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Our ref: RFI 7358  
22 April 2015

Dear [REDACTED]

**REQUEST FOR INFORMATION: FAWC ADVICE ON THE WELFARE OF FARM ANIMALS AT SLAUGHTER – REFERENCES**

Thank you for your request for information, which we received on 12 March 2015, about advice provided by the Farm Animal Welfare Committee, and its predecessor Council (both FAWC), to Defra with regards to Shechita slaughter. As you know, we have handled your request under the Freedom of Information Act 2000 (FOIA). A copy of your request is attached at Annex C.

Our response to each part of your request is as follows (for ease of reference, we have numbered our answers according to the numbers in your request):

- 1: A list of the references used during the preparation of FAWC's Report on the Welfare of Farmed Animals at Slaughter or Killing – Part Two: White Meat Animals is attached at Annex D. This shows that Dr Rosen's Viewpoint Paper in the Veterinary Record – Physiological insights into Shechita (2004) was taken into consideration.
- 2: The list of references at Annex D shows that FAWC did not include findings from Professor Grandin in its considerations during the preparation of this report. This is because Professor Grandin's work focusses mainly on large farmed species rather than poultry.
- 3: Defra does not hold the information requested at 3 of your request. This information is not held by another public authority. FAWC has considered Professor Grandin's research, in the course of preparing recent advice to the current UK government and Devolved Administrations, on non-stun slaughter processes. However, FAWC has not made Defra or the Chief Veterinary Officer aware specifically of Professor Grandin's findings on Shechita as delineated in your request.

In keeping with the spirit and effect of the FOIA and the government's Transparency Agenda, replies to FOIA requests are releasable to the public. Therefore, this letter may now be published on [www.gov.uk](http://www.gov.uk) together with any related information that will provide a key to its wider context. Please note that this will not include information that would identify you.



I attach Annex A, which explains the copyright that applies to the information being released to you.

I also attach Annex B giving contact details should you be unhappy with the service you have received.

If you have any queries about this letter please contact me.

Yours sincerely,

██████████

**Information Rights Team**

[InformationRequests@defra.gsi.gov.uk](mailto:InformationRequests@defra.gsi.gov.uk)

## Annex A

### Copyright

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## Annex B

### Complaints

If you are unhappy with the service you have received in relation to your request you may make a complaint or appeal against our decision under section 17(7) of the FOIA within 40 working days of the date of this letter. Please write to [REDACTED] Head of Information Standards, Area 4D, Nobel House, 17 Smith Square, London, SW1P 3JR (email: [requestforinfo@defra.gsi.gov.uk](mailto:requestforinfo@defra.gsi.gov.uk)) and he will arrange for an internal review of your case. Details of Defra's complaints procedure are on our [website](#).

If you are not content with the outcome of the internal review, section 50 of the FOIA gives you the right to apply directly to the Information Commissioner for a decision. Please note that generally the Information Commissioner cannot make a decision unless you have first exhausted Defra's own complaints procedure. The Information Commissioner can be contacted at:

Information Commissioner's Office  
Wycliffe House  
Water Lane  
Wilmslow  
Cheshire  
SK9 5AF

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## Annex C

Dear FAWC,

1. Paragraph 200 of the FAWC's Report On the Welfare of Farmed Animals at Slaughter or Killing(Part 2: White Meat Animals-May 2009) states; "On the basis of **available evidence**, veterinarians, scientists, and enforcement and animal protection groups **worldwide** consider that animals should be stunned before slaughter". Paragraph 9 of the above mentioned FAWC Publication States-"In making its recommendations, FAWC aims to **consider all relevant views**".

In making the above statement, I ask the FAWC to provide me with **documented proof/evidence/ written FAWC publications** that the FAWC took into account the findings of Dr Stuart Rosen of Imperial College London in his Paper- The Physiological Aspects of Shechita-2004. The Scientific findings in the above mentioned Study concluded that the "Shechita Cut" performed at slaughter was at least as effective a stun as any other form of stunning.

