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Dear Sue,

Cattle inversion for religious slaughter[1]

Introduction

Defra has asked FAWC for advice on rotating crates for use in the religious slaughter of cattle without pre-stunning. This advice was researched and prepared by the Welfare at Killing Standing Committee.

There is a particular concern about cattle because of the vertebral arteries, which cannot be cut during religious slaughter, prolonging consciousness. There is also much concern for slaughtering any animal that is conscious; tight restraint is always required for religious slaughter.

Current UK regulations (1995) require that killing of cattle by religious slaughter is done in the upright position only:

> *"no person shall slaughter, or cause or permit to be slaughtered, any bovine animal in a slaughterhouse by a religious method unless the animal is in an upright position in a restraining pen which has been approved by the Minister and which the Minister is satisfied has been installed in such a manner as to ensure that it will operate efficiently."* (Para 3(1) Part II, Schedule 12, Welfare of Animals (Slaughter or Killing Regulations, 1995)

However, a recent EU Regulation 1099/2009 on the protection of animals at the time of killing (Article 15) states:

> *"Systems restraining bovine animals by inversion or any unnatural position shall not be used except in the case of animals slaughtered in accordance with Article 4(4) and provided that they are fitted with a device that restricts both the lateral and vertical movement of the head of the animal and are adjustable to be adapted to the size of the animal."*

[1] More properly termed ' slaughter without pre-stunning'

This article could be used to justify calls for a return to the permitted use of inversion for bovine religious slaughter in the UK when the new legislation comes into force in January 2013. While Article 26 of the EU Regulation permits "stricter national rules" over and above the provisions of 1099/2009 for the slaughtering and related operations of animals in accordance with Article 4(4) – which refers to religious slaughter practices – authorisation of stricter national rules needs to be justified.

The new EU Regulation includes a reporting requirement under Article 27 which may trigger changes to the above:

> *"No later than 8 December 2012, the Commission shall submit to the European Parliament and to the Council a report on systems restraining bovine animals by inversion or any unnatural position. This report shall be based on the results of a scientific study[2] comparing these systems to the ones maintaining bovines in the upright position and shall take into account animal welfare aspects as well as the socioeconomic implications, including their acceptability by the religious communities and the safety of operators. This report shall, if appropriate, be accompanied by legislative proposals with a view to amending this Regulation concerning the systems restraining bovine animals by inversion or any unnatural position."*

FAWC has considered the following aspects of cattle inversion at slaughter:

- *The extent of current inversion practice at slaughter*
- *The welfare aspects of inversion at slaughter*
- *The ethical issues associated with inversion both with respect to animal suffering and the efficacy of slaughter*
- *The extent to which cattle inversion is practiced in routine bovine husbandry*.

Extent of current inversion practice at slaughter

To what extent are cattle inversion techniques, such as the use of the Weinberg Pen, and the North British, Dyne and Facomia pens currently used within Europe and elsewhere? In the UK, FAWC recommended in 1985 that the use of rotary pens for religious slaughter "should be prohibited at the end of the next two years". Government accepted this recommendation and today, upright slaughter is the only permitted method in the UK (FAWC, 2003). There is no new scientific evidence that would change the case that cattle should not be inverted for slaughter.

An EFSA Report of 2004 states (page 25):

> *"Cattle and calves are restrained either in an upright position in the so-called Cincinnati pen or ASPCA pen or turned on their side or back in rotary casting pens of the Weinberg, Dyne or North British type (Anil and Sheard, 1994; Dunn, 1990; and HSA, 1993). In some member states the use of the Weinberg pen (rotating cattle on their backs) is forbidden (Danish legislation)."*

[2] FAWC acknowledges the EU Commission's call for tenders for this study and hopes that this, and any further advice from FAWC, will inform the study. (http://ec.europa.eu/food/animal/welfare/financing/index_en.htm)

From Grandin (undated), it would appear that Weinberg pens are still employed in certain US abattoirs, though Rollin suggests that their use is principally in Europe (Rollin, 2003, p. 70).

In France, Article R. 214-70 of the Code Rural permits certain derogations for religious slaughter. Hence a '*box rotatif*' (e.g. Facomia) is widely used in religious slaughter of cattle. It inverts the animal by a full 180º before the neck is cut (without pre-stunning).

In Australia, the Primary Industries Standing Committee (2002) suggests that "Rotating type" boxes used in the past for religious slaughter are not recommended "as they may distress the animal before it is slaughtered" (PISC, 2002, paragraph 2.6.1.5). However, Australian LiveCorp restraining boxes (the first generation of which are known as 'Mark 1' boxes) have been used in Indonesia on the significant numbers of Australian cattle exported there for slaughter. Although these boxes do not fully invert the animal, but tilt them to a horizontal position, their use has been strongly criticised by the Australian RSPCA for their welfare implications (see below) despite the introduction of subsequent models - up to and including the 'Mark 4' box intended to reduce welfare problems (Meat and Livestock Australia, 2011).

