

**ANIMAL WELFARE PROBLEMS**  
**IN UK SLAUGHTERHOUSES**

A REPORT BY COMPASSION IN WORLD FARMING TRUST

A Report by Peter Stevenson

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## **1.0 INTRODUCTION**

People are rightly shocked at the sheer number of animals that have been slaughtered in connection with the foot-and-mouth crisis. People have also, again rightly, been extremely unhappy about the slaughter methods used, which all too often have been inhumane.

Once the crisis is over, Compassion in World Farming (CIWF) Trust hopes the public will be aware that issues about the quantity of animals slaughtered by a modern society and whether they are being slaughtered humanely have not gone away. Instead, they have simply gone indoors, out of our sight but, CIWF Trust hopes, not out of our mind.

Each day in normal (non-FMD times), around 100,000 cattle, sheep and pigs are slaughtered for food in the UK, as well as 2 million chickens a day. No one ever asks whether these animals are being slaughtered humanely. Sadly, often they are not, largely because animals are hustled through modern abattoirs at such great speeds that it is very difficult to safeguard their welfare. A modern abattoir slaughters pigs and sheep at the rate of 300 an hour and chickens at the rate of up to 200 a minute.

The European Union (EU) as a whole slaughters 300 million cattle, sheep and pigs each year. That amounts to over 800,000 each and every day. In addition, the EU slaughters 4,000 million chickens a year – that is over 10 million each day.

We hope that people will remember the sheer size of the UK and Europe's slaughter and insist on reforms to the way animals are slaughtered.

This report is divided into three main sections:

- 1) Pigs, cattle and sheep
- 2) Poultry
- 3) Religious slaughter

CIWF Trust believes that one of the principal problems (which will be referred to at various stages of this report) for cattle, sheep and pigs and for poultry is the danger of animals regaining consciousness during bleeding-out.

Animals and poultry can regain consciousness during bleeding-out for a number of reasons including:

- a) if the stun is ineffective because, for example, too little electric current is used or the current is applied for too short a time or the stun is delivered to the wrong part of the head, or
- b) if the interval between stunning and sticking is too long, or

- c) because of a failure to sever both carotid arteries (or the blood vessels from which they arise).

## **2.0 PIGS, CATTLE AND SHEEP**

### **2.1 What does slaughter involve?**

Slaughter is traditionally a two stage process: stunning followed by throat cutting. This can be reduced to one stage with cardiac arrest stunning which potentially represents a significant welfare advance.

Two forms of stunning are used for sheep in the UK, stunning with a captive bolt and electrical stunning. The latter is the method used more frequently.

Pigs are usually stunned electrically, although carbon dioxide stunning is used by a number of UK slaughterhouses.

The principal method of stunning cattle is the captive bolt, although some cattle and many calves are stunned electrically.

After stunning there follows what is called sticking. The animal's throat is cut or, in the case of pigs and, in many abattoirs, cattle, blood vessels in the chest are cut. Sticking may be performed while the animal is still prone. Alternatively the animal may be shackled by a rear leg after stunning and hoisted up on to a rail where it is then stuck.

### **2.2 Need for minimum stunning currents to be laid down by law**

The science generally agrees that a key factor in achieving an effective stun is the delivery of a sufficiently high electric current. In CIWF Trust's view, if a factor has been identified as being central to the achievement of an effective stun, it should be regulated by law, rather than being left to an unenforceable Ministry of Agriculture Code of Practice. At present, however, minimum stunning currents are dealt with only in such a Code of Practice. The points made in this paragraph apply to poultry as well as to cattle, sheep and pigs.

In 1997, the European Commission produced a Working Document containing draft proposals designed to strengthen the EU Directive so as to include minimum stunning currents in the Directive. The effect of this would be to make those minimum stunning currents legally binding. Unfortunately, nothing has been heard of the Commission proposal for a considerable time and it seems to have disappeared. We believe that the Ministry of Agriculture, Fisheries and Food (MAFF) should do all it can to press the Commission now formally to bring its proposals before the Council of Agriculture Ministers so that they can become law. This point too applies to poultry as well as to red meat animals.

The importance of laying down minimum stunning currents by law was highlighted by the results of a survey of pig abattoirs in England and Wales published in 1993 (Anil & McKinstry, 1993). This survey examined 19 pig abattoirs which stunned

free-moving animals in a pen, i.e. where the animals are not restrained for stunning. They found that every single abattoir was using average stunning currents below the 1.3 amps. recommended by the MAFF Code of Practice. Whilst we would hope that matters have improved since publication of this survey, we would urge MAFF to examine what is the present state of affairs as regards the level of stunning currents used in pig abattoirs.

The 1996 report by the European Commission's Scientific Veterinary Committee (SVC) stated that the strength of electric current used should be high enough for the species concerned to induce a stun within one second of application (SVC, 1996). The SVC stressed that "Otherwise, the animals could suffer a potentially painful electric shock before being stunned".

### **2.3 Other problems highlighted by the Bristol pig abattoir survey**

For an effective stun, the electric tongs must span the animal's brain. The survey found that, in the abattoirs which did not restrain pigs for stunning, over 1 in 3 pigs (36%) were stunned in the wrong position, i.e. the tong placement did not span the brain.

The period of unconsciousness produced by an electrical stun does not last for long. In order to minimise the danger of animals regaining consciousness, the period of unconsciousness induced by the stun must be longer than the combination of the stun-to-stick interval and the time from sticking to loss of brain responsiveness. Anil (1991) found that the period of unconsciousness induced in pigs by stunning may be as short as 38 seconds. If the period of unconsciousness provided by the stun lasts for 38 seconds, then the stun-to-stick interval plus the time from sticking to loss of brain responsiveness must amount to less than 38 seconds, otherwise pigs will be in danger of regaining consciousness.

Gregory & Wotton (1986a) found that the time from sticking to loss of brain responsiveness could be as much as 23 seconds in pigs. Anil (1991) therefore recommended that the gap between stunning and sticking should not exceed 15 seconds if the danger of pigs regaining consciousness during bleeding-out is to be minimised. To our dismay, the pig abattoir survey found that in abattoirs which did not restrain pigs for stunning, the average stun-to-stick interval was twice as long as this: 30.1 seconds.

The authors of the pig abattoir survey found 15.6% of the pigs which were not restrained at stunning had to be re-stunned. They stated that some stunning currents and tong positions resulted in double stuns and "shed doubts about the instantaneousness of electrical stunning in some manual stunning systems".

