

SLAUGHTER

BACKGROUND

The slaughter of farmed animals usually involves the killing of animals intended for human consumption, although 'emergency killing' and killing of surplus animals also takes place. In commercialised settings, slaughter usually takes place in specialised slaughterhouses that slaughter large numbers of animals each day (a high throughput poultry abattoir may kill up to 9,000 animals per hour). In less commercial settings, animals may be slaughtered on farm (some welfare standards stipulate animals should be slaughtered on farm to remove the stress of transport). In 2007, over 54 billion poultry and almost 2.5 billion mammals (pigs, goats, sheep, cattle and buffalo) were slaughtered for meat worldwide. In the UK, this amounted to more than 800 million meat chickens, 9 million pigs and 2.6 million cattle. These figures do not take into account emergency killing of sick or injured animals (hundreds of thousands of turkeys in the UK alone were slaughtered in 2007 due to the avian flu virus) or the killing of surplus animals such as male chicks and calves in the egg and dairy industry respectively.

LEGISLATION

The World Organisation for Animal Health (OIE) has set international guidelines on welfare at slaughter that deal with standards of pre-slaughter lairage and handling, methods of restraint, stunning and slaughter. The EU and US have standards covering the same issues and both require pre-slaughter stunning, although Muslim (halal) and Jewish (shechita) slaughter is normally exempt from this requirement and the US Act does not stipulate standards for poultry.

METHODS

Pre-slaughter stunning is required in many developed countries to ensure the animal is unconscious prior to killing. The usual methods are:

Electrical stunning electrodes are placed across the animal's brain and a current is applied for a few seconds. This is mainly used for sheep and for pigs, although can also be used for calves and cattle. (Electrical stun-killing is sometimes used where the heart is stopped.)

Captive bolt stunning uses a gun-like device to deliver a blow to the animal's head, which may penetrate the skull. This method is mainly used for adult cattle but can also be used for adult pigs, sheep and calves.

Waterbath electrical stunning is used for poultry; conscious birds are hung by their feet from metal shackles, which form one electrode, on a conveyor belt. Their heads are then dipped into an electrified water bath.

Gas stunning or stunkilling (mainly carbon dioxide, CO₂): used for pigs, poultry and fish.

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Bleeding involves the cutting of at least one carotid artery. The new EU regulations on the protection of animals at the time of slaughter [Council Regulation (EC) 1099/2009] stipulate that both carotid arteries must be severed- this reduces the time to loss of sensibility; with the exception of religious slaughter this is usually post-stunning. Animals must be inverted for blood to drain - inversion occurs pre-stunning in poultry and rabbits and post-stunning in mammals (usually a legal requirement). For fish this involves the cutting of gills.

Controlled atmosphere killing exposes animals to gas mixtures that lead to suffocation (this method is used to stun in some countries, but in the UK it must lead to death). This method is used for pigs and poultry. Mixtures of carbon dioxide, argon and/or nitrogen are usually used.

Mechanical destruction is used for killing unwanted male chicks and involves a roller device carrying blades or projections - it must be instantaneous. Gas killing may also be used.

Neck dislocation can be used for the emergency slaughter of poultry on-farm.

Shooting is utilised for emergency on-farm slaughter of larger animals and may be used to kill deer in the field.

Suffocation in air is used routinely for killing fish, sometimes on ice. Shutting down ventilation in poultry sheds is permitted for disease control and leads to suffocation and/or heat exhaustion and death.

Percussive stunning of fish involves hitting over the head with a rapidly moving object; this can be manual, semi- or fully-automatic.

WELFARE ISSUES

The best slaughterhouses can provide a high standard of welfare. However, billions of animals each year are at risk of suffering if slaughter is not carried out humanely and according to standards of best practice. Scientific evidence shows that some commonly accepted and legal practices are in fact inhumane. The main problems include:

Handling and moving animals

Rough or incompetent handling, slippery floors, noise and unsuitable building layout can cause fear, distress and injury before slaughter. Restraint of animals for stunning (or for slaughter if there is no stunning) can cause fear and pain. There are instances of inhumane handling of casualty animals that are unloaded at slaughterhouses but are unable to walk. Investigations have revealed instances of severe cruelty in animal handling at slaughterhouses, in both developed and developing countries. This is sometimes the result of lack of knowledge or training, but it is sometimes deliberate.

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Effectiveness of stunning

If the stunning device is incorrectly used or malfunctions, the animal will be caused pain and fear but not stunned and will have to be stunned again. If stunning is ineffective, animals will be conscious when their carotids are cut, or regain consciousness during bleeding before they die. US auditors reported in 2004 that 'hundreds of thousands of animals were not stunned on the first try' in US slaughterhouses. Animals that are not stunned can be conscious after neck-cutting for up to 20 seconds for sheep, 25 seconds for pigs, 2 minutes for cattle, 2.5 minutes for poultry and 15 minutes for fish, according to the European Food Safety Authority (EFSA). Pre-stunning shocks pose a concern in poultry, where the dipping of feathers into the waterbath creates small shocks unable to effectively stun, causing prolonged suffering.

Time between stunning and bleeding (stun-to-stick)

If there is a delay between stunning and neck-cutting, the animal may regain consciousness before or during bleeding. According to EFSA: 'The rapid decrease in blood pressure which follows the blood loss is readily detected by the conscious animal and elicits fear and panic'. Recent evidence shows that the incision itself causes considerable pain. The UK's Farm Animal Welfare Council believes the maximum legal stun-to-stick interval should be 15 seconds to avoid this danger.

