handling of animals prior to slaughter must be done with consideration for the animals' welfare
- In the slaughter facility, only equipment that is fit for the purpose must be used
- Prior to slaughter of an animal, either it must be rendered unconscious and insensible to pain instantaneously or unconsciousness must be induced without pain or distress
- Animals must not recover consciousness [before] death ensues.”

To build on these principles and improve welfare at slaughter, we have set out **67** recommendations across each stage of the slaughter process.

Summary of recommendations

The vital role of the Official Veterinarian (OV)

Recommendation 1: The UK Governments, competent authorities and service delivery partners should emphasise the value that Food Business Operators of any size can gain from the expertise of OVs. BVA and VPHA also have a role to play in communicating the value of OVs to the UK governments, service delivery partners, Food Business Operators, retailers, farmers, farm quality assurance schemes, consumers, and others involved in the food industry.

Provision of suitable abattoir facilities

Recommendation 2: Wherever possible, and paying due regard to scientific evidence regarding the relationship between journey times and welfare outcomes, animals to be slaughtered for food should be slaughtered as near to the point of production/origin as possible, or at the nearest appropriate slaughter facility.

Recommendation 3: To support low-throughput abattoirs to meet and build on legislative requirements for animal health and welfare, the UK Governments, food processing industry

¹ For the purposes of this position, we have deemed on-farm emergency slaughter as out of scope. Current legislative requirements for on-farm emergency slaughter are set out in Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R0625>

² FAWC advised the Department for Environment, Food and Rural Affairs (Defra) and the devolved administrations in Scotland and Wales on the welfare of farmed animals. FAWC was renamed to [Animal Welfare Committee \(AWC\)](#) on 1 October 2019.

³ FAWC, 2014. Opinion on the welfare of farmed fish at the time of killing. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/319331/Opinion_on_the_welfare_of_farmed_fish_at_the_time_of_killing.pdf

⁴ FAWC, 2003. Report on the welfare of farmed animals slaughter or killing. Available at: <https://www.gov.uk/government/publications/fawc-report-on-the-welfare-of-farmed-animals-at-slaughter-or-killing>

and the veterinary profession should work together to develop a voluntary industry standard eg through a government-led working party.

Recommendation 4: Annual figures on the total number of animal welfare non-compliances, with clear and specific examples, across small, medium and large abattoirs, as well as per million animals, should be routinely published.

Recommendation 5: Positions on different models of abattoir provision and the resulting impact on animal health and welfare should be informed by a welfare outcomes approach.

Preparation, transport and acceptance for slaughter

Recommendation 6: Competent authorities, Chief Veterinary Officers (CVOs), farmers' unions, Livestock Auctioneers Association (LAA), Road Haulage Association, Food Business Operators and retailers should be united in their message that animals will not be accepted for slaughter unless they are clean and continue to reiterate that presenting clean livestock at the abattoir benefits all stakeholders in the production chain.

Recommendation 7: Competent authorities should consolidate existing guidance documents to support the preparation and acceptance of animals for slaughter, provide a uniform, photographic grading scale of cleanliness, and encourage Food Business Operators to implement 'Clean Livestock Policies'. Such policies should include further action if animals do not meet the minimum levels of cleanliness required by food hygiene regulations.

Recommendation 8: Appropriate bedding should be provided during transport to maintain the cleanliness of livestock on arrival to the abattoir, and the benefits of doing so communicated to producers and hauliers by the competent authorities, veterinary associations, Chief Veterinary Officers, Road Haulage Association, farmers' unions, Food Business Operators and retailers.

Recommendation 9: Data from the Food Chain Information declaration and Collection and Communication of Inspection Results should be fed back to the farm veterinary practice and transporter, as well as the producer, to inform future herd and flock health planning at the holding of provenance and improve the planning and preparation of animals for transport and slaughter.

Recommendation 10: The Food Chain Information declaration should include a welfare component (based on outcome measures) as well as a recorded assessment of welfare on arrival to the abattoir and assessment of dead on arrival animals.

Handling and harvesting operations

Recommendation 11: Competent authorities should require all Certificate of Competence holders to revalidate their qualification at set intervals.

Recommendation 12: Competent authorities should carry out an impact assessment in consultation with the FDQ to determine the appropriate revalidation period for Certificate of Competence holders eg three or five years.

Recommendation 13: Consideration should be given to including a declaration within the Certificate of Competence that holders would have to sign to confirm that they are familiar with the relevant best practice documents for the species with which they work.

Recommendation 14: Guidance that distils the key message and supports these with visual representations, photographs or videos of what best practice in handling and facility design looks like, eg as used in the [European Commission fact sheets on handling and restraining livestock](#), should be available for all species slaughtered in the UK.

Recommendation 15: All of the UK administrations should introduce mandatory CCTV in abattoirs in all areas where live animals, or animals being slaughtered, are present with unrestricted access to real time and stored footage for OVs.

Recommendation 16: There should be increased use of technology during handling operations to provide more opportunities to verify and observe handling practices

Recommendation 17: Where facilities are restricted to a certain species, weight or height range, Food Business Operators should specify the weight and height range that their facilities can accept to the competent authority, and make provision for horned animals where such animals are accepted for slaughter.

Recommendation 18: There should be further research into the welfare implications of lairage design, management, space, and time spent in lairage. This should inform the development of statutory minimum lairage space allowances across species.

Recommendation 19: A suitable restraint system should be developed for goats. It may be useful to conduct research into handling systems that are being employed on-farm for goats to assess whether they could be adopted in the abattoir setting.

Recommendation 20: Emerging handling systems that are developed to restrain both sheep and goats, should be designed to allow the effective and humane handling of goats as well as sheep.

Recommendation 21: The UK Governments should provide specific legislative protections for the welfare of farmed finfish at slaughter.

Recommendation 22: There should be further research into the use of pre-slaughter anaesthesia for fish in the UK to improve welfare at the time of harvesting.

Effective stunning, data capture and reporting

Recommendation 23: All animals should be effectively stunned before slaughter to render them unconscious and therefore insensible to pain, distress, fear and suffering.

Recommendation 24: Legislation should specify evidence-based maximum stun-to-stick intervals for species routinely slaughtered with simple stunning methods.

Recommendation 25: UK Welfare of Animals at the Time of Killing regulations should specify that reduction systems must be used for group stunning, and there should always be a minimum of two slaughter operatives operating group-stunning systems.

Recommendation 26: If there is any doubt as to whether the stun has been applied effectively, operators should apply a repeat stun immediately.

Recommendation 27: Operators responsible for monitoring indicators of consciousness should assess brain function against several indicators of consciousness.

Recommendation 28: Further species-specific data on indicators of consciousness should be collected and the sensitivity and specificity of these indicators should be assessed for all species routinely slaughtered in the UK.

Recommendation 29: Food Business Operators should develop repeat stun Standard Operating Procedures (SOPs) and clearly communicate the importance of repeat stunning to staff to minimise animal suffering and safeguard animal welfare.

Recommendation 30: The UK Government should establish a mandatory system for regular approval and quality assurance for stunning/killing equipment to ensure continuing suitability for the purpose intended.

Recommendation 31: The UK governments should commission the FSA, FSS and DAERA to produce and publish annual figures on the incidence of animal welfare non-compliance, slaughter methods, the incidence of effective and ineffective stunning, effectiveness and quality of exsanguination, and end-destinations with a routine publication date.

Recommendation 32: The development of effective, humane and economically viable stunning methods should be incentivised by government and industry funding to improve welfare at slaughter.

Recommendation 33: Captive-bolt velocimeters should be developed and used to measure and improve the effectiveness of captive-bolt stunning. These can either be stand-alone or active, ie fitted to the stunner.

Recommendation 34: Additional research should be undertaken to determine the overall welfare implications of the use of captive-bolt as a stunning method for horned goats, de-horned goats, and polled goats, including the most effective style of equipment, shot positioning, charge and size of cartridge.

Recommendation 35: There should be further research to determine the efficacy of Single Pulse Ultra-High Current (SPUC) and electromagnetic (microwave) energy stunning.

Recommendation 36: Constant current electrical stunning systems with low stress restraint should be developed to improve the effectiveness of head-only simple stunning.

Recommendation 37: Research should be undertaken by government and industry to develop less aversive gas stunning methods with the aim of phasing out current aversive gas stunning methods for pigs.

Recommendation 38: The stunning of pigs using inert gases such as argon (or nitrogen), or gas mixtures containing up to 30% carbon dioxide in argon (or nitrogen) should be explored.

Recommendation 39: Consideration should be given to amending legislation to permit simple stunning by gas methods to encourage the use of less aversive gas methods and improve pig welfare at slaughter.

Recommendation 40: Until electrical-waterbath stunning is replaced with more effective methods, all of the UK regulations on the Welfare of Animals at the Time of Killing must specify that electrical-waterbath stunning must be carried out in accordance with the minimum currents laid down in Annex I of EC 1099/2009.

Recommendation 41: Electrical-waterbath stunning should be gradually phased out and the meat industry should move towards recoverable stunning methods that immediately and effectively stun birds of all sizes, strains, and ages, and remove the need for live shackling and inversion pre-slaughter.

Recommendation 42: There is an urgent need for research into the development of recoverable stunning methods that effectively stun birds of all sizes, strains, and ages, and remove the need for live shackling and inversion pre-slaughter.

Recommendation 43: Islamic scholars and Halal certification bodies should also be consulted to ascertain whether simple stunning by gas methods would be accepted in Halal production (ie. deliver a recoverable stun). If recoverable stunning via gas methods were considered suitable for Halal production, consideration should also be given to amending legislation to permit simple stunning by gas methods.

Recommendation 44: There should be further research into the following areas to inform the development of new electrical stunning methods for poultry:

- Electrical pathways through birds in relation to system design and the requirements of an effective stun;
- High frequency AC and pulsed DC should be assessed to determine the optimum combination of current and frequency to stun birds of all sizes, strains and ages effectively; and
- Electrical stunning systems which address the concerns of variable current and reduce the need for inversion and live shackling.

Recommendation 45: There should be further research to determine at what point birds are rendered unconscious before exposure to aversive concentrations of carbon dioxide in the LINCO gas stunning system.

Recommendation 46: There should be further research into the effects of LAPS on different sized birds, different species, potential for aversion, and the effect of gas expansion in body cavities before it is widely used as a stunning method for poultry or game in the UK.

Recommendation 47: There should be further research into the overall welfare implications of the use of captive-bolt as a stunning method in horses, including the most effective style of equipment, charge and size of cartridge.

Recommendation 48: Veterinary surgeons should be able to explain the implications of permanently signing horses out of the food chain, and discuss all end-of-life options for horses with their clients, including the effectiveness of humane slaughter methods that are available for horses in UK abattoirs and carcase disposal.

Recommendation 49: The UK governments should include the stunning of farmed fish (including detailed requirements of key parameters), alongside general welfare protections at slaughter in UK Welfare of Animals at the Time of Killing regulations.

Recommendation 50: There should be further research to develop effective, humane and commercially viable methods of stunning for wild-caught fish.

Recommendation 51: Once effective, humane and commercially viable methods of stunning wild-caught fish are developed, the UK governments should include the stunning of wild-caught fish in commercial fisheries alongside general welfare protections at slaughter in UK Welfare of Animals at the Time of Killing regulations.

Recommendation 52: There should be further research into electrical stunning methods to determine the minimum effective parameters for different types and sizes of decapods.

Recommendation 53: There should be further research to develop effective, humane and commercially viable methods of stunning cephalopods.

Recommendation 54: Once effective, humane and commercially viable methods of stunning decapods and cephalopods are developed, the UK governments should include the stunning of commercially caught decapods and cephalopods alongside general welfare protections at slaughter, in UK Welfare of Animals at the Time of Killing regulations.

Recommendation 55: Schedule 1 of the UK's Welfare of Animals at the Time of Killing regulations should be amended to include rabbits in the prohibition of routine stunning of an animal with a non-mechanical percussive blow to the head.

Recommendation 56: There should be additional research to establish minimum effective parameters and indicators of consciousness for captive-bolt use in rabbits.

Non-stun slaughter, improved regulation, and acceptance of stunning

Recommendation 57: While our long-term aim is to move towards an end to non-stun, the UK governments should introduce a non-stun permit system to ensure that the number of animals slaughtered without prior stunning does not exceed the relevant demand of the UK's religious communities.

Recommendation 58: The export of meat from animals that have not been stunned before slaughter should be prohibited by law.

Recommendation 59: Recoverable stunning methods should be developed in consultation with Islamic scholars and Halal certification bodies to ensure that they meet Halal criteria and potentially increase the numbers of animals that are stunned before slaughter.

Recommendation 60: The veterinary profession should engage positively with all stakeholders, including Islamic scholars and Halal certification bodies, to provide evidence-based information on stunning methods and animal welfare, and promote the acceptability of stunning in Halal production.

Recommendation 61: The veterinary profession should work collaboratively with the meat industry, farmers unions, UK governments, Islamic scholars and Halal certification bodies to develop and implement a quality assurance framework for Muslim consumers that certifies specific recoverable stunning methods.

Consumer education and food labelling

Recommendation 62: The veterinary profession should continue to promote the benefits of properly valuing meat and meat products, where quality encompasses good animal health and welfare, including welfare at slaughter and pre-slaughter stunning.

Recommendation 63: The veterinary profession should continue to encourage farm assured produce that guarantees animal-derived products have met independently certified animal

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health and welfare standards at each stage of the supply chain, including welfare at slaughter and pre-slaughter stunning.

Recommendation 64: Meat and meat products from animals that have not been stunned before slaughter should be clearly labelled so that consumers can make informed purchasing choices, with the information readily available to those who want it. Any proposed system of slaughter labelling would need wider consultation with industry, key stakeholders, and consumers before it is implemented.

Recommendation 65: Public services should only procure meat and meat products from animals that have been stunned before slaughter, unless there is a specific request to meet the needs of a specified UK religious community (as per the derogation).

Recommendation 66: The Government Buying Standards (GBS) for food and catering services should be amended to include a specific standard that specifies that all meat and meat products must be from animals that have been stunned before slaughter, unless there is a specific request to meet the needs of the UK's religious communities (as per the derogation).

Recommendation 67: Where public services procure meat and meat products from animals that have not been stunned before slaughter to meet the needs of the UK's religious communities, it should be clearly labelled as such on the menu and in any accompanying literature.

BVA position on the welfare of animals at slaughter

Introduction

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We support the Farm Animal Welfare Committee's⁶ principles of humane slaughter as set out in the FAWC opinion reports on the welfare of farmed animals at slaughter or killing^{7,8}:

“Slaughter [...] is the final event in a farm animal's life. The following principles must be observed if slaughter [...] is to be humane with minimal pain, suffering and distress:

- All personnel involved with slaughter [...] must be trained, competent and caring
- Only those animals that are fit should be caught [or penned], loaded and transported to the slaughter site
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To build on these principles and improve welfare at slaughter, we have set out **67** recommendations across each stage of the slaughter process, including:

1. The vital role of the Official Veterinarian (OV)
2. Provision of suitable abattoir facilities
3. Preparation, transport and acceptance for slaughter
4. Handling and harvesting operations
5. Effective stunning, data capture and reporting
6. Non-stun slaughter, improved regulation, and acceptance of stunning
7. Consumer education and food labelling

⁵ For the purposes of this position, we have deemed on-farm emergency slaughter as out of scope. Current legislative requirements for on-farm emergency slaughter are set out in Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and welfare, plant health and plant protection products. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R0625>

⁶ FAWC advised the Department for Environment, Food and Rural Affairs (Defra) and the devolved administrations in Scotland and Wales on the welfare of farmed animals. FAWC was renamed to [Animal Welfare Committee \(AWC\)](#) on 1 October 2019.

⁷ FAWC, 2014. Opinion on the welfare of farmed fish at the time of killing. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/319331/Opinion_on_the_welfare_of_farmed_fish_at_the_time_of_killing.pdf

⁸ FAWC, 2003. Report on the welfare of farmed animals slaughter or killing. Available at: <https://www.gov.uk/government/publications/fawc-report-on-the-welfare-of-farmed-animals-at-slaughter-or-killing>

Current legislative protections

The UK Governments have a legal obligation to ensure that animal health and welfare is safeguarded throughout the slaughter process (from preparation on-farm, transportation, to handling and slaughter processes at the abattoir). High standards of animal welfare throughout the slaughter process require robust legislation with effective monitoring and enforcement, and appropriately trained staff to minimise avoidable pain, distress, fear and suffering.

The UK Animal Welfare Acts provide an overarching framework for those managing animals throughout the slaughter process. Anyone responsible for an animal must ensure that its welfare needs are met, these needs are:

- a suitable environment;
- a suitable diet (including access to water);
- the ability to exhibit normal behaviour patterns;
- to be housed with, or apart from, other animals; and
- to be protected from pain, suffering, injury and disease.

In addition to the UK Animal Welfare Acts, the UK administrations have specific legislative provisions (both domestic and EU⁹) to protect the welfare of animals at slaughter, including:

- **EU Regulation (EC) 1/2005 on the protection of animals during transport and related operations and the UK Welfare of Animals (Transport) Orders and Regulations**^{10,11, 12, 13} - set out the facilities, standards and factors to be considered to safeguard the welfare of livestock during transport.¹⁴
- **EU Regulation (EC) 1099/2009 on the protection of animals at the time of killing**¹⁵ and **the UK Welfare of Animals at the Time of Killing regulations**^{16, 17,18,19,20} - set out the rules for the killing of animals which are bred or kept for the production of meat, skin or other products. Crucially these regulations specify the key principle that animals should be spared any avoidable pain, distress, fear or suffering during their killing and related operations. These regulations do not apply to fish, decapods (eg crabs and lobster) or cephalopods (eg. octopuses and squid). However, under the EC 1099/2009 fish are covered by the overarching principle that “Animals should be spared any avoidable pain, distress or suffering during their killing and related operations” (Article 3(1)).
- **Official Controls Regulation (EU) 2017/625**²¹ - addresses official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and

⁹ The Animal Welfare (Amendment) (EU Exit) Regulations 2018 ensure that these pieces of EU legislation to be directly retained and operative effectively immediately after the UK’s exit from the European Union. See: <https://www.gov.uk/eu-withdrawal-act-2018-statutory-instruments/the-animal-welfare-amendment-eu-exit-regulations-2018>

¹⁰ The Welfare of Animals (Transport) (England) Order 2006

¹¹ The Welfare of Animals (Transport) (Wales) Order 2007

¹² The Welfare of Animals (Transport) (Scotland) Regulations 2006

¹³ The Welfare of Animals (Transport) Regulations (Northern Ireland) 2006

¹⁴ British Veterinary Association (BVA), 2018. [BVA position on the welfare of livestock animals during transport.](https://www.bva.co.uk/News-campaigns-and-policy/Policy/Farm-animals/Transporting-animals/) Available at: <https://www.bva.co.uk/News-campaigns-and-policy/Policy/Farm-animals/Transporting-animals/>

¹⁵ European Council, 2009. Council Regulation (EC) No 1099/2009 on the protection of animals at the time of killing. Available at: https://eur-lex.europa.eu/legal_content/EN/TXT/?uri=CELEX:32009R1099

¹⁶ [The Welfare of Animals at the Time of Killing \(England\) Regulations 2015](#)

¹⁷ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

¹⁸ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

¹⁹ [The Welfare of Animals at the Time of Killing \(Wales\) Regulations 2014](#)

²⁰ [The Welfare of Animals at the Time of Killing Regulations \(Northern Ireland\) 2014](#)

²¹ Regulation (EU) 2017/625 of the European Parliament and of the Council of 15 March 2017 on official controls and other official activities performed to ensure the application of food and feed law, rules on animal health and

welfare, plant health and plant protection products. These regulations set out a requirement for OVAs to lead official controls on behalf of the competent authority in all abattoirs to ensure compliance with legislation.

- **The Mandatory Use of Closed Circuit Television in Slaughterhouses (England) Regulations 2018**²² - sets out that Food Business Operators (FBOs) in England must ensure a CCTV system is installed that provides a complete and clear image of killing and related operations in all areas of the slaughterhouse where live animals are present.²³

Current legislation provides a good framework to support positive health and welfare outcomes throughout the slaughter process (from on-farm preparation to point of slaughter at the abattoir).

welfare, plant health and plant protection products. Available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32017R0625>

²² [The Mandatory Use of Closed- Circuit Television in Slaughterhouses \(England\) Regulations 2018](#)

²³ British Veterinary Association (BVA), BVA position on mandatory CCTV in slaughterhouses. Available at: <https://www.bva.co.uk/media/1166/bva-policy-cctv-in-slaughterhousesnew.pdf>

The vital role of the Official Veterinarian (OV)

Official Veterinarians (OVs) are highly trained^{24,25} with multi-species knowledge and continued professional development to protect animal health, animal welfare, public health, and food safety standards. OVs possess a breadth of enforcement powers, and arguably see the largest throughput of animals of any other area of veterinary work. OVs play a vital role in helping maintain public trust and commercial confidence in food production, from safeguarding animal welfare, animal and public health, to identifying notifiable disease to prevent disease spread and providing the trade certification that so many of the UK's global customers demand.

The role of the OV in abattoirs, whatever the size, is therefore vital in terms of ensuring compliance with current legislation for the health and welfare of animals at slaughter. In addition, it is paramount that OVs have a solid understanding of the meat processing industry and Food Business Operator (FBO) business models. This will enable them to provide guidance and support for the FBOs they work with and assist FBOs in achieving their aims and objectives.

Official Controls Regulation (EU) 2017/625 sets out the requirement for all abattoirs to have an OV to lead the delivery of official controls. In the UK OVs are appointed to conduct this work on behalf of the competent authority (eg the Food Standards Agency (FSA), Food Standards Scotland (FSS) and DAERA). Responsibilities include:

- Ante- and post-mortem inspections of animals and carcasses.
- Animal welfare – conducting clinical inspections and ensuring that animals are slaughtered more humanely.
- Animal and public health – undertaking surveillance to detect signs of disease that may affect human and animal health.
- Auditing good hygiene and animal welfare practices.
- Identification of animals and verification of their documents to prevent fraudulent activity.

OVs are also required to work closely with Meat Hygiene Inspectors (MHIs - Official Auxiliaries) as part of a vet-led team²⁶ to ensure compliance with animal welfare, public health and food hygiene legislation. The role and responsibilities of the Official Auxiliary are clearly laid down in Official Controls Regulation (EU) 2017/625. MHIs act at all times on behalf of, and under the direction of the OV who has ultimate responsibility for the MHI and their standard of work. MHIs play a crucial role in

²⁴ Extract from Official Controls Regulation (EU) 2017/625 :

“The performance of effective and efficient official controls and other official activities, and ultimately the safety and health of humans, animals and plants, and the protection of the environment, also depends on the availability to the control authorities of well trained staff possessing an appropriate knowledge of all the matters relevant for the correct application of Union legislation. Appropriate and dedicated training should be provided by the Commission to promote a uniform approach to official controls and other official activities by the competent authorities. To promote the knowledge of Union agri-food chain legislation and requirements in third countries, such training should also be addressed to staff of the competent authorities in third countries. In the latter case, the training activities should be designed to take into account the specific needs of developing countries, to support their controls and enforcement actions so that they can meet the requirements applicable to import of animals and goods into the Union.”

²⁵ To become a qualified OV veterinary graduates must complete an OV course through one of the below routes:

- **OV contractor funded** – The service delivery partner/employer funds the OV course at the University of Bristol or University of Glasgow and then the candidate is contracted to them for a period of time. Candidates often become a meat inspector first (not an OV) to gain practical experience of pathology in the food chain before going on the course. Candidates then complete 200 hours as an N-OV (new OV) before completion.
- **Self-funded** – As above, but self-funded. Once qualified, candidates can then locum for any of the service delivery partners or Scottish Government.