2. The Scientific Findings and conclusions of Professor Dr Temple Grandin, Professor of Animal Science at Colorado State University on this subject are identical to those concluded by Dr Rosen above. Professor Grandin is now Chief Animal Welfare Adviser to The American Meat Institute.

In making the above quoted FAWC statement,please provide me with **documented proof/evidence/ written FAWC publications** that the FAWC took into account the Scientific findings of Professor Grandin who concluded that the "Shechita Cut" performed at slaughter was at least as effective a stun as any other form of stunning, and that the Shechita method was and is as humane as any other form of animal slaughter.

3. Please provide me with **documented proof/evidence/ written FAWC publications** that demonstrate that FAWC is presently or has at any time made DEFRA and The Chief Veterinary Officer aware of Professor Grandins Scientific Findings with regards to the Shechita method as delineated above.

The above requests for information are made to the FAWC under The Freedom of Information Act 2000 and The EIR 2004.

Thank you

■■■■■■ Bsc (Zoology), Msc(Environmental Studies)

## **Annex D**

### **FARM ANIMAL WELFARE COUNCIL – REPORT ON THE WELFARE OF FARMED ANIMALS AT SLAUGHTER OR KILLING – PART TWO: WHITE MEAT ANIMALS**

The Council's advice to the Government is based on a wealth of scientific knowledge and practical experience, not only of its members but also of many within the poultry and its allied industries, scientists, veterinarians and others concerned about poultry welfare.

Whilst the relevant published scientific evidence is always considered in preparing our reports, members of the Slaughter Working Group also witnessed slaughter of poultry by a range of methods, both in this country and overseas, and have received and fully considered extensive written and oral evidence.

#### **LIST OF REFERENCES**

Abeyesinghe SM et al; Controlled atmosphere stunning of broiler chickens. I. Effects on behaviour physiology and meat quality in a pilot scale system at a processing plant. Brit Poultry Scie Vol 48 No 4 Aug 2007 406-423

Anil MH et al; Electrical stunning in Commercial Rabbits: Effective Currents, Spontaneous Physical Activity and Reflex behaviour Meat Sci Vol 48 No ½ 21-28 1998

Anil MH et al; Evaluation of electrical stunning commercial rabbits: effect on brain function. Meat Sci 54 (2000) 217-220

Barnett J L, Cronin G M and Scott P C ; Behavioural responses of poultry during kosher slaughter and their implications for the birds welfare – Vet Record 160, 2, 45-49, 2007

Bedanova I et al; Haematological Profile of Broiler Chickens under Acute Stress Due to Shackling. Acta Vet Brno 2007 76 129-135

Ben Bradshaw MP; Letter of 28 June 2006 to FAWC Chairman requesting advice on ventilation shutdown for killing poultry in extreme disease control situations.

Berry P.S., Meeks I.R., Tinker D.B., Frost A.R.; "Testing the performance of electrical stunning equipment for poultry". The Veterinary Record September 28 2002

Cockram MS ; Criteria and potential reasons for maximum journey times for farm animals destined for slaughter. Appl Anim Behav Sci 106 2007 234-243

Countryfile Sunday 14 December 2003 – Turkey rearing and slaughter in the run up to Christmas (Prof. D Broom and Mr S Lister).

Defra consultation on Disease control protocol for preventative cull powers under Avian Flu and Newcastle Disease outbreaks, Aug 2003.

Defra consultation on amending the Welfare of Animals (Slaughter or Killing ) Regulations 1995 to permit the use of gas outside of a slaughterhouse, 8 June 2006.

Defra Consultation on amending WASK 1995 to permit the use of gas to kill poultry outside of a slaughter house Sept 2006

Defra consultation on the addition of end of lay breeding birds to a WASK amendment on the use of gas outside of the slaughterhouse, 11 October 2006.

Defra news release 15 December 2004 “New regulations laid in Parliament to enhance animal welfare at slaughter and killing”.

Defra R&D future programmes for slaughter (2004)

Defra; the Welfare of Animals (Slaughter or Killing ) Regulations 1995.