The Bristol survey found that a number of pigs (2.3%) in abattoirs not restraining pigs at the time of stunning had to be restuck due to inadequate sticking.

The Bristol researchers used the presence of rhythmic breathing as an indication of recovery from a stun at the time of sticking. To our alarm they found that, in abattoirs not restraining pigs at stunning, 20.5% of the pigs were exhibiting rhythmic breathing, and thus were possibly recovering from the stun, at the time of sticking.

The above results suggested that there were very poor welfare standards at a significant number of pig abattoirs. CIWF Trust hopes that matters have improved since the survey was carried out. Nonetheless, we urge MAFF to investigate whether there have indeed been improvements as regards the range of welfare indicators set out above and recorded in the survey.

## **2.4 Stun-to-stick intervals**

### **2.4.1 Pigs**

As indicated above, Anil (1991) has recommended that the stun-to-stick interval for pigs should not exceed 15 seconds. However, the Bristol pig abattoir survey found the average stun-to-stick interval to be twice as long as this recommended maximum. More recently, the Animal Welfare Survey Report 1997/8 published by the Meat Hygiene Service (MHS) showed that for many pigs the stun-to-stick interval exceeds the recommended maximum figure of 15 seconds. This is extremely worrying and clearly creates a danger that pigs will regain consciousness during bleeding out.

CIWF Trust is firmly of the view that for all the main species maximum stun-to-stick intervals should be laid down by law when they are head-only electrically stunned.

### **2.4.2 Sheep**

The MHS report states that the stun-to-stick interval recorded in those plants using head-only electrical stunning had a range of 3-70 seconds. It would have been helpful if the report had given the average figure, as well as the range. CIWF Trust is extremely concerned that in some cases the stun-to-stick interval was as long as 70 seconds.

Research carried out by Gregory & Wotton (1984) indicates that 99% of sheep would lose brain responsiveness within 27 seconds of correct sticking. If in the worst case the stun-to-stick interval is 70 seconds, the stun must produce a period of unconsciousness of at least 97 seconds if sheep are not to be in danger of recovering consciousness during bleeding out. It is most unlikely that head-only stunning would produce such a long period of unconsciousness in sheep. Indeed, it is generally accepted that electrical stunning produces a period of unconsciousness of 30-40 seconds in sheep. Taking the more cautious figure of 30 seconds and bearing in mind that 27 seconds are needed for 99% of sheep to lose brain responsiveness after correct sticking, it is clear that the stun-to-stick interval should be extremely short. Indeed, the European Commission's Scientific Veterinary Committee (SVC) has stated that for all species bleeding out should be performed within 15 seconds from the end of head-only electrical stunning (SVC, 1996). (CIWF Trust believes that sticking should be carried out within 15 seconds from the start of head-only electrical stunning). In these circumstances it is a matter of extreme concern to learn from the MHS report that the stun-to-stick interval is as long as 70 seconds in some cases.

It should be noted that the figure of 27 seconds for 99% of sheep to lose brain responsiveness is based on the assumption that there has been correct sticking (i.e. the severing of both carotid arteries). Where only one or neither carotid is severed,

unduly long stun-to-stick intervals will exacerbate the problem caused by poor sticking.

### 2.4.3 Calves

The MHS report reveals that stun-to-stick intervals in calves range from 2-60 seconds. It would have been helpful if the report had also shown the average interval, as well as the range. Clearly stun-to-stick intervals of 60 seconds are far too long, particularly in the case of calves which are head-only electrically stunned, and place the animals in danger of regaining consciousness during bleeding out. (See “*Calves*” in the section on “*Sticking*” which shows that calves can take much longer than other species to lose brain function after throat-cutting).

## 2.5 Inadequate stunning & need to stun a second time

The European Commission’s SVC has stressed that:

“Under commercial conditions, a considerable proportion of animals are either inadequately stunned or require a second stun. This is mainly because of poor electrode placements, bad electrical contacts and long stun-to-stick intervals.” (SVC, 1996).

Unrestrained animals falling away from electrodes during the application and animals slipping from shackles also lead to the need for second stuns and/or prolonged stun-to-stick intervals.

CIWF Trust urges MAFF to carry out an independent survey to establish to what degree these problems apply in the UK.

## 2.6 Sticking

In their 1996 report the SVC, referring to all species, stated that:

“In order to ensure rapid brain death following exsanguination both the carotid arteries (or blood vessels from which they arise) should be severed.” (SVC, 1996).

The importance of severing both carotid arteries is illustrated in the case of sheep. Gregory & Wotton (1984) found that where both carotid arteries in sheep are severed, sticking takes an average of 14 seconds to induce loss of brain responsiveness. They found, however, that this interval was 5 times longer – 70 seconds – where only one carotid artery is severed. Where neither carotid is severed, it can take up to 5 minutes to induce loss of brain responsiveness.

Likewise with chickens, the severing of both carotid arteries has been shown to be the quickest method of inducing death (Gregory & Wotton, 1986b). Failure to cut both carotids can add 2 minutes to the time taken to reach brain failure (Gregory & Wotton, 1986b).

In the light of the science, CIWF Trust believes that the law must be strengthened to require the severing of both carotid arteries, or the blood vessels from which they arise. At present both EU and UK law only requires one carotid artery to be severed.

The European Commission proposals referred to earlier included a proposal to strengthen the EU Directive to require the severing of both carotid arteries. Unfortunately, as indicated above, that proposal seems to have disappeared. It would be enormously helpful if MAFF were to put pressure on the Commission formally to publish their proposal so that it can be placed before the Council of Agriculture Ministers and hopefully become law at the earliest opportunity.

The scientific literature dealing with the time interval between throat-cutting and loss of brain responsiveness is referred to in detail below in the section on *Religious Slaughter*.

### 2.6.1 Calves

A number of studies have shown that calves can take much longer than other species to lose brain function following throat-cutting. Anil et al (1995a) found that responsiveness can be present in the brains of calves for as long as 104 seconds after neck-sticking. As a result, some calves show clear signs of recovery after sticking.

Two factors appear to contribute to the delays in the onset of insensibility after neck-sticking in some calves. Large clots can form at the severed ends of the carotid arteries leading to occlusion or obstruction of the cut (sometimes referred to as 'ballooning'). Such occlusions slow down blood loss from the carotids and delay the decline in blood pressure; this can lead to sustained brain function after neck-sticking in calves as evidenced by the continued presence of evoked responses and a long time to onset of the isoelectrical state in the electrocorticogram. Anil et al (1995a) reported that following neck-sticking, carotid occlusions developed in 40% of a group of calves.