²⁶ British Veterinary Association (BVA), 2019. BVA Policy position on the vet-led team. Available at: <https://www.bva.co.uk/take-action/our-policies/the-vet-led-team/>

the certification of products for export by carrying out post-mortem examination, welfare checks, animal by product checks and animal identification checks amongst other duties.

The World Organisation for Animal Health (OIE) has emphasised the importance of the role of veterinary surgeons in abattoirs (World Organisation for Animal Health, 2017):

“[The] OIE has identified animal production food safety as one of its high priority initiatives. The Veterinary Services of our Member Countries are central to this mission. They have an essential role to play in the prevention and control of food-borne zoonoses, even when animals are not clinically affected... The OIE will continue to publicise and promote the fundamental role of the Veterinary Services in the area of food safety, both on-farm and at the abattoir level.”

It cites the detection of foot and mouth disease in an abattoir in 2001 as an illustration of the essential role of OVs:

“[The] OIE still considers abattoirs to be key points in epidemiological surveillance for zoonoses as well as other animal diseases. The fact that the first case detected during the foot and mouth disease epizootic in the United Kingdom in 2001 was in a pig abattoir clearly illustrates the relevance of this approach and the danger should it be called into question.”

We therefore strongly support the requirement for all abattoirs, regardless of size or location, to have an OV to lead the delivery of official controls as set out under Official Controls Regulation (EU) 2017/625.

Encouraging positive engagement between industry and the competent authority to achieve high standards of animal welfare and food hygiene

Despite widespread recognition of the importance of OVs, we are concerned that the vital presence of the OV in UK abattoirs is undervalued. However, there is an opportunity to cultivate positive engagement between FBOs and OVs by emphasising the value that FBOs of any size can derive from the multi-species expertise of OVs. If harnessed positively, this expertise can help businesses of any size to thrive, not just survive, in their respective markets. To facilitate this, BVA and the Veterinary Public Health Association (VPHA) also have a role to play in communicating the value of OVs to the UK Governments, service delivery partners, FBOs, farmers, farm quality assurance schemes, consumers, and others involved in the food industry.

Recommendation 1: The UK Governments, competent authorities and service delivery partners should emphasise the value that Food Business Operators of any size can gain from the expertise of OVs. BVA and VPHA also have a role to play in communicating the value of OVs to the UK Governments, service delivery partners, Food Business Operators, retailers, farmers, farm quality assurance schemes, consumers, and others involved in the food industry.

Provision of suitable abattoir facilities

We support the provision of abattoirs across the UK that are compliant with current legislative requirements for animal health and welfare at slaughter as set out under the UK Welfare of Animals at the Time of Killing regulations^{27, 28,29,30,31} and Official Controls Regulation (EU) 2017/625. This includes CCTV, biosecurity, as well as food safety and hygiene checks, including ante- and post-mortem inspections performed by OVAs.

Our single standard of certification for domestic and export markets promotes good animal health and welfare across all markets, reduces the risk of food fraud and allows the UK to provide public health guarantees to both domestic and global consumers.

Slaughterhouses slaughtering less than 1,000 livestock units³² of mammals or 150 000 birds or rabbits per year are exempt from the requirement to have an Animal Welfare Officer in place in EC 1099/2009. For the purposes of this policy position, we therefore consider abattoirs slaughtering less than 1000 livestock units of mammals or 150 000 birds or rabbits per year as low-throughput slaughterhouses and premises slaughtering in excess of this threshold to be high-throughput slaughterhouses.

Advantages and disadvantages of different models of abattoir provision

We recognise the value of different sized abattoirs and their respective advantages and disadvantages with regard to animal health and welfare.

As a general principle to safeguard animal health and welfare, wherever possible, and paying due regard to scientific evidence regarding the relationship between journey times and welfare outcomes, animals to be slaughtered for food should be slaughtered as near to the point of production/origin as possible, or at the nearest appropriate slaughter facility.

It is important to recognise that for species that are less commonly slaughtered in the UK eg. horses and deer, the nearest licensed abattoir, with appropriately designed facilities and appropriately trained staff, may be a long distance away from the point of origin. (see **Species-specific considerations for handling operations and facility design**).

Recommendation 2: Wherever possible, and paying due regard to scientific evidence regarding the relationship between journey times and welfare outcomes, animals to be slaughtered for food should be slaughtered as near to the point of production/origin as possible, or at the nearest appropriate slaughter facility.

Whether the slaughter process takes place in a low-throughput, species-specific abattoir or a high-throughput, multi-species abattoir, the species-specific knowledge and skill of the slaughter operator is key to upholding welfare at slaughter (see section on **Training and species-specific knowledge**).

²⁷ [The Welfare of Animals at the Time of Killing \(England\) Regulations 2015](#)

²⁸ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

²⁹ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

³⁰ [The Welfare of Animals at the Time of Killing \(Wales\) Regulations 2014](#)

³¹ [The Welfare of Animals at the Time of Killing Regulations \(Northern Ireland\) 2014](#)

³² A 'livestock unit' is standard measurement unit that allows the aggregation of the various categories of livestock in order to enable them to be compared. As set out in (EC) 1099.2009 the following conversion rates are used:

- a) adult bovine animals within the meaning of Council Regulation (EC) No 1234/2007 of 22 October 2007 establishing a common organisation of agricultural markets and on specific provisions for certain agricultural products (Single CMO Regulation)([11](#)) and equidae: **1 livestock unit**;
- b) other bovine animals: **0,50 livestock unit**;
- c) pigs with a live weight of over 100 kg: **0,20 livestock unit**;
- d) other pigs: **0,15 livestock unit**;
- e) sheep and goats: **0,10 livestock unit**;
- f) lambs, kids and piglets of less than 15 kg live weight: **0,05 livestock unit**.

Low-throughput abattoirs

Low-throughput abattoirs, often situated locally to producers, can provide opportunities to slaughter animals as close to the point of production as possible, in turn reducing the need for animals to be transported over longer distances. In addition, in the case of single-species abattoirs, low-throughput abattoirs may provide purpose-built, species-specific facilities that promote good animal welfare. Importantly, small abattoirs receive a heavily discounted rate (up to 90%) on OV supervision to lead the delivery of official controls.³³ Some small abattoirs may also supply niche markets that require very high animal health and welfare standards. However, it is important to recognise that the available data suggests that there is variability in welfare outcomes in lower-throughput abattoirs (**see the FSA data on animal welfare non-compliances per one million animals in different sized slaughterhouses below**).

We would therefore welcome the opportunity to work with the UK Governments, and the food processing industry to develop a voluntary industry standard for low throughput abattoirs to ensure compliance with legislative requirements for animal health and welfare, and support Food Business Operators (FBOs) in their efforts to safeguard food hygiene, safety and animal health and welfare.

Recommendation 3: To support low-throughput abattoirs to meet and build on the legislative requirements for animal health and welfare, the UK Governments, food processing industry and the veterinary profession should work together to develop a voluntary industry standard eg through a government-led working party.

High-throughput abattoirs

We recognise that the total number of abattoirs in the UK has declined³⁴, reflecting the rationalisation of the slaughter industry and a shift towards a centralised processing model, where larger abattoirs serve specific retailers, producers or quality assurance schemes. In addition, anecdotally we have heard that improved legislative standards, and those from retailers and assurance bodies, including for welfare, have required slaughter premises to replace or update their equipment in order to comply with these standards. This has led to some smaller premises closing due to financial pressures.

Larger, high-throughput abattoirs may present health and welfare advantages throughout the slaughter process. These advantages may include more defined roles and responsibilities for staff, standardisation of processes, up-to-date staff training, internal and external audit to meet retailer and quality assurance scheme requirements, suitable handling facilities, and additional resources to invest in new equipment and ongoing maintenance.

However, a shift towards this model of abattoir provision can increase journey lengths to slaughter as the number of abattoirs diminishes. Whilst a reduction in abattoirs may result in increased length of journeys to slaughter, we support current legal requirements (European Community Regulation 1/2005 and the UK Welfare of Animals (Transport) Orders^{35,36} and Regulations^{37,38}) that are currently in force to protect the health and welfare of livestock during transport. As part of these considerations, it is important to recognise that evidence suggests transport conditions and fitness to travel are of

³³ Food Standards Agency (FSA), 2019. Charges for Official Controls in Meat Premises. Available at <https://www.food.gov.uk/sites/default/files/media/document/official-controls-charging-guidance-201920-updated.pdf>

³⁴ Sustainable Food Trust, 2018. A Good Life and a Good Death: Re-localising farm animal slaughter. Available at: <https://sustainablefoodtrust.org/articles/a-good-life-and-a-good-death-re-localising-farm-animal-slaughter/>

³⁵ [The Welfare of Animals \(Transport\) \(England\) Order 2006](#)

³⁶ [The Welfare of Animals \(Transport\) \(Wales\) Order 2007](#)

³⁷ [The Welfare of Animals \(Transport\) \(Scotland\) Regulations 2006](#)

³⁸ [The Welfare of Animals \(Transport\) Regulations \(Northern Ireland\) 2006](#)

greater importance than journey duration (time and distance) in terms of safeguarding the health and welfare of animals during transport.^{39,40,41,42}

We have developed [a stand-alone position on the welfare of livestock during transport](#). To build on existing legal requirements and emphasise the importance of adequate enforcement, the position sets out in more detail improvements that could be made to strengthen animal health and welfare standards during transportation. The full set of recommendations is available at **Annex C**.

Mobile abattoirs

Mobile abattoirs must comply with current legislative requirements for animal health and welfare at slaughter, biosecurity, food safety and hygiene checks, including ante- and post-mortem inspections performed by OV's. In addition, it is important there are safe lairage facilities, a potable supply of water, facilities for the disposal of animal by-products, as well as suitable facilities for the chilling, dressing and movement of carcasses.

We recognise that mobile abattoirs can provide opportunities to slaughter animals as close to the point of production as possible, in turn reducing the need for animals to be transported over longer distances.⁴³ We are therefore supportive of exploring options to provide more opportunities for farm animal slaughter as close to the point of production as possible. We note the Scottish Government has recently commissioned a study to determine whether or not mobile abattoirs would be viable in Scotland.⁴⁴

However, any growth in mobile abattoirs should not represent a downgrading of animal health and welfare or public health standards. We can only support the use of mobile abattoirs where there is full compliance with current legislative requirements for processing and certification, and appropriate supervision from OV's.

Verifying animal welfare in the abattoir

In Great Britain, the [Food Standards Agency \(FSA\) Manual for Official Controls](#) and [Food Standards Scotland \(FSS\) Manual of Official Controls](#) set out that the OV should verify compliance with relevant EU and national legislation on animal welfare before and during slaughter and killing, using a systematic approach, and taking proportionate enforcement action where necessary. When verifying compliance, the OV must record welfare scores of 2, 3 or 4 on the FSA animal welfare and enforcement system (Chronos) or the FSS OWS Animal Welfare Database.

- | | |
|--|--|
| 1. Welfare compliant | Compliant with welfare regulations; Business Operators are operating fully in compliance with the regulations and their own welfare controls and SOPs. |
| 2. No immediate risk to welfare | Low risk of compromising animal welfare or an isolated low risk situation that poses no immediate risk to the welfare of animals. |

³⁹ Cockram, M.S., 2007. Criteria and potential reasons for maximum journey times for farm animals destined for slaughter. *Applied Animal Behaviour Science*, 106(4), pp.234-243.

⁴⁰ Warriss, P.D., Brown, S.N., Knowles, T.G., Kestin, S.C., Edwards, J.E., Dolan, S.K., Phillips, A.J., 1995. Effects on cattle of transport by road for up to fifteen hours. *Veterinary Record*, 136, 319-323.

⁴¹ Schwartzkopf-Genswein, K. and Grandin, T., 2014. 9 Cattle Transport by Road. *Livestock Handling and Transport: Theories and Applications*, p.143

⁴² Nielsen, B.L., Dybkjær, L. and Herskin, M.S., 2011. Road transport of farm animals: effects of journey duration on animal welfare. *Animal*, 5(3), pp.415-427.

⁴³ Sustainable Food Trust, 2018. A Good Life and a Good Death: Re-localising farm animal slaughter. Available at: <https://sustainablefoodtrust.org/articles/a-good-life-and-a-good-death-re-localising-farm-animal-slaughter/>

⁴⁴ Scottish Government, 2019. CR/2018/40 - Assessing the viability and sustainability of mobile abattoirs in Scotland. Available at:

https://www.publiccontractsscotland.gov.uk/search/show/search_view.aspx?ID=JAN341993

3. Potential risk to welfare

Potential risk of significantly compromising animal welfare but where there is no immediate risk to animals. This may lead to a situation that poses a risk to animals, causing pain, distress or suffering.

4. Welfare critical

Poses a serious and imminent risk to animal welfare or one where avoidable pain, distress or suffering has been caused.

Based on FSA data analysing all level 3 and 4 welfare non-compliances recorded on Chronos over the two-year period from April 2017 to March, 99.9% of all animals slaughtered in England and Wales abattoirs in this period were slaughtered with no animal welfare contravention⁴⁵

In Northern Ireland, OV's carry out daily compliance checks to verify compliance with relevant EU and national legislation on animal welfare. Matters that require enforcement action are recorded on the enforcement programme (VPH 23) for the FBO. OV's also assess and comment on prevailing welfare conditions as part of the FBO compliance audit.⁴⁶

Data on animal welfare non-compliances

Figure 1 forms part of [a suite of FSA data stories](#), analysing level 3 (major) and 4 (critical) welfare non-compliances recorded from April 2017 to March 2019 shown per million animals slaughtered in specific slaughterhouse size groups.^{47,48} The complete set of data stories includes animal welfare non-compliances originating in slaughterhouses, transport and on-farm. It is important to note that during this time period the animal welfare-non-compliances arising in slaughterhouses were substantially lower than those arising on farm and in transport. 5.9% of all level 3 and 4 non-compliances originated in the slaughterhouse compare to 66.4% originating from transport and 27.6% on-farm.⁴⁹

⁴⁵ See Annex 4 'Data stories: Analysis of welfare trends for major and critical non-compliances in England and Wales', page 5 of Food Standards Agency (FSA), 2019. FSA Board Papers 19 September 2019, Animal Welfare Annex 8. Available at: <https://www.food.gov.uk/sites/default/files/media/document/fsa-19-09-20-annex-animal-welfare-final.pdf>

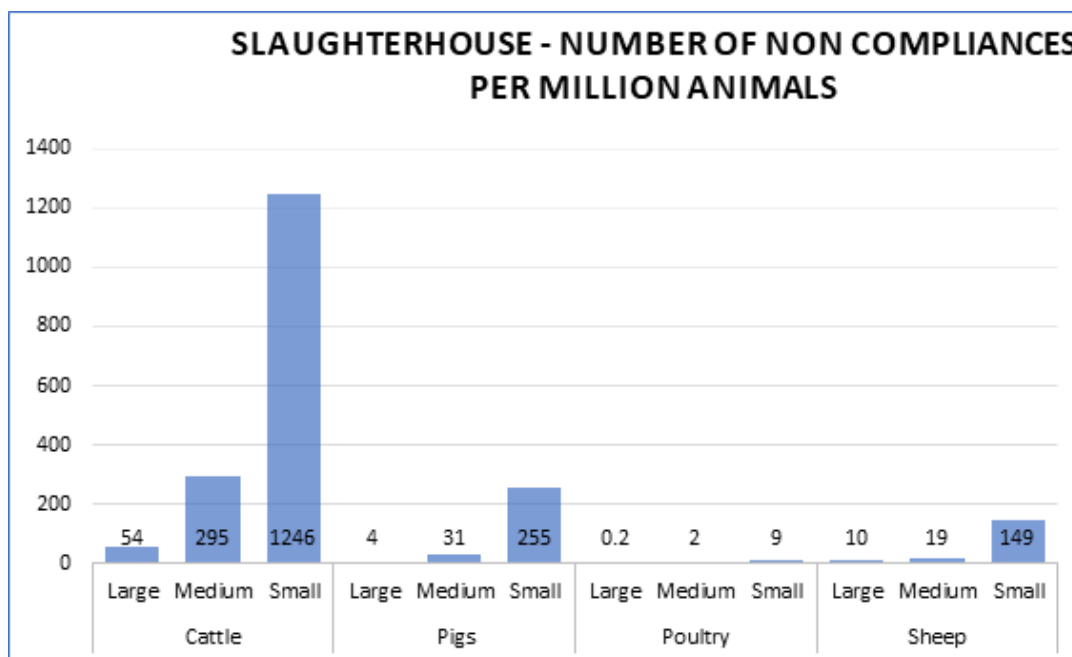
⁴⁶ The Department of Agriculture, Environment and Rural Affairs (DAERA) Veterinary Public Health Programme (VPH), 2019. Manual for Official Controls (MOC). Available at: <https://www.daera-ni.gov.uk/publications/manual-official-controls-vph>

⁴⁷ Food Standards Agency (FSA), 2019. FSA Board Papers 19 September 2019, Animal Welfare Annex 8. Available at: <https://www.food.gov.uk/sites/default/files/media/document/fsa-19-09-20-annex-animal-welfare-final.pdf>

⁴⁸ Small: <1000 Livestock Units per year; Medium: 1000-5000 Livestock Units per year; Large: >5,000 Livestock Unit per year

⁴⁹ See Annex 4 'Data stories: Analysis of welfare trends for major and critical non-compliances in England and Wales', page 2 of Food Standards Agency (FSA), 2019. FSA Board Papers 19 September 2019, Animal Welfare Annex 8. Available at: <https://www.food.gov.uk/sites/default/files/media/document/fsa-19-09-20-annex-animal-welfare-final.pdf>

Figure 1: FSA data on animal welfare non-compliances per one million animals in different slaughterhouse size groups (Extracted from FSA Board Papers 19 September 2019, Animal Welfare Annex)



The data shown in Figure 1 demonstrates that per one million animals there was a statistically significant difference in level 3 (major) and 4 (critical) animal welfare non-compliances in low-throughput abattoirs compared to that in premises with a greater throughput. However, it is important to recognise this data only shows the number of level 3 and 4 animal welfare non-compliances per one million animals and does not show the proportion of level 3 and level 4 non-compliances. While this data provides a useful comparison in relative terms, abattoirs with a larger throughput will have slaughtered a greater total number of animals over the April 2017-March 2019 period, meaning that they may have a greater total number of animal welfare non-compliances than smaller abattoirs.

We would therefore welcome the publication of annual figures on the total number of animal welfare non-compliances, with clear and specific examples, across small, medium and large abattoirs, as well as per million animals, to enable an informed comparison of welfare standards and outcomes in different sized slaughter premises.

Recommendation 4: Annual figures on the total number of animal welfare non-compliances, with clear and specific examples, across small, medium and large abattoirs, as well as per million animals, should be routinely published.

Welfare outcomes approach

Given the complex considerations outlined above, we recognise that from an animal health and welfare point of view, it is not sufficient to carry out a tick-box exercise in terms of inputs when assessing how well an abattoir, whatever the size, provides for an animal’s health and welfare. BVA therefore supports welfare-outcome assessment as a tool to drive continual improvements of animal management, husbandry and slaughter, in turn promoting high animal health and welfare throughout the slaughter process and ensuring good food hygiene.⁵⁰ The standardised assessment of welfare outcomes through animal-based measures provides a practical and scientifically informed method of assessment that aims to provide a more objective, accurate and direct picture of animal welfare. Examples of welfare outcomes across the slaughter process include:

⁵⁰ AssureWel. “What is welfare outcome assessment?”. Available at: www.assurewel.org/aboutassurewel/aboutwelfareoutcomeassessment.html

- **Qualitative behaviour** – qualitative assessment of an animal’s behaviour eg. calm, stressed, flighty at different points in the slaughter process eg. at unloading, in lairage, raceways, in the stun pen, including number or percentage in a certain group of animals that demonstrated a specified behaviour.
- **Injuries**– recording of incidences and percentages of injury eg, slips, falls, injuries caused by other animals or handling facilities
- **Effectiveness of stun/slaughter** – assessing indicators of consciousness after stunning (**see section on Effective stunning, data capture and reporting for more information**)
- **Vocalisation** – recording the number and percentage of animals vocalising in the restrainer, raceway, and stun pen before stunning
- **Post-mortem lesions** – recording of post-mortem lesions found on carcasses that may be related to processes at the abattoir
- **Emergency slaughter** - recording of the number and percentage of animals that require emergency slaughter in lairage, including the reason why.

See also [Grandin \(2019\) Animal Welfare Audits for Cattle, Pigs, and Chickens that use the HACCP Principles of Critical Control Points with Animal Based Outcome Measures.](#)

Recommendation 5: Positions on different models of abattoir provision and the resulting impact on animal health and welfare should be informed by a welfare outcomes approach.

Preparation, transport and acceptance for slaughter

Preparation

As set out in EC Regulation 852/2004, to be accepted into abattoirs, Food Business Operators (FBOs) must ensure that each consignment of animals:

- a) is properly identified;
- b) is accompanied by the relevant information from the holding of provenance;
- c) does not come from a holding or an area subject to a movement prohibition or other restriction for reasons of animal or public health, except when the competent authority so permits;
- d) is clean;
- e) is healthy, as far as the Food Business Operator can judge; and
- f) is in a satisfactory state as regards welfare on arrival at the slaughterhouse.

Importance of cleanliness

Cleanliness at slaughter is extremely important, contributing to meat safety, consumer confidence, and minimising the potential risk to human health. Presenting clean livestock at the abattoir therefore benefits all stakeholders in the production chain, from the producer and FBO to the retailer and ultimate consumer.

EU Food Hygiene Regulations applied in the UK through the Food Hygiene Regulations (2006) outline the responsibility of the FBO to produce food safely by applying good hygienic practices and food safety management procedures, based on hazard analysis and critical control point (HACCP) principles. These regulations provide the hygiene control requirements for slaughter and state that all animals should be 'clean' before being accepted onto the slaughterhouse premises. Animals with hides, feathers, skins or fleeces posing an unacceptable risk of contamination to meat during slaughter also cannot be slaughtered for human consumption unless they are cleaned beforehand. The FBO must have an HACCP plan, in which they determine how they will meet the hygiene control requirements for slaughter.

In practice, this means that when livestock arrives at UK abattoirs it is assessed by the FBO to verify it is clean (eg an assessment of dirt and excrement on the animals, as well as wetness of the fleece or hide). The OV must also verify that acceptable standards of cleanliness are used by the FBO when sorting livestock so as not to compromise meat safety. If livestock does not meet the required standards of cleanliness, the FBO will specify in the HACCP plan how these standards will be met; depending on how wet or dirty the animals are, this can be through clipping, drying or leaving the animal until the end of the shift and/or slaughtering at a reduced speed. These measures can result in delays to the slaughter process and extra costs for both producers and FBO. Some abattoirs will also charge a fee when animals need to be clipped prior to slaughter to remove dirty wool or hair. The FSA highlights that presentation of unclean livestock at the abattoir can result in:

- additional costs where dirty animals are kept in lairage to be cleaned [or dried out] at the abattoir;
- cost of reduced slaughter line speed;
- reduced carcase value due to excessive trimming;
- reduced value of by-products eg leather or sheep skin; and
- loss of the entire carcase.^{51,52}

However, there is a lack of clarity in the legislation and guidance as to whether preparation and cleaning for slaughter should be undertaken on-farm by the producer or at the abattoir by the FBO. We consider this is a shared responsibility between the producer, haulier, livestock market and FBO.