Defra; Amendments to WASK 1995 (2003, 2001, 2000 & 1999)

Defra; UK experiences of on-farm killing of Poultry using Gas (Feb 2007)

Defra; The Welfare of Animals (Slaughter or Killing) (amendment)(England) Regulations 2007

European Food Safety Authority (EFSA); Opinion of the Scientific Panel on Animal Health and Welfare related to the welfare aspects of the main systems of stunning and killing the main commercial species of animals. 15 June 2004

EFSA Opinion of the Scientific Panel on Animal Health and Welfare on slaughter of farmed deer, goats, rabbits, ostriches, ducks, geese and quail (2006).

FAWC; Advice to Ministers on the Handling and Transport of Poultry – 1990

FAWC; Letter to Ben Bradshaw on ventilation Shutdown as a killing method for poultry in disease control situations 12 September 2006

FAWC; response to Defra Consultation on the use of gas for killing poultry outside of the slaughterhouse (and the opening of WASK to other gas mixtures for use in the slaughterhouse)  
27 Sept 2006

Farmed Animal Watch internet newsletter November 24, 2005 No. 44 Vol. 5

Food Standards Agency Consultation on the Draft Food Hygiene (England) Regulations 2005 and associated industry guidance.

Food Standards Agency Guidance for local enforcement authorities in England on the private slaughter of livestock. 15 December 2003.

Food Standards Agency; “Farmed Game Slaughtered on Farm” Letter to operators of licensed farmed game handling facilities, 28 Oct 2005

Fuente J. de la, Salazar M.I., Ibanez M. and Gonzalez de Chavarri E. ; “Effects of season and stocking density during transport on live weight and biochemical measurements of stress, dehydration and injury of rabbits at time of slaughter”. Animal Science 2004, 78:285-292

FVO; Final report of an FVO mission carried out in the United Kingdom from 20-29 October 2003

Gentle M.J. and Tilston V.L.; "Nociceptors in the Legs of Poultry: Implications for Potential Pain in Pre-Slaughter Shackling" *Animal Welfare* 2000, 9:227-236

Gerritzen MA et al ; Physiology, Endocrinology, and Reproduction – Susceptibility of Duck and Turkey to Severe Hypercapnic Hypoxia. *2006 Poultry Science* 85, 1055-1061

Gerritzen MA et al ; note on behaviour of poultry exposed to increasing carbon dioxide concentrations. *Appl Anim Behav Scie* 108 2007 179-185

Gerritzen MA ,Sparrey J ; A pilot study to assess whether high expansion CO<sup>2</sup> - enriched foam is acceptable for on-farm emergency killing of poultry. *Animal Welfare*, 17/3 285-288

Gregory N.G.; "Humane Slaughter", Department of meat animal science  
University of Bristol School of veterinary science

Gregory N.G.; "Preslaughter handling, stunning and slaughter". *Meat Science* 36 [1994] 45-56

Gregory N.G.; "Pathology and handling of poultry at the slaughterhouse". *World's Poultry Science Journal*, Vol 50, March 1994

Gregory NG and Wilkins LJ; Effect of slaughter method on bleeding efficiency in chickens. *Journal of Sci Food Agric* 1989 47, 13-20

Gregory N.G., Whittington P.E.; "Inhalation of water during electrical stunning in chickens". *Research in Veterinary Science* [1992] 53:360-362

Gregory NG and Wotton SB; Effect of Slaughter on the spontaneous and evoked activity of the brain. *British Poultry Science* 1986 27 195-205

Gregory NG and Wotton SB; Effect of electrical stunning on the electroencephalogram in chickens. *Br Vet Journal* 1987 143 175-183

Effect of electrical stunning on somatosensory evoked potentials in chickens, *Brit vet journal* 1989 145, 159-164

Gregory NG and Wotton SB; Effect of stunning on the spontaneous physical activity and evoked activity on the brain. *British Poultry Science* 1990 31: 215-220

Gregory NG and Wotton SB; Comparison of neck dislocation and percussion of the head on visual evoked responses in the chicken's brain. *Vet Record* 1990 126: 570-572