The second factor involved in the relatively lengthy duration of sensibility following the neck cut is that in cattle the vertebral arteries carry a significant amount of blood to the head. Anil et al (1995b) found that when carotid occlusion occurs, not only is blood loss from the carotids impeded, but also vertebral artery blood flow can be held at about 30% of its initial level for up to 3 minutes. In some cases vertebral artery flow actually increased following sticking; the largest increase was in excess of 250 ml/min, a 10-fold rise.

A much quicker death is produced in calves by severing blood vessels in the chest rather than the throat/neck. Despite this, we fear that some abattoirs continue to cut calves' throats. We believe that all abattoirs which electrically stun calves should be required to sever blood vessels in the chest rather than the throat.

## 2.7 Fail-safe device

Since the early 1990s the law has required abattoirs to incorporate a fail-safe device in their electrical stunners. This is to avoid the situation where, because too little current is delivered, an animal receives a painful electric shock instead of a stun. The point of

the fail-safe is to ensure that if, for whatever reason, sufficient current cannot be delivered, no stunning current will be passed until the problem has been resolved. Many abattoirs have for several years been routinely flouting the legal requirement to use a fail-safe device. CIWF Trust believes that equipment capable of performing this requirement should be developed as a matter of urgency. The law on this point is currently to be found in paragraph 9 (a) of Schedule 5 to the Welfare of Animals (Slaughter or Killing) Regulations 1995.

## **2.8 SVC Conclusions on Electrical Stunning**

The SVC concluded that:

“The head-only stunning electrodes, when applied, should span the brain. The strength of electric current should be sufficient to induce immediate loss of consciousness. Good electrical contact must be maintained during application. Bleeding, severing both carotid arteries, should be performed within 15 seconds from the end of stunning. Appropriate measures should be taken to reduce the incidence of mis-stun or repeat stun, and recovery of consciousness during bleeding” (SVC, 1996).

## **2.9 Captive Bolt Stunning of Cattle**

In their 1984 report the Farm Animal Welfare Council (FAWC) stressed that the major cause of ineffective captive bolt stunning is incorrect positioning of the bolt. FAWC visited a number of slaughterhouses and concluded that there were far too many cases where penetration had not been at or near the correct position. They added that they saw evidence of a considerable number of double shots.

A later survey visited 27 commercial abattoirs (Daly & Whittington, 1990). This survey found that 6.6% of cattle “showed evidence of being less than fully effectively stunned.” The authors expressed the view that the overall incidence of 6.6% poor stunning “clearly represents a disturbingly high figure”. In 2.6% of cases the shot was so poorly applied that the animal had to be stunned a second time, with 0.2% requiring a third stun. The survey concluded that “The poor stunning could be attributed to both inaccurately aimed shots and to low captive bolt speeds”. 40.5% of the animals in the survey were shot in a position more than 3 cm. from the ideal position, 20.9% were shot over 4 cm. from the ideal position, with 8% being shot more than 5 cm. from that position.

Daly & Whittington attributed too low bolt speeds to wear and inadequate maintenance of the pistol. Furthermore, 15% of the abattoirs surveyed used cartridges of lower strength than recommended by the manufacturers, and those abattoirs had a significantly higher incidence of poor stunning.

CIWF Trust urges MAFF to carry out an independent survey to establish whether the efficacy of captive bolt stunning has improved in recent years.

## **2.10 Gas stunning/killing of pigs**

### **2.10.1 Carbon dioxide**

CIWF Trust is firmly opposed to the carbon dioxide stunning/killing of pigs and believes this method should be prohibited. Before the pigs become unconscious they can suffer from breathlessness and hyperventilation. Raj & Gregory (1996) concluded that pigs show profound aversion to a high concentration of carbon dioxide and that this gas leads to “severe respiratory distress”. CIWF Trust believes that the use of carbon dioxide gas is an inhumane way of stunning/killing pigs. Although permitted by the law, this method departs from the normal legal requirement that stunning must produce immediate unconsciousness. In our view this stunning/killing method should be prohibited.

UK legislation requires CO<sub>2</sub> to kill pigs before they emerge from the gas, i.e. CO<sub>2</sub> must be used to kill pigs, not just stun them. Pigs which are not killed by the carbon dioxide may emerge from the stunner appearing flaccid and recumbent (i.e. unconscious), but sensitivity may return. The problem is that they may appear unconscious, but may in fact be conscious and able to feel pain; careful observation of signs such as eye blink and rhythmic breathing would reveal that they were conscious or returning to consciousness.

In practice, we believe that pigs are generally only exposed to high concentrations of carbon dioxide for about 90 seconds. 90 seconds will not kill all the pigs. Those which are not killed can regain consciousness. To avoid this, (i) pigs should be kept in the gas for longer than 90 seconds and (ii) sticking should, in our view, be performed within 15 seconds of the end of stunning to prevent any that have not been killed in the gas from regaining consciousness.

CIWF Trust urges MAFF to carry out an independent survey to establish whether some pigs stunned with carbon dioxide do in fact recover consciousness.

#### 2.10.2 Other gas mixtures for stunning/killing pigs

There is presently considerable interest in the use of either 90% argon in air or a mixture of 30% carbon dioxide and 60% argon in air for stunning/killing pigs. Whilst we want to see a prohibition on the use of high concentrations of carbon dioxide, we believe that great caution must be exercised to ensure that new gases or mixtures are not adopted which may themselves have significant welfare problems.

We believe that if a new gas is to be introduced, it should be 90% argon in air not a mixture of 30% carbon dioxide and 60% argon in air. Whilst the carbon dioxide/argon mixture is preferable to the use of high concentrations of carbon dioxide, it nonetheless causes distress to pigs. A study by Raj & Gregory (1996) showed that exposing pigs to 90% argon induced minimal respiratory distress before loss of consciousness, whereas exposing them to a range of concentrations of carbon dioxide induced severe respiratory distress. Exposing them to a mixture of carbon dioxide and argon induced moderate distress. In our view, if one gas (the carbon dioxide/argon mixture) induces moderate distress, whereas another (90% argon) induces minimal distress, one should choose the gas that induces minimal rather than moderate distress. Raj (1999) summarised these results by saying that “from the point of view of the animals’ welfare, 90% argon in air would be the first choice, and a

mixture of 30% carbon dioxide and 60% argon would be preferable to 80-90% carbon dioxide in air”.