⁵¹Food Standards Agency (FSA). [FSA Clean Beef Cattle for Slaughter: A guide for producers](https://www.food.gov.uk/sites/default/files/media/document/cleanbeefsaf1007%20%281%29.pdf), Available at: <https://www.food.gov.uk/sites/default/files/media/document/cleanbeefsaf1007%20%281%29.pdf>

⁵²Food Standards Agency (FSA) [FSA Clean Sheep for Slaughter: A guide for producers](https://www.food.gov.uk/sites/default/files/media/document/cleansheep0507%20%281%29.pdf). Available at: <https://www.food.gov.uk/sites/default/files/media/document/cleansheep0507%20%281%29.pdf>

For example, producers should present clean and dry livestock to the abattoir through ensuring appropriate diet, husbandry and housing prior to transport, and cleaning livestock where necessary. Hauliers should make sure animals are fit to travel, travel conditions are clean, and stocking density is appropriate for the species and size of animals. Should the livestock arrive dirty, the FBO should ensure they meet the required standards of cleanliness before being slaughtered for human consumption. There are several useful guidance documents to support both producers, hauliers, livestock markets and FBO in this shared responsibility (**see Annex B for more information**).

Cleaning livestock at the abattoir

When animals arrive at the abattoir dirty or wet, as outlined above, the FBO must ensure they meet the required standards of cleanliness before they can be slaughtered for human consumption eg. through pre-slaughter clipping, cleaning or allowing animals to dry.

In pigs, we recognise there are occasions where dirty animals are indicative of good welfare on-farm (eg from wallowing), or where it is not possible to clean them prior to arrival without causing additional distress. In these cases, we support the use of cleaning facilities in lairage, such as pig misting, which cleans animals, as well as minimising distress and regulating body temperature in hot weather.

However, it is important to recognise that pre-slaughter clipping and cleaning can act as a stressor for livestock that are not routinely handled. Therefore, where clipping and cleaning are carried out at the abattoir, the least stressful process should be used.

Live clipping in particular can also put stock handlers at risk of injury from larger animals. Live clipping should therefore only be carried out where there are appropriate handling facilities, safe working techniques, and trained, competent staff (further guidance for clipping is given in the Health and Safety Executive (HSE) Agriculture Information Sheet No 35 (Appendix 5)).

Depending on the type of dressing system (inverted or front leg suspension), dressing procedures should be such that the potential for carcass contamination is minimised. This can involve upwards or downward hide/fleece-pulling, where the 'sock-like' motion of the hide-pulling can help to contain any remaining uncleanness.

Consistent approach to cleanliness

To drive hygiene standards and foster a consistent approach to the cleanliness of animals presented for slaughter, competent authorities, farmers' unions, FBOs and retailers should be united in their message that animals will not be accepted for slaughter unless they are clean. These stakeholders should also continue to reiterate that presenting clean livestock at the abattoir benefits all stakeholders in the production chain, including the consumer.

The competent authorities (FSA, FSS and DAERA) should produce clear standards and guidance for farmers, hauliers and Food Business Operators to outline acceptable and unacceptable levels of cleanliness for animals that arrive at the abattoir to be slaughtered. We note that the FSA previously produced useful guidance for cleaner cattle and sheep as part of its [Clean Livestock Policy](#).

Information in existing guidance documents such as the [FSA guidance for Cleaner Cattle and Sheep](#) could be usefully consolidated by the competent authorities, and supported by a uniform photographic grading scale of cleanliness. Guidance should also be regularly communicated via representative bodies to producers, hauliers and FBOs eg through farmers' unions and industry bodies.

Based on this work, the competent authorities should encourage FBOs to implement 'Clean Livestock Policies', where, upon arrival at the abattoir, livestock is assessed against a photographic grading scale of cleanliness as set out by the competent authority. Should animals not meet the minimum levels of cleanliness, the Animal and Plant Health Agency (APHA) and local authorities should follow up with visits to the holdings in question to improve compliance with cleanliness requirements and verify on-farm welfare standards. Consideration could also be given to imposing financial penalties on producers who persistently send dirty animals to slaughter eg a reduction of farm subsidies or financial penalties on returns for dressed carcasses.

BVA policy position on the welfare of animals at slaughter

In addition, we note that animals often arrive at the abattoir having been transported without any bedding eg. straw. We understand the use of straw bedding during transport has reduced considerably since the 2001 outbreak of Foot and Mouth Disease, when the industry was advised to dispose of bedding through incineration to reduce the risk of contamination, incurring additional costs for disposal for FBOs. However, the provision of adequate bedding for livestock during transport can improve cleanliness on arrival at the abattoir by capturing excess dirt or excrement during travel. We therefore support the use of appropriate bedding to improve the cleanliness of livestock during transport.

Recommendation 6: Competent authorities, farmers' unions, Food Business Operators and retailers should be united in their message that animals will not be accepted for slaughter unless they are clean and continue to reiterate that presenting clean livestock at the abattoir benefits all stakeholders in the production chain.

Recommendation 7: Competent authorities should consolidate existing guidance documents to support the preparation and acceptance of animals for slaughter, provide a uniform photographic grading scale of cleanliness, and encourage Food Business Operators to implement 'Clean Livestock Policies'. Such policies should include further action if animals do not meet the minimum levels of cleanliness required by food hygiene regulations.

Recommendation 8: Appropriate bedding should be provided during transport to maintain the cleanliness of livestock on arrival to the abattoir, and the benefits of doing so communicated to producers and hauliers by the competent authorities, veterinary associations, farmers' unions, Food Business Operators and retailers.

Transport

The European Community Regulation 1/2005 and the UK Welfare of Animals (Transport) Orders⁵³⁵⁴ and Regulations⁵⁵⁵⁶ that are in force to protect the health and welfare of livestock during transport set out that it is an offence to transport any animals in a way which causes, or is likely to cause, injury or unnecessary suffering.

Any movement of animals, including transport to slaughter, will have a potential impact on their health and welfare. Whatever the type and scale of movement, the welfare of animals must be prioritised with the aim of reducing the impact of the movement as far as is reasonably possible.

In order to achieve this, all those involved with moving animals must understand what is required of them in law, receive appropriate, certified training; and be encouraged to follow sector-specific good practice guidelines.

Wherever possible, and paying due regard to scientific evidence regarding the relationship between journey times and welfare outcomes, animals to be slaughtered for food should be slaughtered as close to the point of production as possible.

However, it is important to recognise that for species that are less commonly slaughtered in the UK eg. horses and deer, the nearest licensed abattoir, with appropriately designed facilities and appropriately trained staff, may be a long distance away from the point of origin.

More detailed guidance on safeguarding the welfare of livestock during transport, including species-specific considerations, is available at **Annex B**.

BVA has developed [a stand-alone position on the welfare of livestock during transport](#). To build on existing legal requirements, the position sets out in more detail improvements that could be made to strengthen animal health and welfare standards during transportation. The full set of recommendations is available at **Annex C**.

⁵³ [The Welfare of Animals \(Transport\) \(England\) Order 2006](#)

⁵⁴ [The Welfare of Animals \(Transport\) \(Wales\) Order 2007](#)

⁵⁵ [The Welfare of Animals \(Transport\) \(Scotland\) Regulations 2006](#)

⁵⁶ [The Welfare of Animals \(Transport\) Regulations \(Northern Ireland\) 2006](#)

Food Chain Information (FCI) and Collection and Communication of Inspection Results (CCIR) data – a missed opportunity

In addition to meeting the above legislative requirements for transport and cleanliness, the holding of provenance producer must provide the abattoir with a completed food chain information (FCI) declaration. This declaration must provide:

- the animal health status of the holding of provenance/region;
- the animals' health status;
- veterinary treatments;
- occurrences of diseases that may affect the safety of meat;
- results of relevant analyses or samples;
- relevant reports about previous ante- and post-mortem inspections;
- production data, when this might indicate the presence of disease;
- the name and address of the private veterinarian normally attending the holding of provenance;
- the animal's individual and holding of provenance/region status, reports on relevant inspections, and the details of the private veterinarian normally attending the holding of provenance, need not be supplied if the operator is already aware of this information (for example, through a standing arrangement or a quality assurance scheme); and
- the animal's individual and holding of provenance/region status, and reports on relevant inspections, need not be supplied if the producer declares there is no relevant information to report.

Furthermore, where OV inspection procedures reveal animal health or welfare problems which have arisen during the production process, the competent authority must report these back directly to the producer through the Collection and Communication of Inspection Results (CCIR). This information should prompt any action required on-farm to improve animal health, welfare and food safety.

At present, we consider there is a missed opportunity to use the FCI and CCIR data as a meaningful source of information that could improve animal health and welfare, both on-farm and during preparation for slaughter and transport. If data from the FCI and CCIR were fed back to the farm veterinary practice and transporter, as well as the producer, it could be used to inform future herd and flock health planning at the holding of provenance.⁵⁷

Poor welfare or hygiene on arrival at the abattoir may also be indicative of welfare and biosecurity issues on-farm or during transport. We would therefore support the enhancement of the food chain information declaration to include a welfare component (based on outcome measures), as well as a recorded assessment of welfare on arrival at the abattoir and assessment of dead on arrival (DOA) animals.

As set out the 2018 [BVA position on veterinary scanning surveillance](#):

“BVA calls on the UK Governments to increase the coverage of the scanning surveillance network through the use of syndromic surveillance and **the repurposing of existing health data or data on clinical disease events** eg. health records from private practice, private laboratories, **abattoir reports**, market monitoring, farm assurance schemes or fallen stock reports.”⁵⁸

Recommendation 9: Data from the Food Chain Information declaration and Collection and Communication of Inspection Results should be fed back to the farm veterinary practice and transporter, as well as the producer, to inform future herd and flock health planning at the

⁵⁸ British Veterinary Association (BVA), 2018. BVA position on veterinary scanning surveillance (animal health and disease monitoring). Available at: <https://www.bva.co.uk/media/3115/bva-position-on-veterinary-scanning-surveillance.pdf>

holding of provenance and improve the planning and preparation of animals for transport and slaughter.

Recommendation 10: The Food Chain Information declaration should include a welfare component (based on outcome measures) as well as a recorded assessment of welfare on arrival to the abattoir and assessment of dead on arrival animals.

Handling and harvesting operations

Handling of livestock

The humane, safe and effective handling of livestock is an integral part of welfare at slaughter, with EU Regulation (EC) 1099/2009 on the protection of animals at the time of killing stating that “Animals shall be spared any avoidable pain, distress or suffering during their killing and related operations” (eg handling, lairage, restraint, stunning and bleeding). Operational rules for slaughterhouses are set out in Annex III of EU Regulation (EC) 1099/2009 and the UK Welfare of Animals at the Time of Killing (WATOK) regulations^{59, 60, 61, 62, 63}.

From loading onto transport and unloading at the end of journeys, to moving, lairaging, sorting and restraining animals at the abattoir, handling operations should minimise the potential for injury and distress to both the animals and handler. As FAWC highlights:

“The achievement of high standards of animal welfare requires awareness of animal needs and both caring and careful efforts on the part of all who are involved in the supervision of farmed animals. Those in charge of, or who have responsibility for, livestock must involve themselves in responsible and responsive management; informed, skilled and conscientious stockmanship; considerate handling and transport; and humane slaughter.”⁶⁴

Heightened distress levels in livestock pre-slaughter can also increase the occurrence of Dark, Firm, Dry (DFD)^{65, 66} and Pale, Soft and Exudative (PSE) meat. Good handling of livestock therefore reduces pre-slaughter distress and can minimise the potential for poor quality meat.

We support the Humane Slaughter Association (HSA) guidance on the [Humane Handling of Livestock that outlines key principles to ensure](#) the humane, effective and safe handling of livestock at slaughter. The guidance sets out that:

“The objective of humane animal handling is to move animals with minimum stress to both the animals and handler. Considerate handling reduces the risk to the animal of pain, injury, [distress] and suffering. Unfamiliar surroundings, noisy and aggressive handling, and the proximity of unknown animals or people can cause even the calmest of animals to become difficult to handle and much more likely to cause [pain, distress and] injury to themselves, other animals or handlers.

Handling, especially by unfamiliar handlers, has the potential to be a highly stressful experience for animals. By working in a quiet, calm and considerate manner, handling can be carried out efficiently, with less effort and with less likelihood of the handler or the animals becoming stressed or injured.

[...] In a well-designed and well-run handling system, animals will not become trapped or jammed and there should be no routine need for electric goads or other forceful handling aids. All systems should be designed to prevent injury and to keep animals calm whilst passing through them.”

⁵⁹ [The Welfare of Animals at the Time of Killing \(England\) Regulations 2015](#)

⁶⁰ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

⁶¹ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

⁶² [The Welfare of Animals at the Time of Killing \(Wales\) Regulations 2014](#)

⁶³ [The Welfare of Animals at the Time of Killing Regulations \(Northern Ireland\) 2014](#)

⁶⁴ FAWC, 2003. Report on the welfare of farmed animals at slaughter or killing part one: Red meat. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

⁶⁵ Denaburski, J & Bak, T & Matusevicius, Paulius. 2004. Relationships between the turnover before slaughter, welfare and the occurrence of defective DFD type meat in cattle. Polish journal of veterinary sciences. 7. 67-73. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/15061488>

⁶⁶ Guàrdia, Maria Dolores & Estany, Joan & Balasch, S & Oliver, Maria & Gispert, Marina & Diestre, A., 2010. Risk assessment of DFD meat due to pre-slaughter conditions in pigs. Meat science. 70. 709-716. 10.1016/j.meatsci.2005.03.007 Available at: <https://www.ncbi.nlm.nih.gov/pubmed/20416842>

We therefore support passive handling systems that minimise the risk of pain, distress and injury to both the animals and the handler. We do not support the routine use of electric goads. Electric goads should only be used when absolutely necessary in line with current legislation.

Training and species-specific knowledge

Species-specific knowledge and skill of animal handlers are crucial to upholding the welfare of livestock during handling operations. Slaughterhouses should therefore employ staff with the appropriate knowledge and skills required for handling, restraining, stunning and killing each species slaughtered on the premises.

Those working in slaughterhouses must hold a species-specific Certificate of Competence (CoC) for each procedure they carry out, including handling, restraining, stunning or killing animals.

Certificates of Competence are awarded by the competent authority. To hold a Certificate of Competence, applicants must successfully complete units from a FDQ WATOK qualification; units are species- and task-specific reflecting the applicant's job roles. FDQ developed its WATOK qualifications with the FSA, the specification for each qualification is typically reviewed every five years.

As part of this specification review process, FDQ consults industry bodies, species experts and the veterinary profession to ensure the qualification specification reflects the most up-to-date evidence and best practice for protecting the welfare of each species at slaughter.

However, we note that under current training arrangements, once a Certificate of Competence is awarded there is no requirement for holders to revalidate or demonstrate their knowledge is up-to-date, effectively making Certificates of Competence a 'licence for life'. Competent authorities should therefore require all Certificate of Competence holders to revalidate their qualification at set intervals. This would ensure that Certificate of Competence holders are competent in the skills required for the relevant species and up-to-date with emerging evidence and best practice. Competent authorities should carry out an impact assessment in consultation with the FDQ to determine the appropriate revalidation period eg three or five years.

Recommendation 11: Competent authorities should require all Certificate of Competence holders to revalidate their qualification at set intervals.

Recommendation 12: Competent authorities carry out an impact assessment in consultation with the FDQ to determine the appropriate revalidation period for Certificate of Competence holders eg three or five years.

Best practice guidance on handling operations and facility design

We support the Humane Slaughter Association's principles to minimise distress during handling procedures:

To minimise distress during handling procedures, handlers should ensure that:

- the animal's natural behaviour is utilised eg. using gently curved race-ways for low stress handling of pigs and cattle as they will instinctively follow the animal in front of them;
- the animals can walk at their own speed;
- the surrounding environment is kept quiet and calm; and
- there are minimal distractions (including from noise and light).

It is never appropriate to apply pressure to a sensitive part of the animal which may cause unnecessary pain, distress, fear or suffering, or lift or pull the animal by the ears, limbs or tail.

In addition to these overarching principles, there are many useful guidance documents from credible organisations to support animal handlers and Food Business Operators to understand legislative requirements and promote positive animal welfare during handling and facility design.

BVA policy position on the welfare of animals at slaughter

We encourage all those involved in the handling operations and slaughter facility design to familiarise themselves with, and adhere to, best practice to promote positive animal welfare (**See Annex B**).

We note that while comprehensive and valuable, UK guidance on handling operations can be lengthy and complex, making it less accessible. We would therefore support a move towards guidance that distils key messages into plain English and supports these with visual representations, photographs or videos of what best practice in handling and facility design looks like eg [in the European Commission fact sheets on handling and restraining livestock](#).

Consideration could also be given to including a declaration within the Certificate of Competence that holders have to sign to confirm that they are familiar with, and understand, the relevant best practice documents for the species with which they work.

Recommendation 13: Consideration should be given to including a declaration within the Certificate of Competence that holders would have to sign to confirm that they are familiar with the relevant best practice documents for the species with which they work.

Recommendation 14: Guidance that distils the key message and supports these with visual representations, photographs or videos of what best practice in handling and facility design looks like, eg as used [in the European Commission fact sheets on handling and restraining livestock](#), should be available for all species slaughtered in the UK.

Mandatory CCTV and improved use of technology

At present, England is the only UK administration to legislate for mandatory CCTV in slaughterhouses. We note the Scottish Rural Affairs minister announced plans to make CCTV mandatory in all areas of abattoirs where live animals are present in 2019, however no legislation has yet come into force. In addition, [in 2018 the Welsh Government introduced £1.1 million Food Business Investment scheme package of grant aid](#) for small and medium-sized slaughterhouses in Wales. This funding was intended to support improvements to infrastructure in these businesses to improve welfare and cover the cost of installing and upgrading CCTV monitoring systems.

We strongly support mandatory CCTV recording in slaughterhouses in all areas where live animals, or animals being slaughtered, are present, with unrestricted access to real-time and stored footage for OV's. CCTV is a useful tool in helping to ensure that legal requirements are met and high animal welfare standards are maintained. The introduction of mandatory CCTV in all slaughterhouses throughout the UK will:

- increase opportunities to observe and verify handling of animals;
- increase opportunities to observe and verify the proper application of the stun process;
- increase opportunities to protect the food chain and public health;
- contribute to increased consumer confidence that Food Business Operators are taking all necessary steps to prioritise, assess and address animal welfare issues;
- provide a valuable training tool for slaughterhouse staff to promote best practice and compliance with legislative and commercial standards;
- allow the observation of animals without a human presence which can facilitate the identification of hidden issues that animals may mask when humans are present;
- inform the continuous improvement of slaughter processes and business operations; and
- provide supplementary evidence in response to any allegations of illegal practice.

CCTV should be used to complement, not reduce or replace, the existing physical presence and controls exercised by OV's in slaughterhouses to assess and maintain compliance with animal welfare standards. [Read BVA position on mandatory CCTV in slaughterhouses in full.](#)

We therefore continue to call on all of the UK administrations to introduce mandatory CCTV in abattoirs⁶⁷ in all areas where live animals, or animals being slaughtered, are present.

Recommendation 15: All of the UK administrations should introduce mandatory CCTV in abattoirs in all areas where live animals, or animals being slaughtered, are present with unrestricted access to real time and stored footage for OVAs.

To complement and promote the continuous improvement of skilled animal handling, we would welcome increased use of technology during handling operations to provide more opportunities to verify and observe handling practices. For example, CCTV on lorries for loading/unloading or body cameras on animal handlers. Further consideration would need to be given to who would have access to the footage and how this could be implemented to incentivise use eg. linking the use of technology to improve animal welfare with reduction in insurance premiums for hauliers and transporters.

Recommendation 16: There should be increased use of technology during handling operations to provide more opportunities to verify and observe handling practices

Handling facilities

Handling facilities (ramps, lairage, raceway and restraint) should be designed with species-specific needs in mind, informed by evidence to achieve positive health and welfare outcomes across species, and designed to minimise handling before slaughter (see species-specific needs section).

We support the general requirements for the layout, construction and equipment of slaughterhouses (including handling facilities, lairage facilities and restraining equipment) as set out at Annex II of EU Regulation (EC) 1099/2009 protection of animals at the time of killing and the UK Welfare of Animals at the Time of Killing regulations^{68, 69,70,71,72}

As a basic principle, there must be suitable handling facilities for all sizes of animal accepted into the abattoir, and where facilities are restricted to a certain species or weight range, FBOs should specify the weight and height range that their facilities can accept. Facilities or provisions for horned animals, especially those with wide horn spans, should also be provided where such animals are accepted for slaughter.

It is important to note that EC/1099/2009 Article 14 already requires Food Business Operators to submit at least the following to the competent authority:

- (a) the maximum number of animals per hour for each slaughter line;
- (b) the categories of animals and weights for which the restraining or stunning equipment available may be used;
- (c) the maximum capacity for each lairage area.

However, in the UK this legislation is only applied to new approvals of slaughterhouses, therefore the majority of premises have not submitted this information.

Recommendation 17: Where facilities are restricted to a certain species, weight or height range, Food Business Operators should specify the weight and height range that their facilities can accept to the competent authority, and make provision for horned animals where such animals will be accepted for slaughter.

Ramp, restraint and raceway design

To avoid distressing animals and facilitate handling, ramps, raceways and restraining systems should be designed with the following principles in mind:

- Ensure loading and unloading ramps have a gentle incline and have side gates (preferably solid to prevent distraction)

⁶⁸ [The Welfare of Animals at the Time of Killing \(England\) Regulations 2015](#)

⁶⁹ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

⁷⁰ [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

⁷¹ [The Welfare of Animals at the Time of Killing \(Wales\) Regulations 2014](#)

⁷² [The Welfare of Animals at the Time of Killing Regulations \(Northern Ireland\) 2014](#)

- Provide non-slip flooring that minimises loud or sudden noises upon contact
- Ensure restraint systems and race ways have solid sides and barriers to prevent livestock being distracted by other animals or humans that may be in their flight or sight zone
- Avoid sharp corners and bends, instead use curved raceways
- The sides of the raceways should be high enough to discourage animals from attempting to escape
- Animals prefer to move from darker to lighter areas. Consider where lighting in the building may change throughout the day as this will affect whether an animal will want to move forward, and whether artificial lighting may be required.

As outlined above, all those involved in facility design should familiarise themselves with, and adhere to, best practice to promote positive animal welfare. More detailed guidance, including species-specific considerations, is available to enable FBOs to comply with legislation and design facilities that promote positive animal welfare **at Annex B**.

Lairage

We note that Council Regulation (EC) No. 1099/2009 on the protection of animals at the time of killing requires that animals in a lairage must have enough space to stand up, lie down and turn around and FBOs must specify the maximum capacity for each lairage area. Several bodies, retailers, NGOs and assurance schemes also specify minimum lairage space allowances across different species in their standards.⁷³ However, there are currently no statutory minimum (or maximum) lairage space allowances set out in legislation.

As set out in the [FAWC advice on space allowances in slaughterhouses](#), there are specific welfare implications, both positive and negative, which have been associated with limited space allowance during an animal's time in lairage:

- The interaction between pigs which are mixed prior to transport or in lairage, or are overcrowded, produces a significant increase in aggressive behaviour and reduced meat quality^{74,75,76}
- Increases in heat stress at higher stocking density amongst pigs⁷⁷
- Constrained ability to rest in sheep through reduced space allowance and/or improved ability to rest with increased space allowance^{78,79,80}
- Greater ability amongst bulls to lie down and relax with increased space allowance⁸¹
- Ability of cattle to settle down improves with lower lairage stocking densities⁸²

⁷³ FAWC, 2013. FAWC advice on space allowances in slaughterhouses. Available at:

<https://www.gov.uk/government/publications/fawc-advice-on-space-allowances-in-slaughterhouse-lairages>

⁷⁴ Beattie, V.E., O'Connell, N.E., Moss, B.W., 2000. Influence of environmental enrichment on the behaviour, performance and meat quality of domestic pigs. *Livestock Production Science*, 65, 71-79.

⁷⁵ Moss, B.W., 1978. Some observations of the activity and aggressive behaviour of pigs when penned prior to slaughter. *Applied Animal Ethology* 4, 323-339.