Gregory N.G., Wotton S.B. "Effect of electrical stunning on somatosensory evoked responses in the turkey's brain.". *British Vet Journal* [1991] 147,270

Gregory N.G., Wotton S.B.; "Effect of a 350 Hz DC stunning current on evoked responses in the chicken's brain". *Research in Veterinary Science* [1991] 50:250-251

Gregory N.G., Wotton S.B.; "Effect of depth of immersion in the waterbath on the effectiveness of electrical stunning in chickens. Research in Veterinary Science [1991] 51:200-202

Gregory N.G., Wotton S.B.; "Effect of wetting a chicken's feathers on the effectiveness of electrical stunning" Research in veterinary science [1992] 53:250-251

Gregory N.G. and Wotton S.B. "Effect of Electrical stunning current on the duration of insensibility in hens." British Poultry Science [1994] 35:463-465

Halal Monitoring Committee leaflet (2006)

Humane Slaughter Association (HSA) factsheet - Poultry Slaughter – A fowl end? (2002)

Humane Slaughter Association Consultation re. technical leaflet on slaughter and killing of exotic/minor species – 24 January 2005

Humane Slaughter Association. Welfare at Slaughter Update Course White Meat Day 28 Feb –  
1 March 2006

Humane Slaughter Association (HSA) Workshop on Electrical Stunning Parameters – 4 April 2007

HSA Guide - Broilers and Hens in Processing Plants

HSA Guide - Electrical Water-baths

HSA Guide - Gas Killing of Chickens and Turkeys

HSA Guide - Gas Killings of Chicks in Hatcheries

HSA Guide - Instantaneous Mechanical Destruction

HSA Guide - On-Farm Slaughter of Large Poultry Flocks

HSA Guide - Prevention of pre-stun shocks in electrical water baths

Hunter RR et al ; Physiological responses of broilers to pre-slaughter lairage: effects of the thermal micro-environment? Physiology Biochem and Neurobiol 2006 S53-54

Jewish Chronicle 11 March and 18 March 2005 - slaughter without pre-stunning.

Jones R. B, Satterlee D G., Cadd G G; "Struggling responses of broiler chickens shackled in groups on a moving line: effects of light intensity, hoods, and 'curtains'." Applied Animal Behaviour Science 58 [1998] 341-352

Kannan G., Heath J.L., Wabeck C.J. and Mench ; "Shackling of broilers: effects on stress responses and breast meat quality". British Poultry Science [1997] 38:323-332



Kannan G., Mench J.A.; "Prior handling does not significantly reduce the stress response to pre-slaughter handling in broiler chickens." *Applied Animal Behaviour Science* 51 [1997] 87-99

Katme; Islam and animal welfare – representation to Slaughter Working Group stakeholder meetings 14/15 March 2006.

Katme et al; selection of articles on Stunning and Halal from the Islamic Cultural Centre website (2006).

Kettlewell PJ and Mitchell MA; Catching, handling and loading of poultry for road transportation. *Worlds Poultry Science Journal* Vol 50 March 1994 54-56

Kettlewell PJ and Moran P; A Study of heat production and heat loss in crated broiler chickens : a mathematical model for a single bird. *British Poultry Science* 1992 33: 239-252

King A S, McLelland ; *Outlines of Avian Anatomy*

Knierim U and Gocke A; Effect of catching broilers by hand or machine on rates of injuries and dead-on-arrivals. *Animal welfare* 2003, 12: 63-73

Kotula AW and Helbacka NV; Blood volume of live chickens and influence of slaughter technique on blood loss. July 30 1965

Lupo C et al ; Post-mortem condemnations of broilers in western France, , *Vet Rec* 2008 162 709-713

Maria G et al ; Evaluation of electrical stunning methods using alternative frequencies in commercial rabbits. *Meat Science* 57 (2001) 139-143.