Raj et al (1997) were even more clear on this point, concluding that:

“Killing pigs with argon-induced anoxia must be the first choice on welfare grounds and a mixture of 30% carbon dioxide and 60% argon in air appears to be more humane than using a high concentration of carbon dioxide”.

In commercial practice there could be problems with both argon and a mixture of carbon dioxide and argon. Neither lead to rapid death. CIWF Trust strongly believes that pigs must be left in the gas until 100% of the animals are dead. Where pigs are not left in the gas long enough to kill them, they recover consciousness relatively quickly after stunning and therefore it is essential that (i) they are kept in the gas for long enough to kill them and (ii) there is a short stun-to-stick interval to prevent any that have not been killed in the gas regaining consciousness during bleeding out.

Raj (1999) concluded that when pigs were exposed for 3 minutes to either argon or the mixture of carbon dioxide and argon they should be bled within 25 seconds from the end of exposure to the gas to prevent them regaining consciousness during bleeding. Raj reported that when the pigs were exposed to either argon or the mixture of carbon dioxide and argon for 5 minutes and bleeding out began within 45 seconds, they did not regain consciousness while being bled. The majority of the pigs died when they were exposed to argon for 7 minutes, and all of them died when they were exposed to the mixture of carbon dioxide and argon for 7 minutes.

It is clear from the above that pigs would have to be immersed in argon or the mixture of carbon dioxide and argon for quite considerable periods and/or then stuck relatively quickly if they are not to regain consciousness during bleeding out. CIWF Trust fears that in commercial practice pigs may not be immersed in the gas for sufficiently long; moreover, stun-to-stick intervals may be too long to avoid problems.

As indicated earlier, we believe that great caution must be exercised before giving approval to the use of a mixture of carbon dioxide and argon or even to argon itself. That caution must be based around considerations as to whether the gases will be properly used in commercial conditions and around the fact that a mixture of carbon dioxide and argon causes moderate distress.

That distress can last from 11 to 20 seconds after exposure to the mixture of carbon dioxide and argon. Raj et al (1997) found the range of times to the loss of somatosensory evoked potentials (SEPs) (an indicator of unequivocal loss of consciousness) was 11-20 seconds after exposure to 30% carbon dioxide and 60% argon. After exposure to 90% argon in air, the range of times to the loss of SEPs was 9-21 seconds. In the case of exposure to high levels of carbon dioxide (80-90%) it took 16-36 seconds for SEPs to be lost. The fact that it takes longer for pigs to lose brain responsiveness when exposed to high levels of carbon dioxide than in the case of argon or a mixture of carbon dioxide and argon strengthens the argument that the use of high levels of carbon dioxide should be abandoned.

### 3.0 **POULTRY**

#### 3.1 **Broiler chickens**

##### What does broiler slaughter involve?

Modern poultry slaughter is highly mechanised. The broilers are removed from the crates/drawers in which they have been transported and are hung upside down by their legs from shackles, which are on a moving line. This takes the birds to an electrically-charged waterbath through which their heads, necks and upper thorax are dragged. Current flows from the electrically live water through the birds to an earthed shackle. This is designed to stun them, i.e. render them unconscious and insensible to pain.

The shackle line then takes the broilers to the automatic neck cutters. The intention is that death will be caused by loss of blood in those birds that are not killed in the stunner.

After neck-cutting the birds enter the scalding tank (water at about 52°C), which is designed to ease plucking. Clearly only dead birds should be placed in the scalding tank.

#### 3.2 **Broiler welfare problems**

CIWF Trust fears that there are some very serious problems with poultry slaughter in the UK. The science agrees that two factors are vital to reduce the suffering of chickens at slaughter:

- (i) sufficient electric current must be used (ideally at least 120 milliamps per bird but certainly a minimum of 105 milliamps per bird, 50-1500 Hz sinusoidal AC) to kill the majority of the birds in the stunner, and
- (ii) both carotid arteries should be severed to ensure a rapid death.

In the early 1990s most British poultry slaughterhouses probably ignored these essential requirements. We fear that some still continue to do so. When they are ignored, birds are in danger of regaining consciousness during bleeding out. Some may even be still alive when they are immersed in the scalding tank. CIWF Trust urges MAFF to investigate whether British poultry slaughterhouses are (a) using sufficient current to kill most birds in the stunner and (b) severing both carotid arteries.

As regards the stunning current, CIWF Trust believes that a minimum stunning current of 120 milliamps per bird (50-1500 Hz sinusoidal AC) should be used. The MAFF Code recommends 105 milliamps per bird. However, both Gregory (1991) and the European Commission's Scientific Veterinary Committee (1996) have stated that a stunning current of 120 milliamps per bird is needed to induce cardiac arrest in the waterbath in about 90% of broilers; it is generally agreed that from a welfare viewpoint it is best to use sufficient current to kill as many birds as possible in the

stunner by inducing cardiac arrest, thereby reducing the danger of birds regaining consciousness during bleeding out.

### 3.2.1 High frequency currents

Bearing this in mind, CIWF Trust is extremely concerned about the recent trend whereby some poultry slaughterhouses are adopting high frequency electric currents in order to improve meat quality. High frequency stunning can compromise welfare as high frequency currents never or rarely kill birds in the stunner (Wilkins et al, 1998 and Wotton & Wilkins, 1999). As a result, the adoption of higher frequencies will greatly increase the number of birds which survive the stunner. In these circumstances it is vital (i) to keep the interval between stunning and neck-cutting as short as possible and (ii) to sever both carotid arteries. CIWF Trust is opposed to the use of high frequency currents and believes that the industry should be required to use stunning currents which lead to the death in the stunner of the vast majority of the birds.

### 3.2.2 Carotid arteries

Whatever stunning current is used, CIWF Trust believes the severing of both carotid arteries to be essential (even where a plant aims to kill birds in the stunner, not all the birds will be killed). Research shows that of all the neck cutting methods, the severing of both carotids is the quickest method of inducing death (Gregory & Wotton, 1986b). Failure to cut both carotids can add two minutes to the time taken to reach brain failure (Gregory & Wotton, 1986b).