⁷⁶ Geverink, N. et al., 1996. Observations on behaviour and skin damage of slaughter pigs and treatment during lairage. *Applied Animal Behaviour Science* 50, pp. 1-13

⁷⁷ Weeks, C., 2008. A review of welfare in cattle, sheep and pig lairages, with emphasis on stocking rates, ventilation and noise. *Animal Welfare* 17, 275-284

⁷⁸ Kim, F.B et al., 1994. Resting behaviour of sheep in a slaughterhouse lairage. *Applied Animal Behaviour Science* 40, pp. 45-54

⁷⁹ Jarvis, A.M et al., 1995. Some factors affecting resting behaviour of sheep in slaughterhouse lairages after transport from farms. *Animal Welfare* 4, pp. 53-60

⁸⁰ Boe, K. E. et al, 2006. Resting behaviour and displacements in ewes – effects of reduced lying space and pen shape. *Applied Animal Behaviour Science* 98, pp. 249-259

⁸¹ Gyax L. et al., 2007. Effects of space allowance on the behaviour and cleanliness of finishing bulls kept in pens with fully slatted rubber coated flooring. *Applied Animal Behaviour Science* 107, pp. 1-12.

⁸² Cockram, M.S., 1990. Some factors influencing behaviour of cattle in a slaughterhouse lairage. *Animal Production* 50, 475-48

- Negative effects of high ammonia levels (and other airborne contaminants due to poor ventilation) from animal waste resulting from high stocking rates^{83,84,85}

In line with FAWC's recommendations⁸⁶, we would therefore support further research to be undertaken by Government and industry into the welfare implications of lairage design, management, space and time, to inform the development of statutory minimum lairage space allowances across species. Any research would need to consider that optimum space requirements will be influenced by a number of factors including temperature, humidity, lighting, time of day season and the activity levels, and size, of the animals.

Recommendation 18: There should be further research into the welfare implications of lairage design, management, space, and time spent in lairage. This should inform the development of statutory minimum lairage space allowances across species.

Species-specific considerations

As outlined above, handling operations and facilities should be designed with species-specific needs in mind, we have therefore identified several key areas that should be considered to improve welfare during handling operations for certain livestock species.

Poultry

We recognise that in some instances automated catching systems can reduce negative welfare outcomes in poultry handling operations. When executed poorly, the manual catching of poultry can result in birds becoming distressed and injured. Bone breaks, joint dislocations and bruising can be common and result in birds suffering, carcass downgrading and financial loss.⁸⁷ Automated catching systems ensure the consistent application of accurate catching techniques which can cause less distress and injury to birds.⁸⁸ However, we note that automated systems can be onerous to clean and so are best suited for large sites with multiple sheds that finish at the same time. In addition, where posts are present in the shed automated catching systems are only able to catch birds in the middle of the shed, meaning some birds will still need to be caught manually.

In light of this, we support the use of automated catching systems where appropriate. Automated catching systems should allow access to all birds, have the ability to retain the birds in the module for the duration of the journey, and be designed in a manner that reduces the risk of trapping limbs or wings.

Where these are not used, we support the Humane Slaughter Association's [Poultry Catching and Handling](#) guidance 'General Requirements', in particular the recommendation for two-legged catching.

Modules used to transport poultry should also be designed to allow for handlers to remove birds gently and without risk of injury, both at the abattoir and if the birds have to be returned to farm.

Goats

Goats are particularly sensitive to, and can become easily distressed by, loud noises such as shouting, whistling, clapping or shoeing. They also show marked fear reactions to sudden movements, and so calm and considerate handling is required.

We note a lack of handling and restraining equipment designed with the species-specific needs of goats in mind. At present, handling and restraining equipment designed for sheep tends to be used

⁸³ Kirstensen H.H and Wathes, C.M., 2000; Ammonia and poultry welfare: a review. *Worlds Poultry Science Journal*. 56 (3) pp. 235-245

⁸⁴ Weeks, C., 2008. A review of welfare in cattle, sheep and pig lairages, with emphasis on stocking rates, ventilation and noise. *Animal Welfare* 17, 275-284

⁸⁵ Phillips, C. J. C.; Pines, M. K.; Latter, M.; et al., 2010. The physiological and behavioral responses of steers to gaseous ammonia in simulated long-distance transport by ship *Journal of Animal Science*, 88 (11), pp. 3579-3589

⁸⁶ *Ibid.*

⁸⁷ Humane Slaughter Association (HSA), 2018. Poultry catching and handling. Available at: <https://www.hsa.org.uk/downloads/technical-notes/hsatechnicalnote15-may2018.pdf>

⁸⁸ Apollo Generation 2: The Chicken Harvester. Available at: <https://www.youtube.com/watch?v=YqzplqwpOdQ>

for goats, in particular V-restrainers, which are not necessarily suitable for goats because the longer legs of goats may come into contact with the floor and/or support mechanisms of the restrainer. Particular care must be taken when handling and loading cull dairy goats onto V-restrainers. Many have pendulous udders which can become trapped in the V-restrainer, causing pain and distress. This can only be avoided with by taking extreme care in handling and loading of such animals. V-restrainers should only be used for goats if they can be adjusted sufficiently to accommodate the body size and shape of goats or have been designed specifically to restrain goats.

We therefore support the development of a suitable restraint system for goats. Until then, V-restrainers should only be used for goats if they can be adjusted sufficiently to accommodate the body size and shape of goats or have been specifically made to be used for goats. It may be useful to conduct research into handling systems that are being employed on-farm for goats, to assess whether they could be adopted in the abattoir setting. For example, we are aware of a modified sheep V-restrainer with a conveyor system that is used for restraining goats for foot-trimming. This modified system has been raised higher off the ground than intended in its original design to account for the longer leg length in goats, and careful adjustments have been made to the shape and angles of the V-restrainer to accommodate different ages and sizes of goats.

Recommendation 19: A suitable restraint system should be developed for goats. It may be useful to conduct research into handling systems that are being employed on-farm for goats to assess whether they could be adopted in the abattoir setting.

Recommendation: 20: Emerging handling systems that are developed to restrain both sheep and goats, should be designed to allow the effective and humane handling of goats as well as sheep.

Horses

We note, at the time of writing, there are only four abattoirs approved to slaughter horses in Great Britain, and only two that regularly slaughter horses. Consequently, some horses may have to travel long distances to slaughter. These journeys should comply with EC Regulation 1/2005 on the protection of animals during transport, as well as the UK Welfare of Animals (Transport) Orders⁸⁹⁹⁰ and Regulations⁹¹⁹² to adequately safeguard welfare.

Where horses are slaughtered at a slaughterhouse, their species-specific needs and temperament should be considered in both handling operations and facility design. Horses can be distressed by the presence of other species in the slaughterhouse. They require calm and considerate handling, as well as species-specific facilities.

We support the FAWC recommendations to improve the welfare of horses during handling operations at the abattoir as set out in [the FAWC report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals \(2003\)](#). These include:

- Horses should be unloaded onto a raised area to ensure that the exit from the horsebox, trailer or lorry is as level as possible (horses naturally struggle to walk down slopes and can become easily unsettled).
- The lairage used for horses should be designed with these animals' particular needs in mind, e.g. narrow gaps between pen bars to avoid legs getting trapped and possibly broken. It is also important to allow for the adequate separation of aggressive animals (eg some stallions) that may be prone to fighting.

In addition, it is important to ensure that:

- lairage for horses has solid lower panels and tubular railings;
- lairage is clean and raceways have a dry, non-slip floor with adequate lighting;

⁸⁹ [The Welfare of Animals \(Transport\) \(England\) Order 2006](#)

⁹⁰ [The Welfare of Animals \(Transport\) \(Wales\) Order 2007](#)

⁹¹ [The Welfare of Animals \(Transport\) \(Scotland\) Regulations 2006](#)

⁹² [The Welfare of Animals \(Transport\) Regulations \(Northern Ireland\) 2006](#)

- flooring in movement areas has identical colours and textures, ideally greys, browns and greens;
- flooring is made with material to minimise sudden or loud noise upon impact (particularly important for shod horses); and
- horses are not tightly restrained and are handled calmly.

Deer

There are a number of options for slaughtering farmed deer: shooting in the field at an approved farmed game slaughter facility, transport to a multi-species slaughterhouse, transport to specialist deer slaughterhouses or a specialist slaughterhouse facility on-farm.⁹³

As set out in [the FAWC report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals \(2003\)](#) facilities used for lairaging and restraining deer, wherever they are killed, should be specifically designed for the purpose.

Where deer are slaughtered at a slaughterhouse, their species-specific needs and temperament should be considered in both handling operations and facility design. For example, deer are prey animals and can be distressed by the presence of other species in the slaughterhouse. They require calm and considerate handling, as well as species-specific facilities.

We note that the majority of deer slaughtered in the UK are slaughtered at a specialist deer slaughter facility. We consider this is the best option for deer welfare, as facilities will be purpose-built for deer and operators are more likely to be skilled in deer behaviour, handling and welfare.

Rabbits

Inconsiderate handling when removing rabbits from crates and containers at the abattoir can result in pain, distress, fear and suffering eg injuries to rabbits.⁹⁴ We note the EFSA Opinion on stunning methods and slaughter of rabbits for human consumption recommends rabbits should be removed from the containers and crates individually by holding and lifting by the neck (scruff) by one hand, with or without support of the body with the other hand. However, to prevent inconsiderate handling and safeguard rabbit welfare, we consider that rabbits should be removed from containers and crates individually by holding and lifting by the neck (scruff) by one hand, while supporting the body with the other hand.⁹⁵ Further, containers or crates of rabbits should be located as close as possible to the point of stunning.⁹⁶ They must never be lifted by their ears.

Rabbits can be distressed by the presence of other species in the abattoir. They require calm and considerate handling, as well as species-specific facilities.

Fish

Legislative protections for farmed finfish

⁹³ FAWC, 2003. [FAWC report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals \(2003\)](#). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

⁹⁴ European Food Safety Authority (EFSA), 2020. Opinion on stunning methods and slaughter of rabbits for human consumption. http://www.efsa.europa.eu/en/efsajournal/pub/5927?utm_source=EFSA+Newsletters&utm_campaign=aedbdea1f0-EMAIL_ALERTS_ANIMAL_HEALTH_AND_WELFARE&utm_medium=email&utm_term=0_7ea646dd1d-aedbdea1f0-63628029

⁹⁵ Scottish Government, 2018. Pet rabbit welfare guidance. Available at: <https://www.gov.scot/publications/pet-rabbit-welfare-guidance/>

⁹⁶ Ibid.

We recognise that the UK aquaculture sector has adopted several industry-led codes of practice and assurance scheme standards to protect fish welfare at slaughter^{97,98,99} [The Code of Good Practice from Scottish Finfish Aquaculture](#) and [RSPCA Assured scheme standards for Salmon and Trout](#). However, we note there is currently no detailed legislation to protect the welfare of farmed finfish at slaughter. Instead, provisions for farmed finfish in UK and EU legislation are limited to key principles, as opposed to detailed protections. EU Regulation (EC) 1099/2009 on the protection of animals at the time of killing states:

“Separate standards should be established on the protection of fish at killing. Therefore, provisions applicable to fish should, at present, be limited to the key principle.”

Given the number of fish harvested in UK aquaculture each year¹⁰⁰, the UK Governments should introduce specific legislative protections for the welfare of farmed fin fish at the time of killing to reinforce existing good practice by the aquaculture industry.

See **Effective stunning, data capture and reporting chapter** for more information on legislative protection for decapods and cephalopods.

Recommendation 21: The UK Governments should provide specific legislative protections for the welfare of farmed finfish at slaughter.

The welfare of farmed fish during harvesting operations

There are several key stages during the pre-slaughter harvesting process that can impact on fish welfare¹⁰¹, these are:

- feed withdrawal
- crowding
- handling and removal from water;
- transportation from pen to harvesting station

We encourage all those involved in the harvesting of fish to familiarise themselves with, and adhere to, best practice to promote positive fish welfare during harvesting. **(See Annex B for specific guidance documents).**

Feed withdrawal

Withdrawing feed from fish before handling and slaughter reduces faecal contamination, reduces metabolic activity and can reduce distress and oxygen demand during handling operations. There is currently nothing set in legislation to specify maximum withdrawal food periods.

We support RSPCA Assured standards and Humane Slaughter Association guidance that stipulates a maximum of 72 hours withholding of food to completely empty the gut, while minimising any negative welfare implications. Any circumstances that require a longer period of food withdrawal should only be done with guidance from a veterinary surgeon.

Before feed withdrawal takes place, it is also important that the welfare of cleaner fish is taken into account eg the risk of predation. Protective measures, such as the potential removal of cleaner fish from pens at this stage, should be specifically addressed in the farm's veterinary health plan.

⁹⁷ FAWC, 2014. Opinion on the welfare of farmed fish at the time of killing. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/319331/Opinion_on_the_welfare_of_farmed_fish_at_the_time_of_killing.pdf

⁹⁸ All members of the Scottish Salmon Producers Organisation (SSPO) subscribe to [The Code of Good Practice from Scottish Finfish Aquaculture](#)

⁹⁹ RSPCA Assured state that around 70% of total Salmon production in Scotland is RSPCA Assured.

¹⁰⁰ Scottish Government, 2019. [Scottish fish farm production survey 2018](#).

¹⁰¹ FAWC, 2014. Opinion on the welfare of farmed fish at the time of killing. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/319331/Opinion_on_the_welfare_of_farmed_fish_at_the_time_of_killing.pdf

Crowding

Crowding is the process in which the area available to fish is reduced to capture and remove them from the water before slaughter. FAWC recognises that, if poorly managed, the process of crowding can invoke a high distress response in fish by decreasing oxygen levels, and also lead to physical damage through abrasion on nets or other fish if there is overcrowding.¹⁰²

With the correct management, the risk of distress and injury due to crowding can be reduced. To safeguard the welfare of fish during the crowding process:

- crowding should be undertaken gradually with no sudden or rapid movements;
- as per RSPCA Assured standards and HSA guidance, the duration of crowding should not exceed a maximum of two hours except under veterinary guidance;
- crowding pens should make use of the natural behaviour of fish to minimise distress eg. set up so they can swim against the tide and into a shaded area;
- there should always be at least one member of staff monitoring the crowding pen who is responsible for the welfare of the fish, controlling stocking density, and can recognise and act upon any welfare issues;
- water oxygen levels in the area of crowding should be monitored.

Handling and removal from the water

Fish should not be removed from water for a significant period of time. We note that the use of systems with fish pumps, when used at the lowest effective pressure, can improve fish welfare, reducing the need for removal from the water and handling. Where systems do not permit the use of fish pumps, we support the RSPCA Assured standards for salmon and trout on removing fish from water (HP.1.1-1.3):

- Removal from water and handling must only be carried out when absolutely necessary.
- If fish must be handled adequate support must be given to the body and live fish must never be held by the tail only or thrown onto solid objects.
- Time out of water must be kept to the minimum possible and never exceed 15 seconds for a live fish (unless anaesthetised).

Rested harvesting

We note that in some countries iso-eugenol is licensed as a means of pre-slaughter anaesthesia for fish before they are removed from the water. This process is known as 'rested harvesting', with the anaesthetic solution delivered into the water before removal for slaughter. As the fish are anaesthetised, they do not experience the welfare risks or stressors associated with handling or removal from water. Anaesthetic concentration, exposure time, water temperature, and fish size and weight are factors that need to be carefully considered when using this method. However, this method of harvesting is currently not permitted in the UK as iso-eugenol is not licensed for use.

Given the welfare benefits of rested harvesting, we would support further research into the use of pre-slaughter anaesthesia for fish in the UK to improve welfare at the time of harvesting. This should include consideration of appropriate anaesthetic concentrations, exposure times, water temperature and fish size, weight, as well as whether it is safe for this product to be licensed for use in fish entering the UK food chain.

Recommendation 22: There should be further research into the use of pre-slaughter anaesthesia for fish in the UK to improve welfare at the time of harvesting.

Transportation from pen to harvesting station

Transport to a harvest station, or point of slaughter remote from the production unit, should be in accordance with general safe transport guidance as set out in RSPCA Assured standards and [The Code of Good Practice from Scottish Finfish Aquaculture](#).

In particular, to safeguard the welfare of fish during these transport operations, we support the following principles based on guidance set out by FAWC and the Humane Slaughter Association:

¹⁰² FAWC, 2014. Opinion on the welfare of farmed fish at the time of killing. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/319331/Opinion_on_the_welfare_of_farmed_fish_at_the_time_of_killing.pdf

- Due regard should be paid to pumping rate and pressures, pipe diameters relative to fish size and final stocking density in transport tanks.
- Water quality should be monitored during transport and maintained within acceptable limits

Transfer from a transport vessel or vehicle to the point of slaughter should deliver the fish to that point at a rate consistent with rapid and immediate stunning and killing. The period between removal from the water and slaughter should be minimal, in accordance with RSPCA Assured standards and [The Code of Good Practice from Scottish Finfish Aquaculture](#).

Effective stunning, data capture and reporting

EU Regulation (EC) 1099/2009 Article 4 on the protection of animals at the time of killing sets out that:

“Animals shall only be killed after stunning in accordance with the methods and specific requirements related to the application of those methods set out in Annex I. The loss of consciousness and sensibility shall be maintained until the death of the animal.”

While it is a statutory requirement for all animals to be effectively stunned before slaughter in the UK, EU Council Regulation (EC) No 1099/2009 on the Protection of Animals at the Time of Killing allows Member States to apply a derogation to permit slaughter without stunning for slaughter in accordance with religious rites. For more detail on how the UK applies this derogation see the following chapter **Non-stun slaughter, improved regulation, and acceptance of stunning.**

Stunning methods are divided into three categories: mechanical, electrical and gas. The full list of stunning methods and related specifications is set out in [Annex I of EU Regulation \(EC\) 1099/2009 on the protection of animals at the time of killing](#). These methods must produce a stun that results in death (either immediately or sequentially), or a simple stun that renders the animal unconscious, but still alive, until death by bleeding, cardiac arrest or other (pithing). In the UK, legislation states that no person may stun pigs or poultry by exposure to gas unless each animal is exposed to the gas for long enough to ensure it is killed, therefore simple stunning by gas methods is not permitted.

All animals should be effectively stunned before slaughter to render them unconscious and therefore insensible to pain, distress, fear and suffering. It is a statutory requirement for all animals to be effectively stunned before slaughter in the UK. Scientific evidence^{103, 104, 105, 106} shows that slaughter without effective pre-stunning causes animals:

- to feel the pain of the neck cut;
- to experience a delay in loss of consciousness and therefore a delay in insensibility to pain, fear and distress (up to two minutes in cattle¹⁰⁷); and
- to be likely to experience pain, distress, fear and suffering before and during the cut, and during bleeding out while still conscious.

Recommendation 23: All animals should be effectively stunned before slaughter to render them unconscious and therefore insensible to pain, distress, fear and suffering.

¹⁰³ Farm Animal Welfare Council., 2003. Report on the Welfare of Farmed Animals at Slaughter or Killing, Part 1: Red Meat Animals. Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf .

¹⁰⁴ DIAREL Project, K.vol Holleben et al., 2010. Report on good and adverse practices – Animal welfare concerns in relation to slaughter practices from the viewpoint of veterinary sciences. Available at:

https://www.vetjournal.it/archivio_pdf/2010/4069.pdf

¹⁰⁵ European Food Safety Authority, 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. Available at: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2004.45>

¹⁰⁶ Mellor DJ, Gibson TJ, Johnson CB., 2009, [A re-evaluation of the need to stun calves prior to slaughter by ventral-neck incision: an introductory review](#). N Z Vet J. 2009 Apr;57(2):74-6. doi: 10.1080/00480169.2009.36881.

¹⁰⁷ Farm Animal Welfare Council., 2003. Report on the Welfare of Farmed Animals at Slaughter or Killing, Part 1: Red Meat Animals. Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf .

Stunning methods typically used in the UK

Below we set out the stunning methods typically used for different species in UK abattoirs. For more detailed information on how each stunning method works, [please consult the Humane Slaughter Association online guides](#).

Species	Typical stunning methods used in the UK	Stun or simple stun
Cattle	Penetrative captive-bolt device	Simple stun
	Head-only electrical stunning (Calves)	Simple stun
	Head to body electrical stunning (Jarvis box)	Simple stun
	Free-bullet firearm (Bulls)	Stun
Sheep	Head-only electrical stunning	Simple stun
	Head-to-body electrical stunning	Simple stun
	Penetrative captive-bolt device	Simple stun
Goats	Head-only electrical stunning	Simple stun
	Head-to-body electrical stunning	Simple stun
	Penetrative captive-bolt device	Simple stun
Pigs	Carbon dioxide at high concentration	Simple stun (However, UK legislation requires that the animal is exposed to the gas for long enough to ensure it is killed)
	Carbon dioxide and/ or inert gases.	Simple stun if the duration of exposure to at least 30 % of carbon dioxide is of less than 7 minutes. (However, UK legislation requires that the animal is exposed for long enough to ensure it is killed)
	Head-only electrical stunning	Simple stun
	Head-to-body electrical stunning	Simple stun
	Penetrative captive-bolt device	Simple stun
Poultry	Electrical-waterbath	Simple stun (except where the frequency is equal to, or less than, 50 Hz)
	Carbon dioxide in two phases	Stun (UK legislation requires that the animal is exposed to the gas for long enough to ensure it is killed)
	Carbon dioxide associated with inert gases	Simple stun if the overall duration of exposure to at least 30 % of carbon dioxide is of less than 3 minutes. (However, UK legislation requires that the animal is exposed for long enough to ensure it is killed).
	Inert gases	Simple stun if the duration of exposure to anoxia is of less than 3 minutes. (However, UK legislation requires that the animal is exposed for long enough to ensure it is killed)

	Head only electrical stunning	Simple stun
	Cervical dislocation back up only.	Stun
Horses	Free-bullet firearm	Stun
	Penetrative captive-bolt device	Simple stun
Deer	Free-bullet firearm	Stun
	Penetrative captive-bolt device	Simple stun
	Head-only electrical stunning, not in common use	Simple stun
Llamas and Alpacas	Penetrative captive-bolt device	Simple stun
	Head-only electrical stunning	Simple stun
	Free-bullet firearm	Stun
Fish	Percussive stunning	Stun
	Electrical stunning	Simple stun
Rabbits	Head-only electrical stunning	Simple stun
	Penetrative captive-bolt	Simple stun
	Mechanical and non-mechanical percussive blow to the head	Stun

To ensure effective stunning, methods should be evidence-based and have a high, repeatable success rate (measured by the % effectiveness over time).

In general, simple stunning methods do not result in instantaneous death, instead they result in immediate loss of consciousness that lasts until death is caused by a procedure such as sticking. If the time between the application of a simple stun and sticking is too long, the animal may recover consciousness. Consequently, legislation should specify maximum stun-to-stick intervals for species routinely slaughtered with simple stunning methods based on available evidence.

We encourage all those involved in the stunning and killing of animals to familiarise themselves with, and adhere to, best practice to ensure effective stunning and to eliminate or minimise avoidable pain, distress, fear and suffering. **(See Annex B).**

Recommendation 24: Legislation should specify evidence-based maximum stun-to-stick intervals for species routinely slaughtered with simple stunning methods.

Effective stunning

Restraint

EU Council regulation (EC) No 1099/2009: Article 2(p) defines 'restraint' as 'the application to an animal of any procedure designed to restrict its movements sparing any avoidable pain, fear or agitation in order to facilitate effective stunning and killing.'

UK Welfare of Animals at the Time of Killing regulations sets out that no person may stun or kill an animal without restraining it in an appropriate manner and that restraint can only be applied when the operator is ready to deliver the stun, to avoid causing unnecessary distress to the animal.

We support the principles of restraint that are set out in Annex II, 3.1 of EU Council regulation (EC) No 1099/2009:

Restraining equipment and facilities shall be designed built and maintained to:

- a) optimise the application of the stunning or killing method;***
- b) prevent injury or contusion to the animals;***
- c) minimise [the need to] struggle and vocalisation when animals are restrained;***
- d) minimise the time of restraint***

We also support the use of active and passive head restraints to improve the effective application of stunning. Restraints (either active or passive) should be tailored to the species (eg. prey species are naturally protective of their necks so active restraint may cause additional distress and should be avoided), age and size of the animals, and crucially restraints should only be applied when the operator is ready to deliver the stun.