McIntyre et al; Paper given at World Poultry Congress 2004 by Jane McIntyre "Behaviour reactions of broiler chickens during acute exposure to gaseous stimulation"

McKeegan DEF, McIntyre J, Demmers TGM, Wathes CM, Jones RB; Behavioural responses of broiler chickens during acute exposure to gaseous stimulation – *Applied Animal Behaviour Science* 99 (2006) 271-286

McKeegan DEF et al. Controlled atmosphere stunning of broiler chickens. II Effects on behaviour physiology and meat quality in a commercial processing plant. *Brit Poultry Sci* Vol 48 No 4 Aug 2007 430-442

McKeegan DEF et al ; Abstract of research on Physiological monitoring of laying hens during whole house killing with carbon dioxide. UFAW conference summer 2008.

Meat Hygiene Service (MHS) Operations Guide chapters 3 and 7 on Welfare at Slaughter and Poultry Processing

MHS Animal Welfare Review 2003

MHS; Meat Hygiene Regulations administered by the Meat Hygiene Service.

Meat Trades Christian Fellowship Report to encourage the enhancement of religious slaughter of food animals and birds by introducing pre-stunning and prohibiting the use of the captive bolt pistol in food animal slaughter. 8 June 2007

Mellor D J et al; Scientific assessment and management of animal pain. OIE Technical Series Volume 10, 2008.

Mitchell MA and Kettlewell PJ; Road Transportation of broiler chickens: induction of physiological stress. Worlds Poultry Science Journal Vol 50 March 1994 57-59

Mitchell MA and Kettlewell PJ; Physiological stress and Welfare of Broiler Chickens in Transit : Solutions not problems. 1998 Poultry Science 77: 1803-1814

Nijdam E., Arens P.; Processing and products Article on "Factors Influencing bruises and mortality of broilers during catching, transport and lairage". 2004 Poultry Science association inc.

Perez -Palacios S, Wotton SB ; Effects of salinity and the use of shackle/leg sprays on the electrical conductivity of a commercial waterbath stunner for broilers. Vet Record (2006) 158, 654-657

Petracci et al ; Preslaughter mortality in Broiler Chickens, Turkeys, and Spent Hens under Commercial Slaughtering. Poultry Science 2006 85: 1660-1664

Poultry World; So you want to slaughter kosher or Halal poultry – December 2006

Poultry World, On-farm culling methods need overhaul, July 2008

Prescott N.B., Berry P.S., Haslam S. and Tinker D.B.; "Catching and crating turkeys: Effects on carcass damage, heart rate, and other welfare parameters". 2000 Applied Poultry Science Inc

Prinz S et al ; Dutch/German study on high frequency DC electrical stunning for presentation at World Poultry Congress in Brisbane June 2008

Quinn AD et al ; Air movement and the thermal microclimates observed in poultry lairages. British Poultry Science 1998 39 469-47

Raj A.B.M. ; "Aversive reactions of turkeys to argon, carbon dioxide and a mixture of carbon dioxide and argon". Veterinary Record [1996] 138:592-593

Raj A B M ; Recent developments in stunning and slaughter of poultry – World's Poultry Science Journal 62 (2006) pp467-484

Raj A.B.M. ; Welfare during stunning and slaughter of poultry". 1998 Poultry Science 77:1815-1819

Raj A.B.M. ; "A critical appraisal of electrical stunning in chickens". World's Poultry Science Journal, Vol 59 March 2003

Raj ABM; Effect of amount and frequency of head only stunning currents on the electroencephalogram and somatosensory evoked potentials in broilers.

Raj ABM; Humane Killing of Nonhuman Animals for Disease Control Purposes –Journal of Applied Animal Welfare Science 11 112-124 2008

Raj ABM et al “Changes in the somatosensory evoked potentials and spontaneous electroencephalogram of boiler chickens during exposure to gas mixtures” British Poultry Science (1998) 39: 686-695

Raj ABM et al ; Novel method for killing poultry in house with foam and nitrogen Vet Rec 2008 162 722-723.