Bleeding

If loss of blood is not rapid enough, there is a danger that the animal regains consciousness and suffers pain and distress. Current EU law does not require more than one carotid artery to be cut. A legal requirement to cut both carotids would speed bleed-out and reduce the risk of suffering. Ventral neck incision has been shown to illicit pain in conscious animals, bleeding without stunning is therefore considered to be a painful procedure.

Gas stunning/killing using CO₂

Gas stunning has the potential advantage that it can minimise the stress and possible injury from handling and restraint. But research shows that stunning with high concentrations of CO₂ is a serious welfare problem in itself because animals (including pigs, poultry and fish) find it aversive (i.e. breathing the gas is unpleasant and distressing). Many experts believe that CO₂ stunning should not be used for this reason. Inert gas mixtures, including argon and nitrogen can reduce aversiveness.

Poultry slaughter methods

Pre-stun shackling is known to cause distress and pain to poultry, especially in larger birds whose legs may be crushed. In addition, a significant proportion of birds (amounting to many millions of birds in total) miss the waterbath because they are small or struggling. As a result they are still conscious when their necks are cut. There are two common methods of on-farm killing (neck dislocation and decapitation) which do not cause immediate unconsciousness and should not be used without pre-stunning, according to the European Food Standards Authority (EFSA).

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Fish slaughter methods

Removal from water is highly aversive to fish. Suffocation in air can take up to 9 minutes to result in loss of consciousness, and time to death is prolonged at cooler temperatures, i.e. by suffocating on ice. Fish may cease to move before they have lost consciousness which could lead to them being eviscerated whilst still conscious. The Scientific Panel for Animal Health and Welfare (2004) report that there are 'no welfare advantages' of methods of killing without stunning for fish; they suggest that percussive stunning can provide a humane and efficient method if carried out effectively.

Large and high-throughput slaughterhouses

When large numbers of animals are being slaughtered and processed at high speed, there is a potential for welfare problems to be unnoticed and workers can become too tired to make welfare a priority.

Inspection and enforcement

Globally, regulations on animal welfare at slaughter are too often ignored and slaughter personnel are poorly trained. Many, or even most, countries fail adequately to inspect slaughterhouses and to enforce the law sufficiently rigorously. Investigations continue to reveal illegal and inhumane practices.

IMPROVING ANIMAL WELFARE AT SLAUGHTER

Welfare at slaughter could be much improved by significant international investment in training, equipment, buildings, inspection, enforcement and auditing of standards and progress, with the aim of enabling most countries to meet OIE standards. In addition, scientific evidence and opinion that some existing practices cause suffering should be acted upon urgently by reforming or prohibiting those practices. For example, the use of CO₂ for gas stunning/killing should be prohibited and replaced with other non-aversive gases, such as nitrogen or argon; suffocation on ice should also be prohibited for fish.

Slaughtering animals close to their place of rearing rather than transporting them long distance to slaughterhouses would also much reduce stress and potential suffering. Some welfare assurance schemes insist that transport times to slaughter are limited.

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RECOMMENDATIONS

You can help to improve the welfare of animals at slaughter in a number of ways:

- ✓ Write, email or call your local newspaper, radio and TV station to ask them to inform the public about the welfare problems associated with slaughter. Explain that we could prevent millions of animals suffering fear and pain by ensuring that all slaughterhouses follow best practice, and by enforcing the law strictly.
- ✓ Contact your local meat retailers and ask them what arrangements they have to audit the welfare at slaughter of the animals that provide their meat.
- ✓ If your local retailers sell farmed fish, ask them to ensure that their suppliers use humane methods to slaughter the fish.
- ✓ For the UK, you can get further information on the policies of the major supermarkets on all animal products from Compassion in World Farming's supermarket survey and Guide to Good Food Shopping ciwf.org.uk/supermarkets

SELECTED SOURCES AND FURTHER READING

OIE Guidelines for the Slaughter of Animals. Terrestrial Animal Health Code 2007 3.7.5.1

http://www.oie.int/eng/normes/Mcode/en_chapitre_3.7.5.htm

Farm Animal Welfare Council (2003) *Report on the welfare of farmed animals at slaughter or killing. Part 1: Red meat animals*, FAWC, London. <http://www.fawc.org.uk/reports/pb8347.pdf>

EFSA (2004) Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to welfare aspects of the main systems of stunning and killing the main commercial species of animals, *The EFSA Journal*, **45**: 1-29.

http://www.efsa.europa.eu/cs/BlobServer/Scientific_Opinion/opinion_ahaw_02_ej45_stunning_en.pdf?ssbinary=true

Council Regulation (EC) N° 1099/2009 of 24 September 2009 on the protection of animals at the time of killing. European Commission. http://ec.europa.eu/food/animal/welfare/slaughter/regulation_1099_2009_en.pdf

United States General Accounting Office. Report to Congressional Requesters. Humane Methods of Slaughter Act. USDA has addressed some problems but still faces enforcement challenges. January 2004.

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Gibson, T. J., Johnson, C. B., Murrell, J. C., Hulls, M., Mitchinson, S L., Stafford, K. J., Johnstone, A. C. and Mellor, D. J. (2009) Electroencephalographic responses of halothane-anaesthetised calves to slaughter by ventral-neck incision without prior stunning, *New Zealand Veterinary Journal*, **52**: 77-83.