BVA policy position on the welfare of animals at slaughter

Animals with exceptionally wide horn-spans should be considered on a case-by-case basis with fore-planning to minimise distress to the animal and ensure the health and safety of stunning operatives. If abattoirs receive such animals on a regular basis a Standard Operating Procedure (SOP) should be in place.

Group-stunning systems

Group-stunning is a process of restraining a number of animals in a stun-pen before slaughter and can be used for both electrical and mechanical methods. The stun-pen will often use a crowding gate as a reduction system to allow the size of the stun-pen to be reduced such that, as the number of animals declines, there is less room for the remainder of the animals to move away from the operator.

We support the FSA, FSS, University of Bristol, and Humane Slaughter Association [Best practice guidelines for group stunning systems](#). All those involved in the group stunning of animals should familiarise themselves with, and adhere to, these guidelines.

These guidelines highlight the advantages and disadvantages of group stunning systems, and set out what a good group-stunning system should look like:

Advantages	Disadvantages	What good looks like
<ul style="list-style-type: none"> • Animals are not isolated and move freely together • Animals are not actively restrained and consequently they may feel calmer. • Specialised handling equipment is not required. • The system is flexible in terms of species, age, size and operator. • Group-stunning systems are easy and cheap to clean and maintain. 	<ul style="list-style-type: none"> • Overcrowding in the stun-pen may cause a number of issues including: <ul style="list-style-type: none"> ○ Injury due to escape / crushing by other animals. ○ Increased chance of mis-application of stunning tongs. ○ Increased chance of delayed stun-to-stick times due to difficulties in shackling. • Fewer animals within the stun-pen means there is more room for them to move around, thus the use of a crowding gate is recommended. • Working in a group-stunning pen is very arduous and operator fatigue is a significant problem. • Stun accuracy is dependent on the skill of the operators and fatigue will affect the operators ability to stun animals accurately. • Potential welfare harm associated with animals witnessing the stun of others in their group. 	<p>In good group-stun systems animals will:</p> <ul style="list-style-type: none"> • move easily into the stun-pen and locate themselves close to the elevator • stand still • have their heads in an easily accessible position • be suitably restrained for stunning, either by the design or another person.

As outlined above, safe and welfare-friendly group-stunning systems are reliant on the skill and number of operators, as well as the use of reduction systems.

UK Welfare of Animals at the Time of Killing regulations should therefore specify that reduction systems must be used for group stunning, and there should always be a minimum of slaughter operatives operating group stunning systems – one stunning and one shackling.

Recommendation 25: UK Welfare of Animals at the Time of Killing regulations should specify that reduction systems must be used for group stunning, and there should always be a minimum of two slaughter operatives operating group-stunning systems.

Monitoring effective stunning

There should be trained slaughterhouse staff and robust monitoring systems to verify effective stunning. After a stun has been applied operators should check for indicators of consciousness until the animal is dead to ensure that the animals have received an effective stun and are unconscious until death, or already dead depending on the stun method.

If an ineffective stun does occur, OVs are required to record the occurrence on the competent authority's animal welfare enforcement system. If there is any doubt as to whether the stun has been applied effectively, operators should apply a repeat stun immediately to ensure the animal is rendered immediately unconscious and the stun has been effective (**see 'Repeat stunning' section for more information**). Legislation requires a back-up stunning method to be immediately available for slaughter operatives, with EC 1099/2009 stating:

“Business operators shall ensure that during stunning operations appropriate back-up [stunning] equipment is immediately available on the spot and is used in the case of failure of the stunning equipment initially used. The back-up method may differ from that first used.”

As of December 2019^{108, 109, 110, 111}, all electrical stunning equipment in the UK (apart from electrical-waterbath stunners) must be connected to a device indicating the voltage and the current under load, positioned so the operator can clearly see it, and incorporate an audible or visible device indicating the duration of a stun application. In addition, gas stunning equipment for poultry and pigs must measure and continuously display the required gas concentration and give clearly visible and audible warning signals if the gas concentration falls below the required level (in accordance with Table 3 of Chapter I of Annex I of EC 1099/2009). Electrical-waterbath stunning equipment must be fitted with a device that indicates the electrical key parameters, volts, amperage and frequency. All electrical and gas stunning equipment must record the key parameters and these records must be retained for 12 months.

This means that each FBO that conducts electrical and gas stunning will have recorded evidence on parameters and concentrations used, as well as time of application, in addition to the data which is recorded on the competent authority's animal welfare system.

In January 2020, the Secretary of State for Health and Social Care was asked how many reports of mis-stunning before slaughter had been received for each category of animal in each year since 2008 ([Slaughterhouses: Animal Welfare: Written question – 9661](#)). In response to this question, the FSA provided recorded data from 2010-2019 detailing the number of instances of inaccurate/ineffective stunning which have occurred in the main categories of animals, in FSA approved slaughter premises in England and Wales. Overall, the yearly total of inaccurate/ineffective stuns recorded as serious/critical in England and Wales has fallen since 2010. This suggests that implementation enforcement of the Welfare of Animals at the Time of Killing regulations in England and Wales, which came into force in 2015 and 2014 respectively, have been effective in reducing the incidence of inaccurate/ineffective stuns.

¹⁰⁸ Schedule 8 Transitional Provisions (Slaughterhouses) [The Welfare of Animals at the Time of Killing \(England\) Regulations 2015](#)

¹⁰⁹ Schedule 3 Transitional Provisions (Slaughterhouses) [The Welfare of Animals at the Time of Killing \(Scotland\) Regulations 2012](#)

¹¹⁰ Schedule 8 Transitional Provisions (Slaughterhouses) of [The Welfare of Animals at the Time of Killing \(Wales\) Regulations 2014](#)

¹¹¹ Schedule 8 Transitional Provisions (Slaughterhouses) of [The Welfare of Animals at the Time of Killing Regulations \(Northern Ireland\) 2014](#)

Number of inaccurate/ineffective stuns recorded as serious/critical in England and Wales 2010-19¹¹²

Year	Period	Poultry	Cattle	Pigs	Sheep and Goats	Total
2010	April 2010 to March 2011	17	9	4	9	39
2011	April 2011 to March 2012	6	10	3	4	23
2012	April 2012 to March 2013	9	8	2	6	25
2013	April 2013 to March 2014	6	13	3	2	24
2014	April 2014 to March 2015	11	21	3	3	38
2015	April 2015 to March 2016	4	81	0	3	88
2016	April 2016 to March 2017	2	27	0	1	30
2017	April 2017 to March 2018	4	15	1	10	30
2018	April 2018 to March 2019	2	34	4	6	46
2019	April 2019 to December 2019	0	14	1	6	21
Grand Total		61	232	21	50	364

We note the rise in incidents of inaccurate/ineffective stuns recorded in the 2014-2016 period. This spike may be explained by the fact that while EC1099/2009 regulations on the protection of animals at the time of killing came into force in January 2013, Wales' Welfare of Animals at Time of Killing regulations did not come into force until May 2014, and England's Welfare of Animals at the Time of Killing Regulations did not come into force until November 2015. In the interim period, we have heard anecdotal evidence that it was difficult to take formal enforcement action against animal welfare non-compliances. Therefore, the rise in the number of inaccurate/ineffective stuns recorded in the 2014-2016 period may reflect an increased awareness of the impending implementation of the Welfare of Animals at the Time of Killing regulations in England and Wales, and so an increased ability to take formal enforcement action after November 2015.

Indicators of consciousness

We support the EFSA recommendation that indicators of consciousness should be monitored at three key stages of the slaughter process: after stunning (between the end of stunning and shackling), during sticking, and during bleeding. They should also be monitored before further processing.

EFSA states that ineffective stunning or killing can be recognised by the presence of one or more of the following signs¹¹³:

- Rhythmic breathing.
- Constricted pupil.
- Attempts to raise the head.
- Vocalisation during stunning and / or seizures.
- Corneal reflex.
- Response to a painful stimulus.
- Ears held stiff (not floppy) especially after captive-bolt stunning.

It is important to recognise there is no single indicator of consciousness. Operators responsible for monitoring indicators of consciousness should therefore assess brain function against several indicators. To support operators in monitoring indicators of consciousness, EFSA has produced several tool boxes that set out indicators of consciousness that should be monitored across different stunning methods in species that are routinely slaughtered (for cattle, sheep, goats, poultry and pigs):

- [EFSA Monitoring slaughter for bovines \(including toolboxes of welfare indicators\)](#)

¹¹² Each instance relates to an event that has been categorised as a serious or critical non-compliance on the welfare reporting systems used at that time. These figures do not reflect the number of animals involved. The figures in the table above for poultry only reflect the data associated with electrical stunning methods as the predominant method used in larger poultry premises is controlled atmosphere stunning (gas) method which is designed to kill rather than stun.

¹¹³ The EFSA Journal, 2004, 45, 1-29, Welfare aspects of the main systems of stunning and killing the main commercial species of animals. Available at: <https://efsa.onlinelibrary.wiley.com/doi/pdf/10.2903/j.efsa.2004.45>

- [EFSA Monitoring slaughter for sheep and goats \(including toolboxes of welfare indicators\)](#)
- [EFSA Monitoring slaughter for poultry \(including toolboxes of welfare indicators\)](#)
- [EFSA Monitoring slaughter for pigs \(including toolboxes of welfare indicators\)](#)

We support the EFSA recommendation that those responsible for monitoring should choose the most appropriate set of indicators (at least two) to assess from these toolboxes according to their expertise and the available infrastructure in a slaughterhouse

To improve the monitoring of effective stunning, we would also welcome the collection of practical species-specific data on indicators of consciousness and an assessment of their sensitivity and specificity for all species routinely slaughtered in the UK.

Recommendation 26: If there is any doubt as to whether the stun has been applied effectively, operators should apply a repeat stun immediately.

Recommendation 27: Operators responsible for monitoring indicators of consciousness should assess brain function against several indicators of consciousness.

Recommendation 28: Further species-specific data on indicators of consciousness should be collected and the sensitivity and specificity of these indicators should be assessed for all species routinely slaughtered in the UK .

Repeat stunning

It is important to distinguish between ineffective stunning (where the stun application does not render an animal immediately unconscious and the animal is demonstrating indicators of consciousness) and repeat stunning (where a second stun is immediately applied to the animal after the first stun as a precautionary measure to ensure that the stun has been effective).

Repeat stunning is not associated with indicators of recovery or consciousness in the animal. We therefore consider that, if applied immediately after the first stun application, repeat stunning is a technical non-compliance, and not an animal welfare non-compliance.

To encourage and support staff in their application of effective stunning, Food Business Operators (FBOs) should develop repeat stun Standard Operating Procedures (SOPs) and clearly communicate the importance of repeat stunning to staff to minimise animal suffering and safeguard animal welfare.

Recommendation 29: Food Business Operators should develop repeat stun Standard Operating Procedures (SOPs) and clearly communicate the importance of repeat stunning to staff to minimise animal suffering and safeguard animal welfare.

Stunning and killing equipment

As well as operator skill, the delivery of effective stunning and killing relies on well-designed, constructed and maintained slaughter equipment and good record keeping. Legislation requires that equipment used for stunning or killing must be suitable for the purpose and be capable of performing to a required minimum standard.

However, at present there is no independent scrutiny or approval process to ensure that slaughterhouse equipment is fit for purpose before installation. We therefore support FAWC's recommendation¹¹⁴ that Government should establish a mandatory system of regular approval for stunning/killing equipment to ensure continuing suitability for the purpose intended.

In addition, as part of this system of approval there should be ongoing quality assurance with regular assessments of the effectiveness of equipment based on technical data and animal welfare outcomes. This could be integrated into the meat establishment audits currently performed by the competent authorities.

¹¹⁴ FAWC, 2003 [FAWC report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals \(2003\)](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf), Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

Recommendation 30: The UK Government should establish a mandatory system for regular approval and quality assurance for stunning/killing equipment to ensure continuing suitability for the purpose intended.

Data capture and reporting

The FSA and FSS capture data on slaughter methods across species, including effective and ineffective stuns, repeat stuns, animals which have received no stun, as well as the end destination of animals slaughtered (ie where meat is exported to or if non-stun meat is sent for wider consumption in the UK).¹¹⁵ This data is recorded on the respective animal welfare enforcement system, Chronos for England and Wales and the [OWS animal welfare database](#) in Scotland.

In Northern Ireland, animal welfare non-compliances that require enforcement action are recorded on the enforcement programme (VPH 23) for the FBO. OV's also assess and comment on prevailing welfare conditions as part of the FBO compliance audit.

In terms of reporting this data in the public domain, the FSA reports on slaughter methods in the following ways:

- **National snapshot surveys of slaughterhouses** – These snapshot surveys are usually a week-long animal welfare survey, including questions on stun methods and the end-destination of meat. These are usually commissioned when there is a concern or question to be answered by the government and published in report form eg the [Results of the 2018 FSA Survey into Slaughter Methods in England and Wales commissioned by Defra and the Welsh Government](#). There is currently no commitment to undertaking these annually or to publish them.
- **Animal Welfare Non-Compliances in Approved Slaughterhouses** (poultry, sheep and goats, pigs, cattle) – quarterly reports show the number of welfare non-compliances in England and Wales by species in each area of slaughterhouses including: unloading; lairage; movement and restraint; stunning; bleeding; management responsibilities. These reports do not include ineffective stun data. We also note that sheep and goat figures are grouped together.
- **Freedom of Information requests** - There may also be information requests reported when a Freedom of Information request is submitted

However, as these figures provide snapshots into limited periods of time or quarters of the year, figures are often extrapolated upwards to provide annual estimate figures for different slaughter methods and end-destinations. Consequently, figures may not take into account seasonal variations in production, as well as any other sources of variation.

To ensure transparency and provide an accurate picture of slaughter methods and animal welfare, the UK governments should provide robust and regular data on the incidence of animal welfare non-compliance, slaughter methods, the incidence of effective and ineffective stunning, effectiveness and quality of exsanguination, and the end-destinations of animals slaughtered.

The UK governments should therefore commission the FSA, FSS and DAERA to produce and publish annual figures on the incidence of animal welfare non-compliance, slaughter methods, the incidence of effective and ineffective stunning, and end-destinations with a routine publication date. These annual figures should include:

- the total number of animal welfare non-compliances, with clear and specific examples, across small, medium and large abattoirs, as well as per million animals;

¹¹⁵ The FSA categorise electrical-waterbath stunning of poultry outwith the parameters laid down in EC 1099/2009 Annex I as non-stun in their data collection and reporting, as using electrical currents which do not fall within legislative parameters laid down in EC 1099/2009 Annex I may result in an ineffective stun and electroimmobilisation.

- each method of slaughter by species, and total number of animals slaughtered by each method;
- the incidence of animal welfare non-compliance;
- the total number of animals that receive an effective stun;
- the total number of animals that receive no stun;
- the total number of animals that receive an ineffective stun (ie. demonstrate several indicators of consciousness);
- data on the effectiveness and quality of exsanguination
- the end-destination of stunned and non-stunned meat in the UK (ie. if non-stun meat is sent for wider consumption within the UK market); and
- the total amount of stunned and non-stunned meat exported and where it is exported to.

Recommendation 31: The UK governments should commission the FSA, FSS and DAERA to produce and publish annual figures on the incidence of animal welfare non-compliance, slaughter methods, the incidence of effective and ineffective stunning, effectiveness and quality of exsanguination, and end-destinations with a routine publication date.

Stunning methods: Species-specific considerations

Across all species, the development of effective, humane and economically viable stunning methods should be incentivised by government and industry to improve welfare at slaughter.

With this in mind, we have considered the welfare implications of existing stunning methods across species and identified several key areas that should be considered to improve welfare and the effectiveness of stunning.

Recommendation 32: The development of effective, humane and economically viable stunning methods should be incentivised by government and industry funding to improve welfare at slaughter.

Captive-bolt stunning in cattle, sheep and goats

Penetrative captive-bolt stunning can be used in cattle, sheep and goats, whilst non-penetrative captive-bolt stunning is limited for use in ruminants of less than 10kg live weight, neonates up to five kilos, poultry, rabbits and hares. Captive-bolt stunning is accepted as an effective stunning method for the groups of animals specified in Annex I, Table 1 of EC 1099/2009. However, the effectiveness of captive-bolt stunning depends on correct and regular maintenance of the equipment, use of the correct cartridge size for the size, age and species being stunned, shot position¹¹⁶ and angle, bolt diameter and velocity, as well as possible anatomical and physiological differences in the animals, as influenced by species, age, size and breed.

We note there are captive-bolt stun checkers already on the market to determine stun effectiveness¹¹⁷, and a captive-bolt velocimeter is currently under development in the UK, a wireless captive-bolt velocity measuring device that will allow pertinent data to be recorded in real time and in situ.¹¹⁸ We support the development of this device and its use to measure and improve the effectiveness of captive-bolt stunning.

In addition, captive-bolt stunning in particularly large and/or aged bovines (eg Continental breeding bulls) requires pre-planning to ensure an effective stun is delivered through appropriate shot positioning, cartridge strength and ensuring that a second captive-bolt stunner is loaded and immediately available, as required by the legislation, to apply a repeat stun if the first is ineffective.¹¹⁹

¹¹⁶ Grist et al., 2019. [Macroscopic Examination of Multiple-Shot Cattle Heads—An Animal Welfare Due Diligence Tool for Abattoirs Using Penetrating Captive Bolt Devices](#)

¹¹⁷ <https://www.accles-shelvoke.com/tools/cash-accessories/cash-captive-bolt-stun-check>

¹¹⁸ J. Loeb, 2018. Pre-slaughter stunning: what's on the horizon?

Veterinary Record **183**, 710-712. Available at: <https://veterinaryrecord.bmj.com/content/183/23/710>

¹¹⁹ Grist et al., 2019. [Macroscopic Examination of Multiple-Shot Cattle Heads—An Animal Welfare Due Diligence Tool for Abattoirs Using Penetrating Captive Bolt Devices](#)

For goats, HSA guidance recommends all goats should be treated as if they have horns, as the bony mass at the top of the skull may absorb the energy of the captive-bolt and prevent bolt penetration through to the brain cavity. Given the differences in skull architecture between horned goats, de-horned goats, and polled goats, we would recommend that additional research is undertaken to determine the overall and comparative welfare implications of the use of captive-bolt as a stunning method for horned goats, de-horned goats, and polled goats, including the most effective style of equipment, shot positioning, charge size of cartridge.

Recommendation 33: Captive-bolt velocimeters should be developed and used to measure and improve the effectiveness of captive-bolt stunning. These can either be stand-alone or active fitted to the stunner.

Recommendation 34: Additional research should be undertaken to determine the overall welfare implications of the use of captive-bolt as a stunning method for horned goats, de-horned goats, and polled goats, including the most effective style of equipment, shot positioning, charge and size of cartridge.

Alternative methods for stunning cattle

We welcome the on-going development of new, effective methods for stunning cattle before slaughter, such as Single Pulse Ultra-High Current (SPUC), and electromagnetic (microwave) energy stunning.

Single Pulse Ultra-High Current (SPUC)

Single Pulse Ultra-High Current (SPUC) uses high voltage electrical energy parameters to disrupt normal brain function by opening up pores in the neural membrane, in turn inducing unconsciousness in the animal. This method allows the ions to move in and out of the neurones, which may reduce post-stun convulsions and result in a longer period of unconsciousness before death. It therefore has the potential to improve animal welfare by minimising the risk of recovery before sticking, improve operator safety, and meat quality. Further, as SPUC produces a head-only simple stun, it may be acceptable for Halal production (see more detail on this issue in the following chapter **Non-stun slaughter, acceptance of stunning and improved regulation**).

Electromagnetic (microwave) energy stunning

Microwave energy stunning renders the animal unconscious by applying sufficient microwave energy to heat the frontal portion of the brain, and induce heatstroke, causing the animal to lose consciousness. This method also has the potential to improve operator safety and meat quality by eliminating post-stun convulsions. As above, this method also produces a simple stun, so it may be acceptable for Halal production (see more detail on this issue in the following chapter **Non-stun slaughter, acceptance of stunning and improved regulation**).

However, it is important to recognise that if microwave energy is applied and there is uneven temperature distribution in the brain this may result in an ineffective stun.

We would therefore welcome further research to determine the efficacy of SPUC and electromagnetic (microwave) energy stunning.

Recommendation 35: There should be further research to determine the efficacy of Single Pulse Ultra-High Current (SPUC) and electromagnetic (microwave) energy stunning.

Captive-bolt stunning in pigs

It is difficult to ensure an effective stun for pigs with a captive-bolt stunner due to the small target area and concave shape of forehead in some pig breeds. The protracted violent convulsions produced in healthy pigs by the use of captive-bolt stunners precludes their use in commercial slaughter, they are generally only used in emergency slaughter of pigs. Where captive-bolt stunning is used on pigs for emergency slaughter, the heaviest cartridge for the stunner should be used and the animal should be bled and pithed immediately to ensure a rapid death.¹²⁰ In larger, adult pigs (eg. older sows and boars) captive-bolt stunning should not be used due to the frontal bone structure that runs down the

¹²⁰ Humane Slaughter Association (HSA). Captive-bolt stunning of livestock: Pigs. Available at: <https://www.hsa.org.uk/positioning/pigs>

centre of the head which may prevent an effective application. Larger adult pigs should therefore receive an electrical stun followed by cardiac arrest or bleeding, or be killed with a free-bullet firearm or shotgun¹²¹.

Head-only simple stunning and head-to-back electrical stunning of sheep, goats and pigs

The effectiveness of head-only simple stunning and head-to-back electrical stunning in unrestrained animals is largely dependent on the skill of the operator in positioning the electrodes (handpiece or scissor tongs) accurately and delivering sufficient current to render the animal unconscious.¹²²

The effectiveness of head-only simple stunning in horned animals may be limited because horns may restrict access to the temple and hinder the operator's positioning of the electrodes and, in turn, prevent the delivery of sufficient current to render the animal unconscious. The thickness of sheep wool may also reduce the effectiveness of head-only simple stunning and head-to-back stunning by increasing electrical resistance. EFSA states this can be mitigated by wetting the electrodes or wool at the site of tong placement.¹²³ It is therefore paramount that operators are trained in the species-specific stunning requirements and nuances of each breed and species (see previous recommendations around Certificates of Competence).

We therefore support the FAWC recommendation that tong positioning and effectiveness of head-only stunning should be monitored by the FBO and verified by the OV with action being taken (eg. additional operator training) if performance falls below acceptable levels.¹²⁴ FBOs should also monitor, and OVs should verify, handpiece positioning and effectiveness of head-back stunning in the same manner.

To ensure an effective stun, we support the use of the parameters set out in the EFSA [Opinion on welfare aspects of the main systems of stunning and killing the main commercial species of animals](#).

However, we would welcome the development of constant current electrical stunning systems, with low stress restraint, that maintain good electrical contact throughout application to improve the effectiveness of head-only simple electrical stunning.

Recommendation 36: Constant current electrical stunning systems with low stress restraint should be developed to improve the effectiveness of head-only simple stunning.

Head-to-body stunning of cattle, sheep, goats

Head-to-body stunning is usually delivered via semi- or fully- automatic equipment, designed differently for the species being slaughtered. A head-only simple stun is followed by a second current application to fibrillate the heart. This method can deliver a welfare benefit in that it is not as reliant on the skill of the operator to deliver an effective stun, however positioning animals in the equipment and restraint may cause the individual animal additional distress.¹²⁵

In cattle, the Jarvis electrical stun box can also be used. This is best suited to high throughput slaughter lines, and works on a three-phase cycle, initially head stunning, then producing a cardiac arrest followed by a spinal-discharge cycle which minimises post-stun convulsions.