### 3.2.3 Pre-stun shocks

The subject of pre-stun shocks is more usually associated with the slaughter of turkeys (see below). However we fear that a considerable number of broilers also suffer from pre-stun shocks. The design of waterbath stunners has changed very little over the years and therefore the figure given by Dr Neville Gregory in the 'McLibel' case could still be broadly correct. In that case Dr Gregory visiting one particular slaughterhouse in February 1993 calculated that 10% of the broilers were receiving pre-stun shocks. When he returned in April 1993, he observed that 13.5% of the birds were receiving pre-stun shocks. There can be little doubt that such shocks are painful.

Pre-stun shocks can occur because of (i) the adoption of dipping shackle-lines to convey birds into the waterbath or (ii) the overflow of water at the entrance to the stunner or (iii) because the birds may flap their wings, thus splashing water on to their wings before contact is made with the head. Dipping lines can result in the leading wing of birds contacting the live water before the head. Wing-flapping occurs either because of the pain of being shackled or the absence of breast comforters, high light levels, too many bends in the shackle line, uneven shackle lines or poorly designed entry ramps.

### 3.2.4 Consciousness at neck-cutting

The 'McLibel' case also revealed that a number of broilers were still conscious at neck-cutting. CIWF Trust fears that this may well still be the case. This problem is

likely to arise either because the stun is ineffective, or because some birds miss the stun bath completely, probably because they lift their heads above water level as they pass the bath. In the 'McLibel' case the Judge found – based on Dr Gregory's evidence – that about 9 birds in every 1,000 missed the bath and had their necks cut while fully conscious. If this problem still continues at the rate of 9 birds in every 1,000 (0.9%) it would mean that over 6 million broilers a year were having their necks cut while fully conscious. CIWF Trust urges MAFF to investigate whether birds are still going fully conscious to the neck cutter.

### 3.2.5 Multibird stunners with constant current

One particular area of concern is that most multibird waterbath stunners in use are constant voltage stunners. It is, however, the current not the voltage which stuns the bird. A multibird stunner with constant voltage will only deliver the same current to each broiler if each bird offers the same electrical impedance to current flow. However in reality, bird impedance varies greatly resulting in high impedance birds receiving too little current and low impedance birds receiving too much.

The industry should be encouraged to develop a constant current multibird waterbath stunner. Such a stunner would allow a particular current (ideally 120 milliamps per bird) to be set without the wide variations in individual current flow that occur in a constant voltage stunner. This would prevent some birds being ineffectively stunned through receiving too little current. It would also avoid some birds receiving a current flow so high that meat quality problems can occur.

### 3.2.6 Shackling

Even before stunning and neck cutting, there is a major problem in broiler slaughter. At the start of the process the broilers are removed from the transport modules and hung upside down by their legs from shackles. The process of being taken – often roughly – out of the modules and then being hung upside down by their legs is highly stressful for the birds. The industry claims that the metal shackles do not pinch the birds' legs. CIWF Trust cannot accept this statement; it is well known that compression of the periosteum (tissue covering the bone of the shanks) is a painful process.

Modern broilers have been pushed – mainly through selective breeding – to extremely fast growth rates. Their legs are unable to keep pace with the rapid body growth and as a result many suffer from painful leg disorders. Thrusting such birds into the metal shackles inevitably inflicts substantial pain on them.

### 3.2.7 Gas stunning of broilers

In order to avoid the stress of pre-slaughter handling, the gas stunning/killing of broilers is being advocated by some. The thinking is that this would allow birds to be stunned while they are still in the drawers in which they have been transported (in one system, we believe the birds are tipped out of the drawers and placed on a conveyor belt). While clearly there are welfare benefits in gas stunning, CIWF Trust believes that serious problems could arise in commercial conditions which demand high

throughputs. Two gases that are particularly being considered for broilers are (as with pigs) 90% argon and a mixture of 30% carbon dioxide and 60% argon.

Gas stunning does not lead to immediate insensibility to pain. Until they are unconscious, birds subjected to the carbon dioxide/argon mixture will suffer from moderate aversion. It must be understood that accepting stunning methods which do not lead to immediate unconsciousness, is a fundamental departure from the principle of the last 60 years that stunning must produce instantaneous insensibility.

Under UK law, birds must be killed – not just stunned – by the gas. Crucially, if birds are only stunned (rather than killed) with the gas mixtures, they regain consciousness “very rapidly” (SVC, 1996). In commercial conditions birds will leave the stunning unit in large numbers and it is hard to believe that they can be shackled quickly enough to allow neck cutting which is sufficiently prompt to prevent birds regaining consciousness from the stun. Indeed, the SVC has stressed that “the interval between the end of stunning and neck cutting will be considerably longer than the time interval used under the electrical stunning systems” (SVC, 1996).

This means that, in order to prevent birds regaining consciousness, it is essential that they are killed (rather than stunned) by the gas mixture. The European Commission’s Scientific Veterinary Committee has concluded that “a minimum of 2-minute exposure is required to kill chickens with the alternative gas mixtures” (SVC, 1996). Again we wonder whether, in commercial conditions, slaughterhouses will be willing to leave birds in the gas mixture for as long as 2 minutes.

Another factor which must be addressed is the need reliably to be able to identify birds which are dead on arrival at the slaughterhouse if chickens are to be gas stunned before being unloaded from the transport crates. The SVC (1996) has pointed out that if birds are to be examined in the crates before slaughter in order to remove those dead on arrival, this “could be distressing to poultry”.

CIWF Trust is firmly opposed to one particular gas mixture for stunning broilers, that is the use of 30% oxygen and 40% carbon dioxide (balance nitrogen). This mixture is used to stun the birds; they are then killed with a high concentration of carbon dioxide. Raj et al (1998) show that the use of a relatively high level of oxygen prolongs the time taken to reach unconsciousness as compared with 90% argon or the 30% carbon dioxide and 60% argon mixture. As a result, birds stunned with the 30% oxygen and 40% carbon dioxide mixture may suffer for a relatively long period between immersion in the gas and becoming unconscious. In the light of this, CIWF Trust believes that an effective prohibition should be placed on the use of this gas mixture.

### **3.3 Turkeys**

CIWF Trust believes that turkey slaughter involves a number of serious welfare problems.

### 3.3.1 Shackling

By law, turkeys may be left hanging upside down from the shackles for up to 6 minutes before being stunned or killed (The Welfare of Animals (Slaughter or Killing) Regulations 1995). Broilers can be left for 3 minutes. This is anomalous as it means that turkeys can be left hanging in the shackles for much longer than broilers, even though turkeys are the heavier bird and more likely to suffer. CIWF Trust believes that the law must be changed to greatly reduce the maximum time for which turkeys can be left hanging in the shackles.