Finally, it is worth noting that inversion or rotation prior to slaughter are not specifically ruled out by OIE Guidelines or prohibited by the new EU Regulation. However, the EU has recently funded the DIALREL project which has looked, amongst other things, into inversion of cattle. Their report states that:

> *"In cattle, the use of an upright pen can reduce the duration of restraint required until neck cutting is applied and allows the animal to be slaughtered in a natural standing position. However, this position may require greater skill in achieving an appropriate cut and managing the post-cut period."*
>
> *"In cattle, a rotatable restraint might facilitate neck cutting. However, this type of restraint may lead to increased stress. Dorsal recumbency (animal turned on the back) is an unnatural posture and might also cause discomfort (Holleben et al. 2011, p. 22)"*

Welfare implications of inversion

There is significant scientific evidence of the negative welfare implications of inversion in a rotary casting pen of cattle prior to religious slaughter compared with upright slaughter. Grandin, in particular, has written a number of papers in which she argues that animal rotation and inversion have clear adverse impacts, maintaining that restraint prior to slaughter is a key area of welfare concern in slaughterhouses (undated; 2009; 2010). Moreover, as the RSPCA argues, *"The level of stress of casting an animal onto its side may be less than full inversion, but the behavioural experience may be similar"* (Jones, 2011). For Grandin and other authors (Dunn, 1990; EFSA 2004b; FAWC 2003; Gracey, 1988) 180º inversion has been identified as a specific source of:

Physiological stress, i.e.

- Inversion stress (Dunn, 1990, Grandin undated; Grandin and Regenstein, 2004);
- Respiratory stress and increased plasma cortisol levels (Tagawa *et al.*, 1994); and

- Hypoxemia (Wagner *et al.*, 1990).

Physical suffering from restraint and inversion, i.e.

- Pain and terror due to the unnatural position (FAWC, 1985);
- Suffering from resisting restraint (Grandin and Regenstein, 2004; Gregory, 2005; von Holleben *et al.*, 2010);
- Injury from lack of suitable restraint (FAWC, 1985);
- Discomfort and stress resulting from prolonged restraint (Dunn, 1990);
- Longer time interval from entering to full restraint, with more vigorous and longer periods of struggling, increased number of vocalisations, more laboured breathing (especially in the inverted position), increased foaming at the mouth and greater serum cortisol concentrations and haematocrit compared to cattle slaughtered in an upright position (Koorts, 1991; Dunn, 1990).
- Increased time from entering pen to full restraint time (reported by DIALREL report veterinary concerns page 24 paragraph 4).

and Additional welfare problems, i.e.

- Inhalation of blood and ingesta (Blokhuis *et al.*, 2004);
- Rumen pressure on diaphragm at full inversion and pressure on internal organs in lateral restraint (Holleben *et al.*, 2010; Petty *et al.*, 1991; Tagawa *et al.*, 1994).

Inversion of cattle is a direct cause of pain, distress and suffering during the animal's killing and related operations. There is little evidence of any welfare advantages of inversion in terms of the speed and efficiency of the cut. Although it has been claimed by some that the angle of the head permits a more effective downward cut when the beast is inverted rather than the upward cut made when an animal is upright (Slaughter of Animals Regulations 1985 – quoted in Dunn 1990), there is no scientific evidence to suggest that such a downward cut is more effective or that the animal in any way benefits from the effectiveness of such a cut in a speedier death or time to unconsciousness. In addition, the animal must be restrained tightly to enable inversion, which imposes additional stresses.

Ethical issues

The ban on inversion in the UK was put into effect for the animal's benefit following scientific evidence that inversion was a significant source of avoidable suffering for cattle (FAWC, 1985). There is no evidence that this conclusion has changed. Indeed, as pre-slaughter stress has grown as a consideration in animal welfare, the disadvantages of rotation have come under further criticism (FAWC 1985). To return to inversion would be to impose avoidable suffering and would be a significant step backwards in the legislative progression of animal welfare concern in the UK. Of course, slaughtermen undertaking religious slaughter should be properly trained in those techniques and suitably effective in the method for which they are licensed, in this case, slaughtering cattle in an upright position. Perception of the upward cut as more difficult to achieve effectively than a downward cut is an argument for better training and not for removing the ban on cattle inversion in UK slaughterhouses.

Cattle inversion in husbandry practice

Some suggest that inversion for slaughter is little different from routine inversion on the farm. There is, however, no scientific evidence to support this suggestion; rather, scientific and experiential evidence suggests that this is not the case. Cattle are only cast on their sides (around 60-90º inversion) for foot trimming and not onto their backs as for neck cutting[3]. It is difficult to conceive of mechanised 180º inversion within a metal box prior to neck cutting as anything other than a substantial source of additional stress for any large (grazing) animal. Restraint methods should minimise stress reactions and suffering, pain and distress.

Although a veterinarian might roll a cow onto her back to treat a displaced abomasum, this is not the same movement as a 180º confined inversion from standing. These animals will already be suffering and the operation is to relieve this.

Advice

FAWC considers that there is consistent scientific evidence of the significant welfare disadvantages of inverting cattle for slaughter. Cattle inversion is a direct cause of avoidable pain, distress and suffering during the animal's killing and related operations. Reinstatement of inversion would represent a major step backwards in legislation to protect cattle and other animals during slaughter.

We strongly recommend that the current UK legislation remain unchanged in this regard so that all cattle killed for human consumption are killed in the upright position only.

We also recommend that close attention be given to the training of slaughtermen practicing slaughter without stunning on cattle (and other species) in the effective delivery of the upward cut to minimise suffering and time to death of the animal.

Yours sincerely

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Chairman, Farm Animal Welfare Committee

cc Private Offices, CVOs, FAWC members and Website

[3] One study by Pesenhofer *et al.* (2006) into methods of fixation during functional claw trimming as a means of addressing lameness in dairy cows compared a walk-in crush with a 90 degree tilt table. They found that animals trimmed in the tilt table had physiological indicators indicative of less stress than those trimmed in a walk-in crush. The walk-in crush produced a higher evasion score and a longer time needed to trim the cattle. Claw trimming is necessary to prevent lameness and has a role in improving welfare of cattle. In order to minimise stress reactions claw trimming must be done carefully and quickly in a suitable environment, hence the tilt table was seen as a better option.

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