¹²¹ Humane Slaughter Association (HSA). Humane killing of livestock using firearms. Available at: <https://www.hsa.org.uk/downloads/publications/hsa-humane-killing-of-livestock-using-firearms.pdf>

¹²² FAWC, 2003. [FAWC report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals \(2003\)](#). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

¹²³ European Food Safety Authority (EFSA), 2004. [Opinion on welfare aspects of the main systems of stunning and killing the main commercial species of animals](#). Available at: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2004.45>

¹²⁴ FAWC, 2003. [FAWC report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals \(2003\)](#). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

¹²⁵ Humane Slaughter Association (HSA). Electrical Stunning of Red Meat Animals: Head-to-Body Stun-Kill. Available at: <https://www.hsa.org.uk/electrical-stunning-of-red-meat-animals-equipment/head-to-body>

For all head-to-body stunning methods, equipment should be well maintained, set up according to the manufacturer's instruction and the animal and electrodes should be clean to produce an effective stun. The delivery of an effective stun also depends on whether the animal has been positioned correctly in the equipment for the electrodes to apply sufficient current, and whether the equipment has been adjusted to take into account different sized animals.¹²⁶

It is therefore extremely important that operators are familiar with equipment functionality and the equipment is well maintained. Head-to-body stunning equipment should be monitored by the FBO and verified by the OV with action being taken (eg. additional operator training) if performance falls below acceptable levels.

Gas stunning of pigs

Gas stunning systems for pigs can offer several welfare benefits in terms of pre-slaughter handling, including ensuring animals remain in social groups; the delivery of the stun is consistently effective at high throughputs; and the risk of human error which can occur in the head-only electrical simple stunning of pigs, and incorrect placement of electrodes is reduced.

We support FAWC's general principles for gas stunning and killing operations in pigs under current UK legislation, which stipulates that pigs must be exposed to gas methods for long enough to ensure death¹²⁷:

- Pigs should be maintained in a stable social group with a minimum of restraint.
- Pre-slaughter handling facilities should be designed to minimise stress.
- The gas used to induce unconsciousness should not be aversive.
- All pigs should be rendered rapidly unconscious in the gas.
- An irreversible state of unconsciousness (death) must be reached in all pigs prior to sticking.
- There should be adequate monitoring of the system and efficient evacuation in the event of any system failure.

However, where pigs are stunned by exposure to a high concentration of carbon dioxide, evidence shows that individual pigs can experience mild to severe aversive reactions and compromised welfare.¹²⁸ In 2003, in its opinion on the [Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals](#), FAWC supported further research into and development of alternatives to carbon dioxide, such as mixtures including argon or nitrogen, which are less aversive. Ultimately FAWC concluded that the use of high concentrations of CO₂ to stun and kill pigs is not acceptable and it would wish to see the method phased out in five years.¹²⁹

Research should therefore be undertaken by government and industry to develop less aversive gas stunning methods with the aim of phasing out current aversive gas stunning methods for pigs. As EFSA states: "Gas stunning has a high potential for humane stunning or stun/killing if non-aversive gases or gas mixtures are used. It requires sophisticated technical equipment. The animals are exposed to a moderate handling stress only."¹³⁰

¹²⁶ FAWC, 2003. [FAWC report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals \(2003\)](#). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

¹²⁷ FAWC, 2003. Report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

¹²⁸ European Food Safety Authority, 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. Available at: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2004.45>

¹²⁹ FAWC, 2003. Report on the Welfare of Farmed Animals at Slaughter or Killing Part 1: Red Meat Animals. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

¹³⁰ European Food Safety Authority, 2004. Opinion of the Scientific Panel on Animal Health and Welfare on a

Recommendation 37: Research should be undertaken by government and industry to develop less aversive gas stunning methods with the aim of phasing out current aversive gas stunning methods for pigs.

Alternative methods for stunning pigs

In terms of less-aversive gas stunning methods, existing evidence also suggests that stunning using inert gases such as argon (or nitrogen) to stun pigs should be explored. This evidence has demonstrated that pigs, chickens and turkeys showed no aversion to inhalation of argon.^{131,132} However, exposure to argon for five minutes or less can result in rapid recovery, and UK legislation currently specifies that pigs must be exposed to the gas for long enough to ensure death. Pigs would therefore have to be exposed to the gas mixture for periods of seven minutes or more for death to be ensured.¹³³

Second to inert gas stunning, gas mixtures containing up to 30% carbon dioxide in argon (or nitrogen) are relatively less aversive than high concentrations (>70%) of carbon dioxide and therefore should be encouraged.^{134, 135}

Consideration should therefore be given to amending legislation to permit simple stunning by gas methods to encourage the use of less aversive gas methods and improve pig welfare at slaughter. If simple stunning were to be permitted, the time interval between end of exposure to alternative gas mixtures and sticking is critical. According to the available evidence, these are reported to be¹³⁶:

Exposure time in minutes	Maximum end of exposure to sticking interval in seconds
Three	25
Five	45
Seven	Not critical as pigs are killed

Any consideration of amending legislation to permit simple stunning by gas methods must therefore accurately determine the maximum end of exposure to sticking interval to prevent the potential for recovery of consciousness before sticking, as well as assessing the logistical changes, and potential impact on animal welfare, that may be required to implement this in abattoirs.

Recommendation 38: The stunning of pigs using inert gases such as argon (or nitrogen), or gas mixtures containing up to 30% carbon dioxide in argon (or nitrogen) should be explored.

Recommendation 39: Consideration should be given to amending legislation to permit simple stunning by gas methods to encourage the use of less aversive gas methods and improve pig welfare at slaughter.

We also note the ongoing HSA and Defra programme of research to determine the welfare impacts of Low Atmospheric Pressure Stunning (LAPS) in pigs, as an alternative to carbon dioxide stunning.¹³⁷

Poultry

request from the Commission related to welfare aspects of the main systems of stunning and killing the main commercial species of animals. Available at: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2004.45>

¹³¹ Raj, A.B.M.; Gregory, N.G., 1995. Welfare Implications of the Gas Stunning of Pigs 1. Determination of Aversion to the Initial Inhalation of Carbon Dioxide or Argon. *Animal Welfare*, 4, 273–280.

¹³² Dalmau, A.; Rodriguez, P.; Llonch, P.; Velarde, A., 2010. Stunning pigs with different gas mixtures: aversion in pigs. *Animal Welfare*, 19, 325–333.

¹³³ Raj, A.B.M. 1999. Behaviour of pigs exposed to mixtures of gases and the time required to stun and kill them; welfare implications. *The Veterinary Record*, 144: 165-168.

¹³⁴ Raj, A.B.M. and Gregory, N.G. 1995. Welfare implications of gas stunning pigs 1. Determination of aversion to the initial inhalation of carbon dioxide or argon. *Animal Welfare*, 4: 273-280.

¹³⁵ Raj, A.B.M. and Gregory, N.G. 1996. Welfare implications of gas stunning pigs 2. Stress of induction of anaesthesia. *Animal Welfare*, 5: 71-78.

¹³⁶ Raj, A.B.M. 1999. Behaviour of pigs exposed to mixtures of gases and the time required to stun and kill them; welfare implications. *The Veterinary Record*, 144: 165-168.

¹³⁷Humane Slaughter Association (HSA), 2018. New research aims to find a more humane way to stun pigs. Available at: <https://www.hsa.org.uk/downloads/laps-funding-final.pdf>

Electrical-waterbath stunning

The [EFSA Scientific Opinion on the welfare of poultry at slaughter](#) and the [EFSA Scientific Opinion on the electrical requirements for waterbath stunning equipment applicable for poultry](#) concluded that it is not possible to ensure that all birds are effectively stunned and rendered unconscious before slaughter using electrical-waterbath stunning. Welfare issues associated with the electrical-waterbath stunning of poultry, include:

- **Live shackling and inversion of birds** – Birds are shackled by both legs and suspended upside down so that the head can be presented for stunning in the waterbath. Evidence shows that live shackling and inversion can cause distress, pain and discomfort, due to compression of the periosteum by the shackle and variations in leg size amongst individual birds.^{138, 139}
- **Pre-stun shocks** - Birds that make contact with the electrified water before the immersion of the head may receive pre-stun electric shocks.
- **Variable current** - The actual current that each bird receives can vary based on several factors, including the number of birds in the waterbath at any one time, contact between adjacent birds and variations in the resistance of each bird. Birds exposed to wet weather during transport can have a poor stun due to electrical tracking around, rather than through, the body. Consequently, birds may receive too much or insufficient current, resulting in an ineffective stun.
- **Electro immobilisation** - the delivery of insufficient current can result in individual birds being electro-immobilised, rather than stunned and therefore still conscious at the time of slaughter. OV's and Animal Welfare Officers/slaughterhouse staff are unable to differentiate between the two states, making enforcement of legally required effective stunning impossible.

Given the limitations of electrical-waterbath stunning, we support the EFSA recommendations regarding its use:

- Regulation should indicate minimum current for each bird, frequency and current type as well as the wave characteristics duty cycle and waveform.¹⁴⁰
- There should be better surveillance and monitoring of the electrical parameters in use at abattoirs and, in addition, methods that allow the accurate measurement of actual electrical current flowing through each bird should be further developed.
- Research on effective stunning should be validated by the measurement of EEG activity and related to clinical measures which are easier to use in practice.
- There is an urgent need to develop electrical methods that guarantee 100 % stun.
- Unless the problems described in [the [EFSA Scientific Opinion on the electrical requirements for waterbath stunning equipment applicable for poultry](#)] for all existing electrical-waterbath stunning methods can be resolved, other stunning methods should be used.

¹³⁸ FAWC, 2009. Report on the Welfare of Farmed Animals at Slaughter or Killing Part 2: White Meat Animals. Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/326745/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_two_white_meat_species.pdf

¹³⁹ [EFSA \(2019\) Scientific Opinion on the electrical requirements for waterbath stunning equipment applicable for poultry](#)

¹⁴⁰ Annex I of EC 1099/2009 sets out that electrical-waterbath stunning shall be carried out in accordance with the minimum currents laid down therein, and animals shall be exposed to that current for a minimum duration of at least four seconds:

Table 2 — Electrical requirements for electrical-waterbath stunning equipment (average values per animal)

Frequency (Hz)	Chickens	Turkeys	Ducks and geese	Quails
<200 Hz	100mA	250 mA	130 mA	45 mA
From 200 to 400 Hz	150mA	400 mA	Not permitted	Not permitted
From 400 to 1 500 Hz	200 mA	400 mA	Not permitted	Not permitted

Until electrical-waterbath stunning is replaced with more effective stunning methods, all of the UK regulations on the Welfare of Animals at the Time of Killing should specify that electrical-waterbath stunning must be carried out in accordance with the minimum currents laid down in Annex I of EC 1099/2009. We are extremely concerned by the omission of these parameters for poultry killed in accordance with religious rites in the Welfare of Animals at the Time of Killing (England) Regulations 2015. This omission means that under the derogation for religious slaughter poultry can legally be stunned at higher frequencies outside of the parameters specified in Annex 1 of EC 1099/2009. We are concerned that these frequencies do not ensure that poultry are effectively stunned before slaughter and so will suffer avoidable pain and distress. Notably, the FSA classify electrical-waterbath stunning delivered outwith the parameters specified in Annex 1 of EC 1099/2009 as non-stun slaughter.

Recommendation 40: Until electrical-waterbath stunning is replaced with more effective methods, all of the UK regulations on the Welfare of Animals at the Time of Killing must specify that electrical-waterbath stunning must be carried out in accordance with the minimum currents laid down in Annex I of EC 1099/2009.

Phasing out electrical waterbath stunning

Many slaughterhouses in the UK have moved towards the gas stunning of poultry as an effective alternative to electrical-waterbath stunning, which also minimises the need for handling and restraint of birds. However, UK legislation currently specifies that poultry must be exposed to the gas for long enough to ensure they are killed. This means that under current legislation, gas stunning is not acceptable for Halal production as only stunning methods that deliver an effective recoverable stun ie. a stun that renders the animal unconscious and insensible to pain but does not kill the animal before neck cutting, meet Halal criteria.

Consequently, unless there is a viable, recoverable stun alternative for poultry that is acceptable for Halal production, we would caution against the immediate cessation of electrical-waterbath stunning in all slaughterhouses, as we are concerned that this could result in an increase in non-stun slaughter.

With this in mind, electrical-waterbath stunning should be gradually phased out and the meat industry should move towards recoverable stunning methods that immediately and effectively stun birds of all sizes, strains, and ages, and remove the need for live shackling and inversion pre-slaughter.

There is therefore an urgent need for research into the development of recoverable stunning methods that effectively stun birds of all sizes, strains, and ages, and remove the need for live shackling and inversion pre-slaughter.

Islamic scholars and Halal certification bodies should also be consulted to ascertain whether simple stunning by gas methods would be accepted in Halal production. If simple stunning via gas methods were considered suitable for Halal production (ie. deliver a recoverable stun), consideration should then be given to amending legislation to permit simple stunning by gas methods. This would enable the complete phasing out of electrical-waterbath stunning and remove the need for live shackling and inversion.

Any consideration of amending legislation to permit simple stunning by gas methods must accurately determine the maximum end of exposure to sticking interval to prevent the potential for recovery of consciousness before sticking, as well as assessing the logistical changes, and potential impact on animal welfare, that may be required to implement this in abattoirs.

Recommendation 41: Electrical-waterbath stunning should be gradually phased out and the meat industry should move towards recoverable stunning methods that immediately and effectively stun birds of all sizes, strains, and ages, and remove the need for live shackling and inversion pre-slaughter.

Recommendation 42: There is an urgent need for research into the development of recoverable stunning methods that effectively stun birds of all sizes, strains, and ages, and remove the need for live shackling and inversion pre-slaughter.

BVA policy position on the welfare of animals at slaughter

Recommendation 43: Islamic scholars and Halal certification bodies should also be consulted to ascertain whether simple stunning by gas methods would be accepted in Halal production (ie. deliver a recoverable stun). If recoverable stunning via gas methods were considered suitable for Halal production, consideration should also be given to amending legislation to permit simple stunning by gas methods.

Alternative methods for effective stunning of poultry

We are also aware of several alternative methods for stunning poultry that address some of the welfare concerns that arise from electrical-waterbath stunning.

Individual constant-current electrical stunning

The [Dutch Vision](#) head-only simple electrical stunner for broilers individually exposes birds to a constant current that renders birds immediately unconscious, and follows this with a low constant current to reduce wing flapping and extend the period of unconsciousness. The stun is delivered to shackled and inverted birds using two head electrodes. While the electrodes are in place, the current is measured and the voltage can be adjusted. Exiting currents are measured and recorded 10 times per second for each bird, which provides an overview of the stunning parameters for inspection by OVs. Any birds that have received an ineffective stun are immediately directed to an electrical-waterbath stunner receive a second stun, however we note there is a considerable time delay before poultry enter the waterbath stunner.

Evidence suggests this method can deliver an effective stun¹⁴¹, however we recognise this method still presents welfare concerns in its use of live shackling and inversion, as well as the fact that it has no immediate method of dispatch for animals that do not receive an effective stun.

While we consider that Dutch Vision represents an improvement to electrical-waterbath stunning in terms of its ability to deliver an effective stun, additional electrical stunning techniques that immediately and reliably stun birds of all sizes, strains, and ages, while minimising handling and restraint, should be developed. In developing new electrical stunning methods for poultry there should be further research into:

- electrical pathways through birds in relation to system design and the requirements of an effective stun;
- high frequency AC and pulsed DC systems, which should be assessed to determine the optimum combination of current and frequency to stun birds of all sizes, strains and ages effectively; and
- electrical stunning systems which address the concerns of variable current and reduce the need for inversion and live shackling.

Recommendation 44: There should be further research into the following areas to inform the development of new electrical stunning methods for poultry:

- **Electrical pathways through birds in relation to system design and the requirements of an effective stun;**
- **High frequency AC and pulsed DC should be assessed to determine the optimum combination of current and frequency to stun birds of all sizes, strains and ages effectively; and**
- **Electrical stunning systems which address the concerns of variable current and reduce the need for inversion and live shackling.**

Gas methods

Stunning by exposure to gas mixtures reduces the need for pre-slaughter handling, live shackling and inversion, as well as removing the risk of pre-stun shocks or ineffective stuns associated with electrical-waterbath stunning. We are aware that the LINCO gas stunning system, Anglia Autoflow,

¹⁴¹ Gerritzen, Marien & Hattum, Theo & Reimert, Henry., 2015. Efficacy of the Dutch Vision high-low electrical head-only poultry stunner. 10.13140/RG.2.1.2174.3767.

Stork and Meyn, and the Marel Atlas system are currently being used to stun poultry at plants in the UK.

We would welcome further scientific evidence to demonstrate the point at which birds are rendered unconscious before exposure to aversive concentrations of carbon dioxide in the LINCO gas stunning system. We note the FAWC observation that while the LINCO gas stunning system¹⁴² represents an improvement on electrical-waterbath stunning for the aforementioned reasons, there is a lack of scientific data to demonstrate at what point birds are rendered unconscious before exposure to the more aversive 40% carbon dioxide concentrations.

Recommendation 45: There should be further research to determine at what point birds are rendered unconscious before exposure to aversive concentrations of carbon dioxide in the LINCO gas stunning system.

Low Atmospheric Pressure Stunning (LAPS)

LAPS stuns birds by gradually reducing the atmospheric pressure, consequently reducing the amount of oxygen available for birds to breathe. The EFSA opinion on LAPS in broiler chickens concluded that it provides “a level of animal welfare at least equivalent to that provided by at least one of the currently allowed methods” eg. Electrical-waterbath stunning or gas methods.¹⁴³

However, we note this opinion applies specifically to broiler chickens weighing less than 4kg, and there are knowledge gaps with regards to the effect of expansion of gases in body cavities, extent of expansion and potential for aversion. Further research should therefore be undertaken into the effects of LAPS on different sized birds, different species, potential for aversion, and the effect of gas expansion in body cavities before it is widely used as a stunning method for poultry or game in the UK.

Recommendation 46: There should be further research into the effects of LAPS on different sized birds, different species, potential for aversion, and the effect of gas expansion in body cavities before it is widely used as a stunning method for poultry or game in the UK.

Horses

We support the use of a free-bullet firearm or captive-bolt stunner as effective methods of stunning horses. It is important to remember that horses will differ in shape and size and have different experiences of handling. Methods of stunning should therefore be adaptive to allow for these variations, ensuring that high welfare is maintained, and stunning is effective.

Free-bullet firearms

The use of free-bullet firearms is a quick and effective method of stunning horses. FAWC described horses slaughtered in this manner as having been ‘despatched in a calm, unrushed manner’.¹⁴⁴ The effectiveness of free-bullet firearms depends on the skill of the user, position of the shot, and correct ammunition. In addition, the use of free-bullet firearms allows for alteration of the angle of shot where necessary with simple hand movements. However, it is important to recognise that the use of firearms in enclosed spaces may present a safety risk due to the risk of ricochet from free bullets if the bullet exits the animal and ricochets off enclosure walls towards the operator. Therefore, when used in an enclosed space additional safety precautions are required and the use of ammunition that reduces the risk of exit of the bullet should be encouraged.

Captive-bolt stunning in horses

¹⁴² Where birds are lowered into a tunnel and gradually exposed to an increased concentration of carbon dioxide increasing from 5 to 50%

¹⁴³ EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare), 2017. Scientific Opinion on the low atmospheric pressure system for stunning broiler chickens. *EFSA Journal* 2017;15(12):5056, 86 pp. <https://doi.org/10.2903/j.efsa.2017.5056>

¹⁴⁴ FAWC, 2003. FAWC Report on the welfare of farmed animals at slaughter or killing part one: Red meat. Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/325241/FAWC_report_on_the_welfare_of_farmed_animals_at_slaughter_or_killing_part_one_red_meat_animals.pdf

Captive-bolt stunning of horses is generally accepted as an effective stunning method, provided there are appropriate facilities for restraint and operators are confident in handling horses. The effectiveness of captive-bolt stunning in horses also depends on maintenance of the gun, shot positioning, angle, bolt diameter, bolt velocity and physiology of individual animals. Pithing is permitted in horses and can be used to ensure rapid death after captive-bolt use.

Research and development of stunning methods for horses

As most slaughter practices for horses have been carried over from other species, we would support further research into the overall welfare implications of the use of captive-bolt as a stunning method for horses, including the most effective style of equipment, use of the correct powerload (charge) and size of cartridge

Recommendation 47: There should be further research into the overall welfare implications of the use of captive-bolt as a stunning method in horses, including the most effective style of equipment, charge and size of cartridge.

We do not support the development of electrical stunning methods for horses. We are concerned that the development and use of electrical stunning methods would increase the need for handling and active restraint of horses to ensure effective stun application, which could result in increased stressors for horses.

Potential end-of-life welfare benefits

In the UK horses are generally not farmed for meat and most owners sign their horses out of the food chain due to humane slaughter not being considered as an end-of-life option. While the decision to permanently sign horses out of the food chain enables a wider choice of medicines throughout the horse's life, it limits end-of-life options and applies to all future owners if the horse is sold. However, a study conducted by University of Bristol and World Horse Welfare found that delayed euthanasia was one of four key welfare challenges for horses in the UK, with financial considerations cited by some as a reason for delay.¹⁴⁵ A recent article in the Vet Record estimated that the cost of horse euthanasia and carcase disposal can be at least £500, whereas an abattoir could pay an owner around £400 for their horse to be humanely slaughtered and enter the food chain.

To improve end-of-life welfare for horses, we would therefore encourage veterinary surgeons to be aware of the implications of signing a horse out of the food chain, and discuss all end-of-life options for horses with their clients, including the effectiveness of humane slaughter methods that are available for horses in authorised UK abattoirs and carcase disposal.

Recommendation 48: Veterinary surgeons should be able to explain the implications of permanently signing horses out of the food chain, and discuss all end-of-life options for horses with their clients, including the effectiveness of humane slaughter methods that are available for horses in UK abattoirs and carcase disposal.

Deer

We similarly support the use of a free-bullet firearm or captive-bolt as effective methods of stunning deer. Pithing is permitted in deer and can be used to ensure rapid death after captive-bolt use.

Research and development of stunning methods for deer

As above, we do not support the development of electrical stunning methods for deer. As with horses, we share concerns that the development and use of electrical stunning methods would increase the need for handling and active restraint of deer to ensure effective stun application, which could result in increased stressors for deer as prey animals.

Farmed fish

We support the FAWC recommendation that “all farmed fish should be stunned before killing, whether or not death accompanies the stun (as in stun/kill methods) or when death follows some short time after the stun but before the fish has the time to regain consciousness.”

¹⁴⁵ Horseman, S, Whay, B, Mullan, S, Knowles, T, Barr, A & Buller, H, 2016, 'Horses in our Hands'. World Horse Welfare. Available at: https://storage.googleapis.com/stateless-whwwwp-screenbeetle-c/2019/09/14b98a4b-horses-in-our-hands_august-2016.pdf

In the UK aquaculture industry percussive stunning is used to stun larger trout and salmon, and electrical stunning is usually employed for smaller fish. When used as per the key parameters and conditions as set out in Tables 1-6 of the [FAWC Opinion on the Welfare of Farmed Fish](#), we consider these methods will deliver an effective stun.

Automated percussive stunning systems are now widely used in Scottish salmon farming operations. These systems, when properly maintained and monitored, are considered humane and effective. However, it is important that such systems have staff in place to check and manually stun and bleed any fish not effectively stunned by the automatic system.

However, EC Regulation 1099/2009 and UK Welfare of Animals at the Time of Killing regulations do not identify permitted or prohibited methods of farmed fish slaughter and do not require fish to be stunned before slaughter. This means methods of slaughter that are not considered to be humane and do not deliver an effective stun are still permitted, including:

- leaving fish to asphyxiate or bleed to death without prior stunning;
- killing in carbon dioxide saturated water; and
- killing by rapid chilling.