The practice of suspending turkeys, which are heavy birds, upside down by their legs from shackles, places very considerable strain on the birds' legs and hips. The problem is compounded by the fact that modern turkeys have been selectively bred to develop huge meaty breasts. The heavy upper body places excessive stress on the hips and results in many turkeys suffering from degenerative hip disorders (Whitehead, 1992). Such birds experience great pain both when being shackled and then as they are left to hang upside down, sometimes for several minutes.

Turkeys, whether or not suffering from hip disorders, are caused considerable pain when the rigid steel shackles compress the soft tissue of the shank against the bird's bone.

### 3.3.2 Pre-stun shocks

A 1993 survey found 57.5% of turkeys to be experiencing pre-stun electric shocks (University of Bristol, 1993). More recently, the European Commission's Scientific Veterinary Committee stressed that "the prevalence of pre-stun electric shock in turkeys is high (about 80%)" (SVC, 1996). CIWF Trust believes that urgent action is needed to reduce the incidence of pre-stun shocks.

The main cause of pre-stun shocks is that turkeys' wings hang lower than their heads and so are in danger of entering the stunning bath before their heads. Shocks are also caused by the ramp at the entrance to the stunner becoming electrically live due to water splashing out of the stunner. In some cases pre-stun shocks may stimulate the birds into 'flight'; the turkey flaps its wings and may rise upwards, thus missing the stunner altogether and so failing to be stunned.

CIWF Trust fears that a high proportion of geese also experience pre-stun shocks – for the same reasons as turkeys.

### 3.3.3 Danger of regaining consciousness

Scientific research has established that two factors are vital in order to reduce the danger of turkeys regaining consciousness during bleeding out:

- a) sufficient current should be used to induce a cardiac arrest; birds killed in the stunner (rather than simply being rendered unconscious) are

- clearly not in danger of regaining consciousness during bleeding out;  
and
- b) both carotid arteries must be severed to ensure a rapid bleed out and death.

A number of slaughterhouses fail regularly to induce cardiac arrests at stunning and to sever both carotid arteries despite the clear welfare advantages of doing so. CIWF Trust wishes to stress the vital importance of severing both carotid arteries. Indeed severing both carotids has been made even more crucial by a recent development. To avoid poor bleeding and other carcass defects, some turkey abattoirs are no longer trying to induce cardiac arrest at stunning. We fear that the industry is going over to high frequency stunning to address the problems caused by poor bleeding and other defects. With high frequencies, there is a decrease in the incidence of cardiac arrest at stunning (Wilkins et al, 1999). For this reason, CIWF Trust is opposed to high frequency stunning. As long as it is used, however, it is absolutely vital to (i) keep the interval between stunning and neck-cutting as short as possible and (ii) sever both carotid arteries to prevent birds regaining sensibility on the bleeding line.

The dangers involved in the slaughter process were highlighted by a 1988 survey which showed that 0.1% of turkeys were still alive (although not necessarily conscious) on entering the scalding tank (Gregory, 1988). CIWF Trust urges MAFF to examine whether this problem still exists.

#### 3.3.4 Seasonal slaughterhouses for turkeys

As Christmas approaches, 'seasonal' slaughterhouses set to work to cope with the additional demand for turkeys. In such slaughterhouses many turkeys are killed by having their necks dislocated. Scientific research shows that neck dislocation does not usually have an immediate effect on the brain (Gregory & Wotton, 1990). In other words, unconsciousness may not be instantaneous. The turkeys may suffer as they die. CIWF Trust fears that neck dislocation is often inhumane and should therefore be prohibited. (The research referred to dealt with chickens, but it is reasonable to presume that the same may well be true for turkeys).

A CIWF investigation has discovered that turkeys are sometimes plucked within seconds of neck dislocation. In many cases, they are still alive when being plucked. Unfortunately, there is a serious loophole in the law. For most methods of turkey slaughter, the 1995 Regulations require a 2-minute gap between neck cutting and plucking; this is to ensure that the turkeys are dead when being plucked. Bizarrely this rule does not apply to turkeys killed by neck dislocation. CIWF Trust believes the law must be changed to require at least 2 minutes to elapse between neck dislocation and plucking; this would help stop turkeys being plucked while still alive.

During its investigation, CIWF also uncovered another serious flaw in the legislation. Most methods of turkey slaughter can by law only be carried out by a licensed slaughterman. There is, however, no such requirement for neck dislocation. The law must be strengthened to require anyone killing turkeys by neck dislocation to hold a slaughter licence for this method. That said, the science has shown neck dislocation to be inhumane (see first paragraph of this section) and accordingly CIWF Trust believes it should be prohibited.

#### **4.0 HIGH THROUGHPUTS**

One of the main factors mitigating against reasonable welfare standards at slaughter is the very high throughput rates which are the norm at most modern slaughterhouses, including those for poultry. A high throughput poultry abattoir may slaughter around 9,000 broilers per hour. Sheep tend to be slaughtered at around 300 per hour. A pig abattoir using electrical stunning may kill about 300 animals per hour, while one using carbon dioxide may slaughter up to 700 per hour, or even more. CIWF Trust feels that at high throughput rates it is extremely difficult, if not impossible, to attain proper welfare standards at slaughter for individual animals and birds.

#### **5.0 RELIGIOUS SLAUGHTER**

CIWF Trust is opposed to the religious slaughter of animals (including poultry) where such slaughter means that the animals are not pre-stunned. It is the failure to stun to which CIWF Trust is primarily opposed; clearly we are not opposed to aspects of religious slaughter which have no adverse impact on the welfare of the animals such as the requirement of Islam that the name of Allah must be invoked at the time of slaughter.

In assessing the suffering involved in not stunning animals, the central question is: how long after throat-cutting do animals become insensible to pain? In trying to answer this question scientists have used two approaches. Some studies have identified brain death by the onset of an isoelectric or flat reading of the electroencephalogram, i.e. brain inactivity.

More recently, scientists have tried to determine the time required for animals to lose brain responsiveness by measuring at what point after sticking the brain loses its ability to respond to certain external stimuli. This involves measuring the interval from throat-cutting to loss of visual and/or somatosensory evoked responses. The absence of such responses reflects a profound disturbance of the brain and indicates a point at which it is safe to assume that the animal is insensible to pain. The consensus of scientific experts in this field is that loss of visual evoked activity of the brain is a very reliable index of brain failure.