Raj ABM et al; Large scale killing of poultry species on farm during outbreaks of diseases : evaluation and development of a humane containerised gas killing system. Worlds Poultry Science journal 64 (2) 227-243 2008

Raj A.B.M., Gregory N.G.; “Preferential feeding behaviour of hens in different gaseous atmospheres”. British Poultry Science [1991] 32:57-65

Raj A.B.M., Gregory N.G.; “Efficiency of bleeding of broilers after gaseous or electrical stunning”. Veterinary Record [1991] 128:127-128

Raj A.B.M., Gregory N.G.; “Time to loss of somatosensory evoked potentials and onset of changes in the spontaneous electroencephalogram of turkeys during gas stunning.” Veterinary Record [1993] 133:318-320

Raj A.B.M., Gregory N.G.; “An evaluation of humane gas stunning methods for turkeys”. Veterinary record [1994] 135:222-223

Raj A.B.M, Gregory N.G. and Wotton S.B.; “Changes in the somatosensory evoked potentials and spontaneous electroencephalogram of hens during stunning in argon-induced anoxia. British Veterinary Journal [1991] 147

Raj A.B.M. and O’Callaghan M.; “Evaluation of a pneumatically operated captive bolt for stunning/killing broiler chickens”. British Poultry Science [2001] 42:295-299

Raj A.B.M. and O’Callaghan M. ; “Effects of electrical water bath stunning frequencies on the spontaneous electroencephalogram and somatosensory evoked potentials in hens. British Poultry Science Vol 45, number 2 [april04] p230-236

Raj, ABM, O’Callaghan M and Hughes SI; The effects of amount and frequency of pulsed direct current used in water bath stunning and of slaughter methods on spontaneous electroencephalograms in broilers. Animal Welfare 2006, 15:19-24

Raj, ABM, O’Callaghan M and Hughes SI; The effects of pulse width of a direct current used in water bath stunning and of slaughter methods on spontaneous electroencephalograms in broilers. Animal Welfare 2006, 15: 25-30

Raj ABM, O’Callaghan M and Knowles TG; The effects of amount and frequency of alternating current used in water bath stunning and of slaughter methods on electroencephalograms in broilers. Animal Welfare 2006, 15: 7-18

Raj ABM, Sandilands V and Sparks NHC; Review of gaseous methods of killing poultry on-farm for disease control purposes. Vet Record 2006 159. 229-235

Raj A.B.M., Whittington P.E.; "Euthanasia of day-old chicks with carbon dioxide and argon." The Veterinary Record March 25 1995

Raj A.B.M, Wilkins L.J., O'Callaghan M. and Phillips A.J.; "Effect of electrical stun/kill method, interval between killing and neck cutting and blood vessels cut on blood loss and meat quality in broilers." British Poultry science [2001] 42:51-56

Raj A.B. M, Wotton S.B. and Gregory N.G.; Changes in the Somatosensory Evoked Potentials and Spontaneous Electroencephalogram of Hens During Stunning with a Carbon Dioxide and Argon Mixture." British Veterinary Journal [1992] 148

Raj A.B.M, Wotton S.B., Whittington P.E.; "Changes in the spontaneous and evoked electrical activity in the brains of hens during stunning with 30per cent carbon dioxide in argon with 5 per cent residual oxygen." Research in Veterinary science [1992] 53, 126-129

Rosen; Viewpoint paper "Physiological Insights into Shechita" from Veterinary Record (2004) 154 759-765

Roslin and Silsoe Institutes - Final project report on Defra sponsored controlled atmosphere stunning, comparison of gas mixtures (2005).

Sandilands V; "Mass culling: Is gas practicable? Poultry World April 2007, p26

Sandilands, Raj, Baker and Sparks; Humane culling of poultry during a disease outbreak : aversion to various gas mixtures, 2008 British Poultry Abstracts pp 22-23

Savenije B, Lambooij E., Gerritzen M.A and Korf J.; "Development of brain damage as measured by brain impedance recordings, and changes in heart rate, and blood pressure induced by different stunning and killing methods". 2002 Poultry science 81: 572-578

Scholarone; Paper on 'Improving the welfare of broilers by changes to a mechanical unloading system', in Manuscript

Scottish Parliament; Decision of the Scottish Parliament Petitions Committee on Petition PE11118 on religious slaughter 9 September 2008 (encl FAWC submission).