As FAWC outlines¹⁴⁶, these methods are not considered humane methods of slaughter and should not be used. Consequently, the UK governments should include the stunning of farmed fish (including detailed requirements of key parameters), alongside general welfare protections at slaughter, in UK Welfare of Animals at the Time of Killing regulations.

However, despite the omission of stunning farmed fish before slaughter in EU and UK welfare legislation, it is important to recognise that humane stunning methods are widely employed by the UK aquaculture industry due to the good uptake of industry-led codes of practice and assurance scheme standards to protect fish welfare at slaughter.

Recommendation 49: The UK governments should include the stunning of farmed fish (including detailed requirements of key parameters), alongside general welfare protections at slaughter, in UK Welfare of Animals at the Time of Killing regulations.

Cleaner fish

The welfare of cleaner fish should also be considered as part of the overall picture of fish welfare at slaughter. A large number of cleaner fish, principally Lumpfish and Ballan Wrasse, are now being farmed to provide ectoparasite control on salmon farms. These cleaner fish are not slaughtered to enter the food chain. Culling, at the end of their working lives, is generally by anaesthetic overdose via a bath (immerse fish until death), although percussive stunning of individuals is also practised. We consider these methods of culling to be humane.

Wild-caught fish in commercial fisheries

At present, EC Regulation 1099/2009 and UK Welfare of Animals at the Time of Killing regulations do not cover wild-caught fish in commercial fisheries. It is therefore legal to leave a significant period between capture and slaughter, which can result in unnecessary suffering

Evidence indicates that wild-caught fish (cod, haddock, dab, plaice) may remain conscious and therefore experience significant suffering for long periods during on-board storage.¹⁴⁷ As sentient

¹⁴⁶ FAWC, 2014. Opinion on the welfare of farmed fish at the time of killing. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/319331/Opinion_on_the_welfare_of_farmed_fish_at_the_time_of_killing.pdf

¹⁴⁷ E. Lambooj, H. Digre, H.G.M. Reimert, I.G. Aursand, L. Grimsmo, J.W. van de Vis., 2012. Effects of on-board storage and electrical stunning of wild cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*) on brain and heart activity, Fisheries Research, Volumes 127–128, 2012, pp. 1-8. Available at: <https://doi.org/10.1016/j.fishres.2012.04.004>.

animals, like farmed fish, we support the principle that wild-caught fish in commercial fisheries should be stunned and immediately slaughtered as soon as possible after capture.

To achieve this, there should be further research to develop effective, humane and commercially viable methods of stunning for wild-caught fish.

We note that existing research suggests that cod and haddock can be humanely killed with a 52 V_{RMS} dry stun lasting **over 3 seconds** and followed immediately by bleeding, and dab and plaice can be humanely killed with a longer dry stun (**15 seconds**) followed immediately by normal slaughter processing (bleeding and then chilling).¹⁴⁸

In addition, [HSA has recently closed its call for research to conduct a Systematic Review and Feasibility Study into Stunning or Killing of Wild-Caught Fish in Commercial Fisheries](#) and we look forward to seeing the results of this review. The aim of this research is to investigate the feasibility of the development and use of methods of humane stunning or stun/killing for wild-caught fish in order to minimise pain or distress in wild-capture commercial fisheries.

Recommendation 50: There should be further research to develop effective, humane and commercially viable methods of stunning for wild-caught fish.

Recommendation 51: Once effective, humane and commercially viable methods of stunning wild-caught fish are developed, the UK governments should include the stunning of wild-caught fish in commercial fisheries alongside general welfare protections at slaughter in UK Welfare of Animals at the Time of Killing regulations.

¹⁴⁸ E. Lambooj, H. Digre, H.G.M. Reimert, I.G. Aursand, L. Grimsno, J.W. van de Vis,, 2012. Effects of on-board storage and electrical stunning of wild cod (*Gadus morhua*) and haddock (*Melanogrammus aeglefinus*) on brain and heart activity, Fisheries Research, Volumes 127–128, 2012, pp. 1-8. Available at: <https://doi.org/10.1016/j.fishres.2012.04.004>.

Commercially caught decapods and cephalopods

Evidence indicates that decapods (eg lobsters, crabs) and cephalopods (eg octopus, squid) are sentient, and experience pain and distress.^{149, 150, 151, 152, 153, 154, 155, 156} We therefore support the principle that commercially caught decapods and cephalopods should be stunned before slaughter.

At present, EC Regulation 1099/2009 and UK Welfare of Animals at the Time of Killing regulations do not cover decapods or cephalopods. It is therefore legal to slaughter these animals (particularly decapods) without first rendering them insensible to pain and with methods that are likely to cause pain and suffering^{157,158}. Such methods include:

- Placing live decapods in cold water and heating the water to boiling point.
- Placing live decapods into hot or boiling water.
- Placing live marine decapods in fresh water and drowning
- Live carving and dismemberment

Electrical stunning of decapods may represent an effective, humane and commercially viable option for stunning decapods in restaurants or commercial slaughter processing plants. Scientific evidence suggests that electrical stunning is an effective stunning method^{159,160,161, 162}; however, we note that further research on electrical methods is needed to indicate the minimum effective parameters for different types and sizes of decapods.

We would also welcome the development of effective, humane and commercially viable methods of stunning cephalopods before slaughter. We are aware that the [Humane Slaughter Association \(HSA\) is making over £1.7 million available to support scientific research to improve the welfare of farmed finfish, decapod crustaceans and/or cephalopods during slaughter](#), and look forward to the results of this research.

Recommendation 52: There should be further research into electrical stunning methods to determine the minimum effective parameters for different types and sizes of decapods.

¹⁴⁹European Food Safety Authority, 2005. [EFSA “Opinion on the “Aspects of the biology and welfare of animals used for experimental and other scientific purposes”](#) Available at:

https://ec.europa.eu/environment/chemicals/lab_animals/pdf/efsa_opinion.pdf

¹⁵⁰ Barr, S., Laming, P. R., Dick, J. T. A., & Elwood, R. W., 2008. Nociception or pain in a decapod crustacean? *Animal Behaviour*, 75(3), 745–751.

¹⁵¹ Elwood, R., 2012. Evidence for pain in decapod crustaceans. *Animal Welfare*, 21(1), 23–27.

¹⁵² Elwood, R. W., & Appel, M., 2009. Pain experience in hermit crabs? *Animal Behaviour*, 77(5), 1243–12

¹⁵³ Magee, B., & Elwood, R. W., 2013. Shock avoidance by discrimination learning in the shore crab (*Carcinus maenas*) is consistent with a key criterion for pain. *Journal of Experimental Biology*, 216 (3), 353-358.

¹⁵⁴ Magee, B., & Elwood, R. W., 2016. Trade-offs between predator avoidance and electric shock avoidance in hermit crabs demonstrate a non-reflexive response to noxious stimuli consistent with prediction of pain. *Behavioural Processes*, 130, 31-35.

¹⁵⁵ Sneddon, L. U., 2004. Evolution of nociception in vertebrates: Comparative analysis of lower vertebrates. *Brain Research Reviews*, 46 (2), 123–130

¹⁵⁶ Sneddon, L. U., 2015. Pain in aquatic animals. *The Journal of experimental biology*, 218 (7), 967-976.

¹⁵⁷ In 2005 the [EFSA “Opinion on the “Aspects of the biology and welfare of animals used for experimental and other scientific purposes”](#) identified these methods as ‘likely to cause pain and distress’ to decapods and cephalopods.

¹⁵⁸ Roth, B., & Øines, S., 2010. Stunning and killing of edible crabs (*Cancer pagurus*). *Animal Welfare*, 19(3), 287-294.

¹⁵⁹ Albalat, A., Gornik, S., Theethakaew, C., & Neil, D., 2008. Evaluation of the quality of Langoustines after being killed by the Crustastun. *University of Glasgow*. Available at: <http://eprints.gla.ac.uk/81427/>

¹⁶⁰ Fregin, T., & Bickmeyer, U., 2016. Electrophysiological investigation of different methods of anesthesia in lobster and crayfish. *PloS one*, 11(9), e0162894.

¹⁶¹ Neil, D., 2010. The effect of the Crustastun on nerve activity in crabs and lobsters. Available at: <http://eprints.gla.ac.uk/81428/>

¹⁶² Roth, B., & Grimsbø, E., 2013. Electrical Stunning of Edible Crabs. Available at: <https://www.nofima.no/filearchive/Rapport%2018-2013.pdf>,

Recommendation 53: There should be further research to develop effective, humane and commercially viable methods of stunning cephalopods.

Recommendation 54: Once effective, humane and commercially viable methods of stunning decapods and cephalopods are developed, the UK governments should include the stunning of commercially caught decapods and cephalopods alongside general welfare protections at slaughter in UK Welfare of Animals at the Time of Killing regulations.

Rabbits

The number of rabbits killed commercially for human consumption in the UK is small. At the time of writing, the FSA currently has no slaughter premises approved to slaughter rabbits. We are aware there are a number of holdings with less than 100 rabbits registered with APHA, which may kill a low throughput of these rabbits on-farm under a WATOK licence.

There appears to be a disparity between the quantity of rabbit meat sold in the UK each year (understood to be c.200-300 tonnes) and the fact there does not appear to be a commercial source for production of this quantity of meat in the UK. We would therefore welcome greater clarity on how much rabbit meat the UK imports and countries of origin.

Rabbits slaughtered commercially in the UK are typically stunned using percussive blow stunning, head-only simple electrical stunning or captive-bolt stunning. The [EFSA opinion on stunning methods and slaughter of rabbits for human consumption](#) considers the effectiveness and potential welfare hazards of these methods.

Percussive blow stunning

Under the UK's Welfare of Animals at the Time of Killing regulations, rabbits are the only animals that may be routinely stunned using a non-mechanical percussive blow to the head eg. a manual movement against a hard surface. The regulations state:

Percussive blow to the head

- (1) No person may stun an animal using a non-mechanical percussive blow to the head.
- (2) But the prohibition in sub-paragraph (1) does not apply to rabbits, provided that the operation is carried out in such a way that the rabbit is immediately rendered unconscious and remains so until it is dead

However, the effectiveness of a non-mechanical percussive blow stun, relies on the consistent, accurate and effective delivery of the blow from the operator. We therefore question whether this method is consistently capable of delivering an 'firm and accurate blow' as described by (EC) 1099/2009, Annex 1), and, in turn, an effective stun.

To reduce the potential for ineffective stunning via this method, the Schedule 1 of the UK's Welfare of Animals at the Time of Killing regulations should be amended to include rabbits in the prohibition of routine stunning an animal with a non-mechanical percussive blow to the head.

Recommendation 55: Schedule 1 of the UK's Welfare of Animals at the Time of Killing regulations should be amended to include rabbits in the prohibition of routine stunning of an animal with a non-mechanical percussive blow to the head.

Head-only simple electrical stunning

The effectiveness of head-only electrical stunning in rabbits is dependent on the skill of the operator in positioning the electrodes accurately, the delivery of sufficient current to render the animal unconscious, as well as design of the electrodes and restraint system.¹⁶³

¹⁶³ European Food Safety Authority (EFSA), 2020. Opinion on stunning methods and slaughter of rabbits for human consumption. Available at:

http://www.efsa.europa.eu/en/efsajournal/pub/5927?utm_source=EFSA+Newsletters&utm_campaign=aedbdea1f0-EMAIL_ALERTS_ANIMAL_HEALTH_AND_WELFARE&utm_medium=email&utm_term=0_7ea646dd1d-aedbdea1f0-63628029

We note that the effectiveness of head-only stunning in rabbits may be hindered by fur on the rabbit's head which may increase electrical resistance. EFSA state that wetting of rabbits' heads with a damp sponge will help to overcome this issue.

To ensure the rabbit receives sufficient current we support the parameters and restraint methods that are set out in the [EFSA opinion on stunning methods and slaughter of rabbits for human consumption](#).

“Research has shown that a minimum of 100 volts delivered using a 50 Hz sine wave alternating current for one-second resulted in an average current of 140 mA and is sufficient to induce unconsciousness and prevent recovery of consciousness, provided the stun-to-stick interval is less than 10 seconds.”^{164,165}

Captive-bolt stunning

Both penetrative and non-penetrative captive-bolt methods can be used in rabbits. The effectiveness of captive-bolt stunning in rabbits depends on maintenance of the gun, shot positioning, angle, bolt diameter, and anatomy and physiology of individual animals (eg age or breed).¹⁶⁶

For penetrative captive-bolt stunning, penetration depth is also crucial to ensure that the brain stem (which regulates cardiovascular activity and breathing) receives sufficient impact to induce unconsciousness. The European Commission recommends a minimum bolt diameter of 6mm to achieve this.^{167,168} If a repeat stun is required, EFSA recommends using electrical methods, as it would be difficult to know where to repeat the shot on the damaged skull.¹⁶⁹

However, there is a paucity of data to demonstrate the minimum effective parameters and indicators of consciousness for non-penetrative captive-bolt methods. Research was carried out in 2017 to determine the appropriate shooting position and required airline pressure for a commercially available non-penetrative captive-bolt device. The results of this research indicated that the appropriate pressure to deliver an effective stun was 621 kPa (90 psi) for adult rabbits (> 12 weeks old), 483 kPa (70 psi) for growers (6–12 weeks old), and 379 kPa (55 psi) for pre-weaned kits (150 g and larger, ≤ 5 weeks old). A minimum pressure of 345 kPa (50 psi) was needed for the device to discharge.¹⁷⁰

We would therefore welcome additional research to support these findings and establish minimum effective parameters and indicators of consciousness¹⁷¹ for captive-bolt use in rabbits.

Recommendation 56: There should be additional research to establish minimum effective parameters and indicators of consciousness for captive-bolt use in rabbits.

¹⁶⁴ Anil MH, Raj ABM and McKinstry JL, 1998. Electrical stunning in commercial rabbits: effective currents, spontaneous physical activity and reflex behaviour. *Meat Science*, 48, 21–28.

¹⁶⁵ Anil MH, Raj ABM and McKinstry JL, 2000. Evaluation of electrical stunning in commercial rabbits: effect on brain function. *Meat Science*, 54, 217–220.

¹⁶⁶ EFSA (European Food Safety Authority), 2005. The Impact of the current housing and husbandry systems on the health and welfare of farmed domestic rabbits. *EFSA Journal* 2005;3(10):267, 140 pp. <https://doi.org/10.2903/j.efsa.2005.267>

¹⁶⁷ European Commission, 2017. Preparation of best practices on the protection of animals at the time of killing. Available online: <https://publications.europa.eu/en/publication-detail/-/publication/ea4ef3e9-cda5-11e7-a5d5-01aa75ed71a1/language-en#>

¹⁶⁸ European Commission, 2018. How to stun/kill rabbits on-farm – Factsheet. Available online: https://ec.europa.eu/food/animals/welfare/practice/slaughter/2018-factsheets_en

¹⁶⁹ EFSA, 2020. [EFSA opinion on stunning methods and slaughter of rabbits for human consumption](#).

¹⁷⁰ Walsh J, Percival A and Turner PJA, 2017. Efficacy of blunt force trauma, a novel mechanical cervical dislocation device, and a non-penetrating captive bolt device for on-farm euthanasia of pre-weaned kits, growers, and adult commercial meat rabbits. *Animals*, 7, 100

¹⁷¹ Ibid.

Non-stun slaughter, improved regulation, and the acceptance of stunning

Derogation to permit non-stun slaughter

While it is a statutory requirement for all animals to be effectively stunned before slaughter in the UK, EU Council Regulation (EC) No 1099/2009 on the Protection of Animals at the Time of Killing allows Member States to apply a derogation to permit slaughter without stunning for slaughter in accordance with religious rites. The UK administrations apply this derogation in their Welfare of Animals at the Time of Killing regulations and permit non-stun slaughter when animals are killed by the Jewish method (Shechita) for the food of Jews by a Jew who is licensed by the Rabbinical Commission and holds a certificate for that purpose, or by the Muslim method (Halal) for the food of Muslims by a Muslim who holds a certificate for that purpose.

This derogation only applies to the legal requirement for animals to be stunned before slaughter. For all other slaughter operations, animals slaughtered in accordance with religious rites must comply with requirements to protect animal health and welfare as set out in the UK Welfare of Animals at the Time of Killing regulations.

Improved regulation of non-stun slaughter

Ultimately, we would like to see an end to all non-stun slaughter. However, where non-stun slaughter is permitted, the supply of meat from non-stunned animals should meet the demand of the religious communities the derogation in UK legislation is intended to serve. This can be achieved through improved regulation of non-stun slaughter.

Countries across Europe¹⁷² have taken a range of approaches to regulating non-stun slaughter, including:

- **Removing the derogation in legislation which permits non-stun slaughter in accordance with religious rites (ie. prohibiting non-stun slaughter).** We note this approach may result in legal challenges to determine whether this approach would be in accordance with religious freedoms¹⁷³. It may also result in an increase in the importation of meat from animals that have not been stunned before slaughter.
- **Tightening the derogation that permits non-stun slaughter** - to ensure the supply of meat from non-stunned animals only meets the demand of the religious communities the derogation is intended to serve. eg. prohibiting the export of meat from animals that have not been stunned before slaughter; requiring Food Business Operators to obtain a permit or seek the pertinent permission of the competent authority before performing non-stun slaughter, where they must demonstrate that non-stun slaughter is necessary to meet the needs of relevant domestic religious communities.
- **Implementing mandatory post-cut stunning** where animals are not stunned to offer a means of reducing the suffering of animals by rendering them unconscious shortly after the initial neck cut.

¹⁷² The Law Library of Congress, 2019. Legal Restrictions on Religious Slaughter in Europe .Available at: <https://www.loc.gov/law/help/religious-slaughter/europe.php>

¹⁷³ It is important to note that following the prohibition of non-stun slaughter in some regions of Flanders and Wallonia in Belgium, Jewish and Muslim organisations, including the Comité de Coordination des Organisations Juives de Belgique (CCOJB) and the Exécutif des Musulmans de Belgique, filed a petition with the Belgium Constitutional Court in November 2017 to annul decrees banning slaughter without prior stunning. Belgium's Constitutional Court has now referred the case to the European Court of Justice to verify the legality of the ban in relation to European law. The European Court of Justice has been asked to consider:

- If it is in accordance with EU regulation that member states can introduce a general ban and slaughter without stunning?
- If so, is this in accordance with freedom of religion?
- Whether it is discriminatory for member states to ban slaughter without stunning, while at the same time they allow the killing of animals without stunning when hunting, fishing or in cultural events?

Having considered these different approaches, we recommend the UK governments should introduce a non-stun permit system to ensure the number of animals slaughtered without prior stunning does not exceed the demand of the UK's religious communities. This model is currently successfully employed in Germany and Austria.¹⁷⁴

To perform non-stun slaughter, Food Business Operators (FBOs) would need to apply to the competent authority for a non-stun permit, providing evidence of:

- the domestic market the meat is intended to serve eg, a request from a retailer for a certain number of carcasses for domestic consumption;
- the number of animals proposed to be slaughtered without prior stunning; and
- proof that staff meet the necessary level of competence to slaughter animals in line with UK Welfare at the Time of Killing regulations eg. Certificates of Competence.

When ruminants are not pre-stunned, immediate post-cut stunning offers a means of reducing the suffering of animals by rendering them unconscious shortly after the initial neck cut. The non-stun permit should therefore also stipulate the application of an immediate post-cut stun after the initial neck cut.

Meat and meat products from animals slaughtered under a non-stun permit should also be clearly labelled. This would enable informed choice and transparent information about the provenance of such food for all consumers.

Recommendation 57: While our long-term aim is to move towards an end to non-stun, the UK governments should introduce a non-stun permit system to ensure that the number of animals slaughtered without prior stunning does not exceed the relevant demand of the UK's religious communities.

Similarly, exporting meat from animals that have not been stunned before slaughter is not in the spirit of the derogation which is intended to serve the UK's religious communities. As part of improved regulation, the export of such meat should be prohibited by law.

Recommendation 58: The export of meat from animals that have not been stunned before slaughter should be prohibited by law.

Acceptance of stunning

The Jewish certification authorities do not accept stunning during Shechita slaughter and it is exclusively non-stun for terrestrial animals.¹⁷⁵ However, some Muslim certification authorities permit Halal-compatible pre-slaughter stunning during Halal slaughter, in fact, the majority of Halal meat produced in the UK is from pre-stunned animals.^{176,177}

There is debate amongst Islamic scholars as to whether the stunning of animals before slaughter can be considered Halal ie. permissible for consumption by Muslims, or whether pre-slaughter stunning kills the animal and renders the meat carrion, the consumption of which is prohibited in Islam (see Quran 5:3). Meat is considered carrion when an animal has died by means other than exsanguination and without the proper religious slaughter procedure eg. dying of natural cause, a blow to the head, suffocation or dying violently. Other reservations relate to concerns that stunning may result in reduced blood loss post-stunning and concerns that ineffective stunning may result in unnecessary pain, distress or suffering for animals.

¹⁷⁴ The Law Library of Congress, 2019. Legal Restrictions on Religious Slaughter in Europe .Available at: <https://www.loc.gov/law/help/religious-slaughter/europe.php>

¹⁷⁵ For more detailed information on the motivations for non-stun slaughter, and animal welfare considerations in Judaism please consult [Shechita UK](#)

¹⁷⁶ Defra and Welsh Government, 2018. [Results of the 2018 FSA Survey into Slaughter Methods in England and Wales commissioned by Defra and the Welsh Government](#). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/778588/slaughter-method-survey-2018.pdf

¹⁷⁷ For more detailed information on the motivations for non-stun slaughter, and animal welfare considerations in Islam please consult [Masri, A.H.B.A, 2007. Animal Welfare in Islam. Islamic Foundation: Leicester, UK.](#)

For meat to be considered Halal, Islamic scholars must therefore be satisfied that the animal is alive at the point of slaughter and that the stunning method does not cause death. In the UK there are differences of opinion between Islamic scholars and, in turn, Halal certification bodies as to whether they will accept pre-slaughter stunning. Depending on the stunning method, species being stunned and stunning parameters, some scholars interpret the pre-slaughter stunning process as killing the animal before exsanguination, therefore rendering the meat carrion, meaning that stunning is not acceptable for Halal production. However, other scholars may accept pre-slaughter stunning if they consider that it meets Halal criteria. Where Islamic scholars and Halal certification bodies do accept stunning, only methods that deliver an effective recoverable stun are accepted, ie. a stunning method that renders the animal unconscious and insensible to pain but does not kill the animal before neck cutting.

Electrical head-only simple stunning is the most acceptable method by the majority of proponents of Halal stunning, however, Malaysia and member states of the Gulf Cooperation Countries (ie. Saudi Arabia, UAE, Bahrain, Kuwait, Oman and Qatar) currently approve non-penetrative captive bolt stunning in addition to electrical head-only simple stunning (non-penetrative captive bolt stunning is only permitted in UK legislation for ruminants at less than 10kg liveweight).

Research published in 2017 found that “many Islamic scholars and Halal consumers would regard pre-stunned animals as Halal if there were some level of assurance that the type of stunning used did not cause their death before the Halal cut is made.”¹⁷⁸ In the study, over 95% of UK Islamic scholars that were surveyed indicated that stunning would be Halal-compliant if it could be shown that the procedure did not result in death. The research concludes that:

“There is an urgent need for stakeholders in the meat industry to involve Islamic scholars in research on pre-slaughter stunning to enable them to make informed decisions about the aspects of stunning that continue to divide opinions of the scholars.”

We strongly support this recommendation. To potentially increase the number of animals stunned before slaughter, it is extremely important that new recoverable stunning methods are developed for all species in consultation with Islamic scholars and Halal certification bodies to ensure they meet Halal criteria.