#### **5.1 Cattle**

A number of studies have shown that calves can take a much longer time than other species to lose their brain function following throat-cutting. As indicated earlier, Anil et al (1995a) found that responsiveness can be present in the brains of calves for as long as 104 seconds after neck sticking. As a result, some calves show clear signs of recovery after sticking. Similarly, Daly et al (1988) found that after shechita visual evoked responses can be present in calves for up to 102 seconds, and somatosensory evoked responses for up to 126 seconds (shechita is the Jewish method of slaughter, in which animals are not stunned before throat-cutting).

Earlier we described the two factors which appear to contribute to poor bleeding and thus delays in the onset of insensibility after neck sticking in some cattle. These are

carotid occlusions together with sustained, even increased, vertebral blood flow. (See “Calves” in section on “Sticking”).

Blackmore (1984) reported on the slaughter of a number of fully conscious lambs, sheep, calves and one young bull. He concluded that severing the carotid arteries without prior stunning does not result in a rapid loss of consciousness in calves. He found that the calves and bull exhibited apparently co-ordinated body movements for much longer than the lambs and sheep. Alarming Blackmore found that on average with the calves 171 seconds elapsed between throat-cutting and the cessation of apparently co-ordinated attempts to rise. He also reported that the young bull made such attempts to rise for 20 seconds.

Blackmore’s study also revealed large variations between individual calves in the time taken to reach loss of brain responsiveness. Thus with the five calves slaughtered in his study, the time to loss of righting behaviour ranged from 30 to 385 seconds. Blackmore contrasted calves 1 and 3 (385 and 355 seconds to loss of righting behaviour) with calves 2 and 4 (47 and 30 seconds). He wrote that “the former appeared to be sensible for much longer than the latter,” adding that the difference was apparently associated with failure to achieve satisfactory arterial bleeding despite severance of both carotid arteries. He pointed out that “in calves 1 and 3 the carotid arteries appeared to retract and become occluded with clotted blood”.

Anil et al (1995b) reviewed the literature on this point and concluded that when cattle are stuck without prior stunning, the time taken to die varies between animals. They added that:

“it is well recognised that unstunned calves which bleed poorly can take a long time to die”.

Another study using adult cattle found that the duration of brain function after shechita is very variable. Daly et al (1988) reported that it took between 20 and 126 seconds for evoked responses to be lost after sticking (means of 77 seconds for somatosensory and 55 seconds for visual evoked responses); spontaneous activity in the electrocorticogram was lost between 19 and 113 seconds (mean 75 seconds) after sticking. The authors stressed that “the most striking feature of the results was the extent of the variations between animals in the duration of brain function after shechita”.

The plight of dairy cows who are subject to religious slaughter has been highlighted by Professor John Webster, Britain’s leading expert on dairy cattle and Professor of Animal Husbandry at the University of Bristol. He has written that:

“What is totally unacceptable is the distressing fact, for the cow, that she is conscious of choking to death in her own blood” (Webster, 1987).

Webster (1995) has also suggested that fear rather than pain is the major problem for an animal in this situation. He added that: “the intensity of suffering experienced by a cow undergoing Halal or Shechita slaughter is ... extremely severe, but the duration is brief”.

## 5.2 **Sheep**

As with all animals, the time from sticking to brain death in sheep will vary with different sticking methods.

As indicated earlier, Gregory and Wotton (1984) found that if both carotid arteries and jugular veins are severed, it takes on average 14 seconds to induce loss of brain responsiveness in sheep. They found, however, that this interval was five times longer - 70 seconds - where only one carotid artery and one jugular vein were severed. Where only the jugular veins were severed, the time to loss of brain responsiveness rose markedly to about 5 minutes.

As indicated above, severing both carotids and jugulars takes on average 14 seconds to induce loss of brain responsiveness. From a welfare viewpoint average figures are unsatisfactory. What is crucial is the time to loss of brain responsiveness for the majority of the sheep population. Gregory and Wotton (1984) estimated that 99% of sheep would lose brain responsiveness within 27 seconds provided that both carotids and jugulars are severed.

## 5.3 **Broiler chickens**

The time taken by a chicken to die varies enormously, depending on which blood vessels in the neck are cut. Indeed, the time between neck cutting and loss of evoked activity in the brain can, depending on the method of neck cutting used, vary between 163 and 349 seconds (Gregory and Wotton, 1986b).

Both carotid arteries (and jugular veins) must be severed if a rapid bleed out and quick death are to be achieved. Alarming, it has been suggested that when shechita is performed on chickens in Britain, only about half the birds have both their carotid arteries completely severed by the cut (unpublished Statement by the European Commission's Scientific Veterinary Committee, 1992).

## 5.4 **Scientific Veterinary Committee**

The European Commission's Scientific Veterinary Committee (SVC) were sufficiently concerned about the pain involved in religious slaughter to recommend (in an unpublished 1992 Statement) that "stunning before, or within 5 seconds after, the cut should be made a general requirement" for cattle, sheep and chickens undergoing religious slaughter.

The SVC recommended stunning after sticking because they recognised that there would be opposition to prior stunning. The fact that the SVC contemplated post-sticking stunning indicates that they believed that animals (including chickens) may feel pain for some time after sticking; there would be no point in recommending post-sticking stunning if one did not believe that animals may experience pain following throat-cutting.

## 5.5 The Muslim Community

CIWF Trust wishes to make it clear that we are equally opposed to both the Jewish and Muslim religious slaughter methods where the animal is not stunned. This section focuses on the Muslim Community as there have been some interesting and positive developments over the last few years.

Although a number of Muslims have accepted that animals may be stunned, other Muslims are opposed to stunning.

In his book *Animals in Islam*, Al-Hafiz B.A. Masri argues that stunning is not unlawful under Islamic Law. Al-Hafiz Masri was the first Sunni Imam of the Shah Jehan Mosque in Woking. He stresses that Islam lays down two essential principles for the act of slaughter. Firstly, Tasmiiyyah and Takbir, i.e. the invocation of the name of God at slaughter. Secondly, the Qur'ân Majeed prohibits the consumption of the blood which pours forth at the time of slaughter (Qur'ân 6:145). Some Muslims have opposed stunning, in the belief that it leads to a reduction in the volume of blood which drains from the body after throat-cutting. This is not, however, the case: stunning does not reduce the amount of blood which flows from the body when the animal's throat is cut.