Sparrey J.M. and Kettlewell P.J.; "Shackling of Poultry: is it a welfare problem?" World's Poultry Science Journal, Vol 50, July 1994

Stork/Yara response on gas stunning used for Halal production in Sweden, Denmark , Germany and France. (2006)

Terlouw EMC et al ; Pre-slaughter conditions, animal stress and welfare : current status and possible future research. Animal (2008) 2:10 pp1501-1517.

Thompson K F ; Modern Methods of Killing Birds for Disease Control, Defra Animal Welfare Division, Defra (Oct 2006)

Tserveni-Gousi A.S. , Raj A.B.M. and M. O'Callaghan; "Evaluation of stunning/killing methods for quail [*Costurnix japonica*] : bird welfare and carcass quality." British Poultry Science [1999] 40:35-39

Vecerek V et al ; Effects of Travel Distance and the Season of the Year on Death Rates of Broilers Transported to Poultry Processing Plants. 2006 Poultry Science 85: 1881-1884

Veterinary Record, 26 June 2004; correspondence on slaughter without pre-stunning Sarah Kitwood, Judy MacArthur Clark, J R Holt, M Raj and A Hughes.

Viva ; Ducks out of Water –Report on the UK duck Industry (2006)

Voslarova E et al ; Variation in the mortality rate of turkeys during transport to the slaughterhouse with travel distance and month. Berl Munch Teirarztl. Wochenschr. 119, 9/10, 386-390 (2006)

Voslarova E et al; Mortality Rates in Poultry Species and Categories during Transport for Slaughter. Acta. Vet. Brno 2007, 76, S101-S108

Warris PD et al; Effects of lairage time on body temperature and glycogen reserves of broiler chickens held in transport modules. Vet Record 1999 145: 218-222

Warris PD et al; "Relationships between maximum daily temperature and mortality of broiler chickens during transport and lairage." British Poultry Science Vol 46, no. 6 (December 2005) pp 647-651

Webster J. ; Animal Welfare : Limping towards Eden – A practical approach to redressing the problem of our dominion over the animals – extracts

Wenzlawowicz M. von and Holleben K von.; "Assessment of stunning effectiveness according to the present scientific knowledge on electrical stunning of poultry in a waterbath". Arch. Geflugelk 2001, 65[6] 193-198

Wilkins L.J., Wotton S.B., Parkman I.D, Kettlewell P.J. and Griffiths P. "Constant Current stunning effects on bird welfare and carcass quality". 1999 Applied Poultry Science Inc

World Health Organisation (OIE) amended guidelines for the killing of animal for disease control purposes for comments - November 2005

Killing of animals for disease control purposes. Rev. sci.tech. Off. Int. Epiz. 2005, **24** (2), 711-722

World Health Organisation (OIE) amended guidelines for the slaughter of animal for human consumption – November 2005

Slaughter of animals for human consumption. Rev. sci.tech. Off. Int. Epiz. 2005, **24** (2), 693-710

Wotton S and L Wilkins; Measuring and Auditing Broiler Welfare, Chapter 13 Primary processing of poultry – 2004.

Papers reviewed during the previous study on the welfare of farmed red meat animals at slaughter or killing that were relevant to white meat animals were also considered.

### **Responses to written consultation**

Consultation letter on the welfare of white meat animals at slaughter, 11 November 2003.  
(FAWC)

Animal Welfare Training, University of Bristol  
Assured Chicken Production  
British Poultry Council  
British Veterinary Association  
Campaign for the Protection of Shechita  
Dr Mohan Raj, University of Bristol  
Halal Food Authority  
Humane Slaughter Association  
Local Authorities Coordinators of Regulatory Services (LACORS)  
Meat Trades Christian Fellowship  
National Proficiency Tests Council (NPTC)  
Peter Vingerling, Transition and Society, consultant to Stork PMT  
Roslin Research Institute.  
Royal Society for the Prevention of Cruelty to Animals  
Scottish Society for the Prevention of Cruelty to Animals  
Silsoe Research Institute  
VEGA Research