We are aware of several stunning methods that are currently being developed to improve animal welfare and deliver a recoverable stun so they meet Halal criteria. For example, Single Pulse Ultra-High current (SPUC), is being developed to deliver an effective recoverable stun and therefore may meet Halal criteria. The method uses high voltage electrical parameters to disrupt normal brain function by opening up pores in the neural membrane, in turn inducing unconsciousness in the animal. In addition, Compassion in World Farming (CiWF) is working with the Royal Veterinary College (RVC) to develop an effective broiler stunning method. The project is focusing on four main areas: live bird handling; electrode design; constant current or voltage; as well as electrical stun parameters that ensure an effective stun that meets Halal criteria.

Recommendation 59: Recoverable stunning methods should be developed in consultation with Islamic scholars and Halal certification bodies to ensure that they meet Halal criteria and potentially increase the numbers of animals that are stunned before slaughter .

Fuseini’s 2017 research also highlighted that:

“There is an urgent need for these scholars to be given theoretical and practical education on stunning and other modern slaughter techniques such as mechanical slaughter, this will help them make informed decisions about the suitability of these techniques for Halal production.”

As leaders in animal health and welfare, the veterinary profession has a key role to play in sharing evidence-based information on stunning methods and animal welfare with all stakeholders, including Islamic scholars and Halal certification bodies, to promote the acceptability of stunning in Halal production.

¹⁷⁸ Fuseini, A., Wotton, S., Hadley, P. J., and Knowles, T. G., 2017. The perception and acceptability of pre-slaughter and post-slaughter stunning for Halal production: The views of UK Islamic scholars and Halal consumers. *Meat Science*, 123, 143–150. Available at: <https://doi.org/10.1016/j.meatsci.2016.09.013>

We would also welcome the opportunity to work collaboratively with the meat industry, farmers' unions, UK governments, Islamic scholars and Halal certification bodies to develop and implement a quality assurance framework for Muslim consumers. The framework should certify specific recoverable stunning methods to confirm that these methods do not result in death before the point of exsanguination. A similar framework has been successfully implemented in New Zealand and provides assurances that recoverable stunning does not result in death for small ruminants.¹⁷⁹ This protocol allows New Zealand's competent authority to demonstrate that after a head-only simple stun has been applied the sheep or goat remains unconscious (and insensible to pain), but is able to demonstrate indicators of life, such as rhythmic breathing and an audible heartbeat.

Any UK assurance framework of this kind would require robust ethical and legal consultation before it is progressed and implemented. It would also require strict control through a clearly defined protocol that stipulates acceptable indicators of life (that pose no welfare compromise), frequency of use, number of animals to be used, persons to be present, as well as veterinary oversight through the competent authority. The use of video footage to help support the protocol in its aim of providing assurance, and ultimately help reduce frequency of use of the protocol, should also be considered as part of any proposals. Further, the presence of prominent Islamic scholars may be useful in disseminating results of the demonstration to other scholars thereby reducing the frequency of demonstration.

Recommendation 60: The veterinary profession should engage positively with all stakeholders, including Islamic scholars and Halal certification bodies, to provide evidence-based information on stunning methods and animal welfare, and promote the acceptability of stunning in Halal production.

Recommendation 61: The veterinary profession should work collaboratively with the meat industry, farmers unions, UK governments, Islamic scholars and Halal certification bodies to develop and implement a quality assurance framework for Muslim consumers that certifies specific recoverable stunning methods.

¹⁷⁹ Fuseini, A., Knowles, TG., 2020. The ethics of Halal meat consumption: preferences of consumers in England according to the method of slaughter. *Veterinary Record* 186, 644. Available at: <https://veterinaryrecord.bmj.com/content/186/19/644>

Consumer education and food labelling

Directing consumers towards higher welfare products

Consumers have a right to understand the provenance of the food they are purchasing and make an informed choice as to how to direct their spend towards higher animal health and welfare products, based on their own ethical and budgetary priorities.

The veterinary profession has a key role to play by informing and educating all members of the public with regard to the value and provenance of animal-derived food. We therefore encourage consumers to purchase farm-assured produce that guarantees animal-derived products have met independently certified animal health and welfare standards at each stage of the supply chain, including welfare at slaughter and pre-slaughter stunning.

As part of this, we recognise we have a responsibility to assist members to understand different farm assurance schemes and to signpost the public, in a professional and ethically justifiable way, towards those that promote higher animal health and welfare. We have therefore produced a [position on the value of UK farm assurance schemes](#) and a [supporting #ChooseAssured: UK Farm Assurance schemes infographic](#), which sets out BVA priorities for farm animal welfare and shows if these are addressed in different UK farm assurance scheme standards.

Recommendation 62: The veterinary profession should continue to promote the benefits of properly valuing meat and meat products, where quality encompasses good animal health and welfare, including welfare at slaughter and pre-slaughter stunning.

Recommendation 63: The veterinary profession should continue to encourage farm assured produce that guarantees animal-derived products have met independently certified animal health and welfare standards at each stage of the supply chain, including welfare at slaughter and pre-slaughter stunning.

Labelling of non-stun meat

We are concerned that meat from animals that have not been stunned before slaughter is being supplied without specific, transparent labelling. For example, in the [Results of the 2018 FSA Survey into Slaughter Methods in England and Wales commissioned by Defra and the Welsh Government](#), the survey asked for the destination of the hind quarters (a prime part of the carcass) of Shechita slaughtered animals. However, this question was not mandatory and very few slaughterhouses responded. The end destination of hindquarters from the majority of Shechita-slaughtered animals is therefore unknown, meaning that the meat from some animals that have not been stunned before slaughter may be entering the market for wider consumption.

Supplying non-stun meat for wider consumption is not in the spirit of the derogation that permits non-stun slaughter, which is only intended to serve the UK's religious communities.

As part of encouraging consumers, as citizens, to exercise informed choice over the animal-derived products they purchase, we therefore support the principle of clearly labelling meat and meat products from animals that have not been stunned before slaughter, with the information readily available to those who want it. Any proposed system of slaughter labelling would need wider consultation with industry, key stakeholders, and consumers before it is implemented.

At present, consumers are able to identify whether animal-derived products have met certain animal health and welfare standards across the supply chain (including whether animals have been stunned before slaughter) by looking for farm quality assurance marks such as Red Tractor, Quality Meat Scotland (QMS), Soil Association, or RSPCA Assured. While these farm quality assurance marks enable consumers for whom pre-slaughter stunning is a priority to identify pre-stunned products, to further simplify the decision-making process for all, consumers should be confident the meat they are purchasing has been stunned before slaughter unless stated otherwise. Any meat or meat products

BVA policy position on the welfare of animals at slaughter

from animals that have not been stunned before slaughter must therefore be clearly labelled to enable all customers to make informed purchasing choices.

Recommendation 64: Meat and meat products from animals that have not been stunned before slaughter should be clearly labelled so that consumers can make informed purchasing choices, with the information readily available to those who want it. Any proposed system of slaughter labelling would need wider consultation with industry, key stakeholders, and consumers before it is implemented.

Public service procurement

Further, as it is a statutory requirement for all animals to be effectively stunned before slaughter in the UK, public services (eg. schools, hospitals, government workplaces) should only procure meat and meat products from animals that have been stunned before slaughter, unless there is a specific request to meet the needs of the UK's religious communities (as per the derogation for slaughter in accordance with religious rites).

When providing food and drink, all government departments and their related organisations must make sure they meet the minimum mandatory [Government Buying Standards \(GBS\) for food and catering services, including animal welfare standards](#). The wider public sector is also strongly encouraged to specify the minimum mandatory standards in tenders.

At present, the minimum mandatory standards state that "All food served must be produced in a way that meets UK legislative standards for animal welfare, or equivalent standards", however the standards do not specify that all meat must come from animals that have been stunned before slaughter, unless slaughtered under the derogation for slaughter in accordance with religious rites. Consequently, it is possible for public services to procure meat from animals that have not been stunned before slaughter for wider consumption, which is not in the spirit of the derogation. Therefore, there is an opportunity to specify that all meat must be from animals that have been stunned before slaughter within these minimum mandatory standards. The only exception to this should be if there is a specific request to meet the needs of the UK's religious communities (as per the spirit of the derogation) and there should be a mechanism to permit this. Any meat from animals that have not been stunned before slaughter must be clearly designated as such, on the menu and in accompanying literature, in the spirit of GBS standards on specifying the origin of meat and meat products.

Recommendation 65: Public services should only procure meat and meat products from animals that have been stunned before slaughter, unless there is a specific request to meet the needs of a specified UK religious community (as per the derogation).

Recommendation 66: The Government Buying Standards (GBS) for food and catering services should be amended to include a specific standard that specifies that all meat and meat products must be from animals that have been stunned before slaughter, unless there is a specific request to meet the needs of the UK's religious communities (as per the derogation).

Recommendation 67: Where public services procure meat and meat products from animals that have not been stunned before slaughter to meet the needs of the UK's religious communities, it should be clearly labelled as such on the menu and in any accompanying literature.

Annex A – Glossary of terms

Abattoir/ Slaughterhouse	any establishment used for slaughtering terrestrial animals which falls within the scope of Regulation (EC) No 853/2004.
Competent authority	the central authority competent to ensure compliance with the requirements of the law or any other authority to which that central authority has delegated that competence;
Crowding	Crowding is the term given to the process in which the area available to the fish is reduced, usually in order to facilitate the removal of fish from the pond or cage.
Distress	We recognise that ‘stress’ and ‘distress’ can often be used interchangeably and their use is widely debated within animal welfare science literature. ^{180, 181} Based on the terminology used in UK Welfare of Animals at the Time of Killing regulations and EC 1099/2009 on the protection of animals at the time of killing, for the purposes of this position we use the term ‘distress’ throughout.
Farm Animal Welfare Committee (FAWC)	FAWC advised the Department for Environment, Food and Rural Affairs (Defra) and the devolved administrations in Scotland and Wales on the welfare of farmed animals. FAWC was renamed to Animal Welfare Committee (AWC) on 1 October 2019.
Food Business Operator (FBOs)	any natural or legal person having under its control an undertaking carrying out the killing of animals or any related operations falling within the scope of this Regulation.
Harvest station	establishment used for slaughtering fish.
Harvesting	Killing of fish, can often be split into five stages: grading, fasting, crowding, transport and killing.
Lairage	stalls, pens, covered areas or fields associated with or part of slaughterhouse operations used to keep animals.
Pithing	Physical destruction of the brain to ensure rapid death following captive-bolt stunning. Pithing involves inserting a flexible wire or polypropylene rod through the hole in the head made by a penetrative captive-bolt. The rod is then thrust towards the tail through the brain to the level of the brainstem and, if it is long enough, into the spinal cord. It is then slid back and forth to cause maximum damage to the brain and upper spinal cord. ¹⁸²
Recoverable stun	A recoverable stun renders the animal unconscious and insensible to pain but does not kill the animal before neck cutting. Recoverable stunning gives confidence that the animal is not dead at the point of slaughter as it would fully recover should bleeding not occur to elicit brain death.
Religious rite	a series of acts related to the slaughter of animals and prescribed by a religion;
Restraint	the application to an animal of any procedure designed to restrict its movements sparing any avoidable pain, fear or agitation in order to facilitate effective stunning and killing.
Shackling	suspending upside down by inserting both legs into metal shackles.
Simple stun and stun	The BVA position will refer to stun terminology that is used in legislation (EC 1099/2009 Article 4). ‘Simple stun’ to refer to a stun that does not result in instantaneous death, and ‘stun’ for a stun that results in instantaneous death.

Slaughter	killing of animals intended for human consumption (for purposes of this position, animals killed in slaughterhouses or harvesting stations).
Sticking	Sticking involves the severing of major blood vessels e.g. neck cutting or chest sticking. The stun-stick interval should be sufficiently short to induce death through blood loss without recovery.
Stunning	any intentionally induced process which causes loss of consciousness and sensibility without pain, including any process resulting in instantaneous death.

¹⁸⁰ Broom, Donald & Johnson, Ken., 2019. Stress and Animal Welfare: Key Issues in the Biology of Humans and Other Animals. 10.1007/978-3-030-32153-6.

¹⁸¹ Appleby, M, 2018. Animal Welfare, 3rd Edition. Cabi Publishing.

¹⁸² Humane Slaughter Association (HSA). Pithing. Available at: <https://www.hsa.org.uk/bleeding-and-pithing/pithing>

Annex B – Useful guidance documents to promote positive animal welfare during the slaughter process

All those involved in the handling of animals during the slaughter process should familiarise themselves with, and adhere to, best practice to promote positive animal welfare.

<p>Transport guidance</p>	<ul style="list-style-type: none"> • Defra Welfare of animals during transport: Guidance on implementation in the United Kingdom • Practical Guidelines to Assess Fitness for Transport of Equidae • European Commission Animal Transport guides (for sheep, cattle, poultry, pigs and horses) • Defra has also published species-specific guidance to supplement these general rules, including: <ul style="list-style-type: none"> - Transporting horses and ponies - Transporting cattle - Transporting pigs - Transporting sheep - Transporting goats - Transporting poultry • Humane Slaughter Association <ul style="list-style-type: none"> - Transport of farm animals and horses - Transport of poultry
<p>Handling operations guidance</p>	<ul style="list-style-type: none"> • Defra Red meat slaughterhouses (including horses): unloading, handling and holding animals • Defra Red meat slaughterhouses (including horses): restraining, stunning, killing animals • Defra White meat slaughterhouses: unloading, handling and holding, restraining, stunning, killing • European Commission fact sheets on handling and restraining livestock • European Commission loading and unloading, handling guidance (for sheep, cattle, poultry, pigs and horses) • HSA guidance on the Humane Handling of Livestock • HSA guidance on the catching and handling of poultry (including turkeys) • FSA Best Practice Guidelines for group stunning systems (5.8 MB PDF) • Temple Grandin – principles of low stress restraint • HSA guidance on humane harvesting of farmed fish, • RSPCA Assured standards for salmon and trout • The Code of Good Practice from Scottish Finfish Aquaculture
<p>Facilities guidance (handling facilities, lairage design, raceway design, restraining equipment)</p>	<ul style="list-style-type: none"> • Temple Grandin – design of restraint systems • Temple Grandin - Livestock Handling Systems, Cattle Corrals, Stockyards, Lairages and Races • Temple Grandin – Non-stick flooring for livestock handling • HSA guidance on the Humane Handling of Livestock • HSA Humane Handline of Livestock Design Checklist for food business operators who are thinking about designing or improving facilities and detailed guidance on handling facilities and lairage design

<p>Harvesting of fish guidance</p>	<ul style="list-style-type: none"> • Humane Slaughter Association guidance on the Humane Harvesting of Fish • RSPCA Assured standards for salmon and trout • The Code of Good Practice from Scottish Finfish Aquaculture
<p>Effective stun application guidance</p>	<ul style="list-style-type: none"> • BMPA Good practice guide to welfare at slaughter • BPC guidance for poultry • BMPA guidance on the carbon dioxide stunning of pigs • Humane Slaughter Association: <ul style="list-style-type: none"> - Captive-bolt stunning of livestock - Electrical stunning of red meat animals - Electrical-waterbath stunning of poultry • EFSA Preparation of best practices on the protection of animals at the time of killing • EFSA factsheets on stunning, checking for consciousness across species • EFSA Monitoring slaughter for bovines (including toolboxes of welfare indicators) • EFSA Monitoring slaughter for sheep and goats (including toolboxes of welfare indicators) • EFSA Monitoring slaughter for poultry (including toolboxes of welfare indicators) • EFSA Monitoring slaughter for pigs (including toolboxes of welfare indicators) • EFSA opinion on stunning methods and slaughter of rabbits for human consumption. • FAWC reports on welfare at the time of killing • EUWelNet Standard operating procedures (SOPs) for the waterbath stunning of poultry and the valid and reliable assessment of unconsciousness following mechanical stunning in bovines, electrical stunning in ovines, water bath electrical stunning in poultry and gas stunning in pigs.

Annex C - BVA Position on the welfare of livestock during transport

Movement of animals is an intrinsic part of livestock¹⁸³ keeping, production and distribution of genetics to provide the stock necessary to feed the rest of the world.¹⁸⁴ The scale will vary widely from local area movements, to pastures, markets, new premises to those of greater distance such as regional, national and long-distance international moves.

Any movement of animals will have a potential impact on their health and welfare. Whatever the type and scale of movement, the welfare of animals must be prioritised with the aim of reducing the impact of the movement as far as is reasonably possible.

In order to achieve this, all those involved with moving animals must understand what is required of them in law, receive certified training and be encouraged to follow sector-specific good practice guidelines.

Wherever possible, and paying due regard to scientific evidence regarding the relationship between journey times and welfare outcomes, animals to be slaughtered for food should be slaughtered as close to the point of production as possible.¹⁸⁵¹⁸⁶¹⁸⁷¹⁸⁸ No animal should be knowingly exported to a destination with unknown welfare standards or exported then raised in systems banned in this country due to welfare considerations. Neither should animal product from such animals be re-imported.

BVA supports current legal requirements (European Community Regulation 1/2005 and the UK Welfare of Animals (Transport) Orders¹⁸⁹¹⁹⁰ and Regulations¹⁹¹¹⁹²) that are in force to protect the health and welfare of livestock during transport.¹⁹³ It is essential that there are a well-defined set of animal health welfare standards that must be met for the **entirety** of the journey of animals being transported in this country and abroad. These minimum standards should be the same for all animals no matter the purpose of the export (for example if it is for breeding or fattening), in line with current legislation.

¹⁸³ For the purposes of this position statement the term 'livestock' is understood to include food producing animals and equidae.

¹⁸⁴ In the poultry sector live chicks are exported, then reared and slaughtered in other countries. Whilst it is paramount that high welfare destination conditions are ensured for these chicks, it is also important to recognise that the exporting of these chicks is an important practice to ensure that countries can trade excess and deficit stock numbers to manage oversupply and ultimately avoid the destruction of chicks from breeding lines that have no market in this country.

In addition, in the poultry sector day-old chicks are able to survive on their yolk sac reserves to support them during the first 72 hours of life.¹⁸⁴ Therefore, they may be more amenable to transport with the provision of appropriate environmental controls as opposed to adult animals where transport can be a more significant risk to stress, health and welfare.

Further, the UK is a centre of excellence in respect of poultry genetics and pedigree stock, ensuring the provision of genetics to feed the world – valuable both in terms of production and in terms of human and animal health.

¹⁸⁵ Defra: Transcontinental road transport of breeder pigs - effects of hot climates

¹⁸⁶ Defra: Epidemiological study to identify acceptable maximum journey lengths for pigs whilst maintaining welfare

¹⁸⁷ Defra: Review to appraise the evidence for acceptable temperature envelopes for horses, sheep, pigs, cattle and goats during transport

¹⁸⁸ Mitchell, M.A. & Kettlewell, P.J.(2008) Engineering and design of vehicles for long distance road transport of livestock (ruminants, pigs and poultry). *Veterinaria Italiana*, 44 (1), 197:209

¹⁸⁹ [The Welfare of Animals \(Transport\) \(England\) Order 2006](#)

¹⁹⁰ [The Welfare of Animals \(Transport\) \(Wales\) Order 2007](#)

¹⁹¹ [The Welfare of Animals \(Transport\) \(Scotland\) Regulations 2006](#)

¹⁹² [The Welfare of Animals \(Transport\) Regulations \(Northern Ireland\) 2006](#)

¹⁹³ As set out in *Welfare of Animals During Transport: Guidance on implementation in the United Kingdom: The EU Regulation does not apply to the transport of animals when this is not in connection with an economic activity or to the transport of non-vertebrate animals. Non-vertebrates are animals such as insects, worms, crustaceans (e.g. crab, lobster), cephalopods (e.g. octopus, squid) and molluscs (e.g. shellfish, snails). However, a general duty of care provision protecting non-vertebrates and animals involved in non-commercial movements from injury or unnecessary suffering is included in domestic legislation (Article 4 of WATEO 2006 and parallel legislation in Scotland, Wales and Northern Ireland). **Anyone transporting animals must ensure that they are transported in conditions suitable for the species concerned.***

BVA welcomes legislative improvements to safeguard the welfare of animals during transport. Any improvements should be evidence-based and informed by a welfare outcomes approach. However, it is important to emphasise, that any legislative improvements are only beneficial if they are effectively enforced.

To build on existing legal requirements, our specific recommendations to improve the health and welfare of livestock during transport are set out below:

Recommendation 1: In order to improve welfare outcomes before, during and after transport, the implementation of current legal requirements (European Community Regulation 1/2005 and the UK Welfare of Animals (Transport) Orders¹⁹⁴¹⁹⁵ and Regulations¹⁹⁶¹⁹⁷) should be improved to ensure that requirements relating to appropriate transport conditions and fitness to travel of animals are adequately enforced.

Recommendation 2: Any legislative improvements to safeguard the welfare of animals during transport must be evidence-based and informed by a welfare outcomes approach.

Recommendation 3: Any proposals to improve welfare during transport should consider all forms of transport and address the issue of welfare before, during and after journeys.

Recommendation 4: Any proposals to improve welfare during transport must give due consideration to how improvements would work for all of the UK administrations and the impact of unintended consequences on animal welfare and industry across the UK.

Recommendation 5: The welfare of 'registered' horses which are not 'high performance' horses, and therefore may not be afforded an adequate level of care, should be protected.

Recommendation 6: When considering legislative improvements to safeguard the welfare of animals during transport, consideration should be given as to how to address all determinants of potential welfare compromise. These may be complex and potentially conflicting.

Recommendation 7: Consideration should be given to the complex species-specific requirements for transport design, vehicle condition and hygiene, as well as stocking density to achieve optimal health and welfare outcomes. We strongly support the implementation of recommendations regarding improvements to the quality of transport vehicles as set out in the [2011 EFSA Scientific Opinion concerning the welfare of animals during transport](#).

Recommendation 8: All drivers and farmers intending to transport livestock in connection with an economic activity must receive certified training (as is already required of hauliers), with sound knowledge of how aspects of driving can directly impact on the welfare of animals being transported. This may be linked to a future system of public money for public goods.

Recommendation 9: Attendants at rest points should have similar responsibility for the animals under their care as hauliers and should have received appropriate certified training in animal handling.

Recommendation 10: Appropriate veterinary care must be available at rest points in order to recognise and assess any potential welfare issues, manage any negative welfare outcomes and ensure the provision of emergency slaughter if needed.

Recommendation 11: All drivers and farmers intending to transport livestock in connection with an economic activity must receive certified training on the factors that make an animal fit or unfit for transport. This may be linked to a future system of public money for public goods.

Recommendation 12: The welfare of animals pre-, during and post-transportation should be monitored under the direction of a veterinary surgeon in order to manage any potential negative welfare outcomes. Further consideration should be given to implementing outcomes-

¹⁹⁴ [The Welfare of Animals \(Transport\) \(England\) Order 2006](#)

¹⁹⁵ [The Welfare of Animals \(Transport\) \(Wales\) Order 2007](#)

¹⁹⁶ [The Welfare of Animals \(Transport\) \(Scotland\) Regulations 2006](#)

¹⁹⁷ [The Welfare of Animals \(Transport\) Regulations \(Northern Ireland\) 2006](#)

based approaches to measure animal welfare during transport eg. sensors to measure temperature, exact timings and animal welfare indicators.

Recommendation 13: Animals should not be exported to countries for non-stun slaughter. BVA is clear in its [view that all animals should be stunned before slaughter to render them insensible to pain.](#)

Recommendation 14: Wherever possible, and paying due regard to scientific evidence regarding the relationship between journey times and welfare outcomes, animals to be slaughtered for food should be slaughtered as close to the point of production as possible.

Recommendation 15: No animal should be exported to a destination with unknown welfare standards or exported, then raised in systems banned in this country due to welfare considerations. Neither should animal product from such animals be re-imported.

Recommendation 16: Consideration should be given to providing more opportunities for farm animal slaughter as close to the point of production as possible with appropriate animal health and welfare safeguards.