Other Muslims oppose stunning in the belief that it kills the animal. This is not the case. The purpose of stunning is to make the animal unconscious, not to kill it. This means that bleeding takes place while the animal is still alive and that stunning does not stop the heart beating and pumping.

Al-Hafiz Masri writes that after an animal has been rendered unconscious by a stunner "the act of slaughter could still be carried out in accordance with the religious rectitude of Tasmiiyyah and Tadhkiyyah in every detail". Islam teaches that animals must be treated with kindness and compassion. Al-Hafiz Masri believes stunning to be in complete consonance with the real spirit and intent of the Islamic laws of slaughter.

Indeed, in a document entitled "Animal Slaughtering Requirements According To Islamic Law" the Saudi Arabian Standards Organisation has accepted electrical stunning provided that it does not kill the animal.

Paragraph 3.2.6 of the document (Second Edition 1994 - 05 04) states that "Big animals shall remain alive in case of using low voltage electrical stunning on head only, so as to be ritually killed. Animals which die before slaughtering are considered to be carrion and are refused. Electrical stunning is not allowed in case of birds".

A Joint Meeting of the Organisations on Islamic Rules applicable to Foods of Animal Origin was held in Jeddah from 5 to 7 December 1985. This Joint Meeting

recommended that a “committee of jurists and experts should be formed to study the stunning of animals by electric shock”.

In accordance with this recommendation, a Joint Committee of the League of the Muslim World and the World Health Organisation met at the Institute of Veterinary Medicine in West Berlin from 30 June to 3 July 1986. The Joint Committee witnessed two stunning demonstrations which were conducted on two sheep. The Joint Committee observed that after being stunned, both animals made “a full recovery”. The Joint Committee added that “this demonstrated the reversible nature of electrical stunning”.

The Joint Committee went on to state that “extensive experience in Western countries and in New Zealand has shown that electrical stunning applied to the head only does not cause death and is reversible. The animal so stunned will make a complete recovery if it is not slaughtered”.

In conclusion, the Joint Committee accepted that animals being slaughtered to provide meat which is lawful to eat can be electrically stunned provided that the stun does not cause death.

New Zealand is a large exporter of halal slaughtered sheepmeat and a significant exporter of halal slaughtered beef. New Zealand’s main halal meat markets include the Middle East and South East Asia, especially Malaysia and Indonesia.

All of New Zealand’s halal meat exports are derived from animals which have been stunned before slaughter. Indeed, the New Zealand Meat Producers Board’s standards for halal slaughter stipulate that animals must be “electrically stunned humanely” and that “Halal supervisors routinely test animals to ensure they are alive but unconscious when they are slaughtered”.

As Muslim countries in the Middle East are willing to accept as halal meat from animals which have been stunned, we urge the Muslim Community in the UK also to accept such meat as halal.

## **5.6 Exports**

A significant amount of meat from animals slaughtered in the UK by the halal method is exported to Muslim countries. CIWF Trust believes that this breaks the spirit of the religious slaughter exemption provided by UK law.

In general, the law insists that, in order to avoid suffering, animals must be stunned before slaughter. An exception to this rule has historically been provided so that the Jewish and Muslim communities in the UK can continue to have meat from animals slaughtered in accordance with their religious beliefs.

CIWF Trust fears that many animals, however, are being slaughtered without pre-stunning for the export market, i.e. to provide food for people outside the UK’s Muslim and Jewish communities. This is in breach of the spirit of the law’s intention, which is to allow halal and kosher meat to be provided for the UK’s religious

communities. It also leads to more animals being slaughtered by a stressful method than is necessary to fulfil the original policy objective.

CIWF Trust believes that the law should be strengthened to prohibit the slaughter of animals without prior stunning where the meat is destined for export.

### **5.7 Supply of ritually slaughtered meat in schools, hospitals, etc.**

A number of public bodies have over the last few years decided to supply halal meat in schools, hospitals and prisons. In practice, it is difficult in such situations to ensure that the halal meat is only eaten by Muslims; it is likely also to be eaten by non-Muslims and non-Jews. As indicated above in the context of exports, CIWF Trust believes that the supply of halal meat from unstunned animals to non-Muslims in schools, hospitals, etc. to be contrary to the spirit of the law and to lead to many more animals being slaughtered without stunning than are needed for the food of the UK's Muslim and Jewish populations.

CIWF Trust believes that all public and semi-public bodies should be instructed to ensure that, if they supply halal meat, it should only be given to Muslims, or that the halal meat which they supply comes from animals which have been stunned before slaughter. As indicated above, some Muslims do accept that stunning is consistent with halal provided that the stun does not kill the animal but only renders it unconscious.

### **5.8 Labelling**

A significant amount of meat from religiously slaughtered animals is in fact sold onto the ordinary market, i.e. it is purchased by non-Jewish or non-Muslim consumers.

After Shechita slaughter, the animal's thorax is examined and if any abnormalities are found, the entire carcass is rejected for Jewish consumption on the grounds that the animal was unhealthy at the time of slaughter. Much of the carcass may, however, be fit for consumption under the meat hygiene laws and thus may be sold to non-Jewish consumers.

Similarly, only the forequarters of cattle and sheep are acceptable to Jews. The hindquarters cannot be consumed by Jews unless they are porged (this involves removing forbidden tissues such as veins, lymphatics and the sciatic nerve). As porging is very expensive and time-consuming, the hindquarters usually are sold on to the non-Jewish market.

The fact that a significant proportion of meat from religiously slaughtered animals finds its way to non-Jewish and non-Muslim consumers means that more animals are being subject to religious slaughter than was intended by the law which allows slaughter without stunning only for the food of Muslims and Jews.

The meat which is sold to non-Jewish and non-Muslim consumers is not labelled to indicate that it comes from animals slaughtered without prior stunning. CIWF Trust believes that, in the interests of informed consumer choice, the meat from religiously slaughtered animals should be labelled as such so that consumers who are opposed to

slaughter without stunning can choose not to buy it. Indeed in their 1985 Report, the Farm Animal Welfare Council recommended “that all carcasses and cuts prepared from animals (including poultry) slaughtered by religious methods and offered for sale down to, and including the retail level, should be clearly labelled to indicate the method of slaughter”. This sensible recommendation has been ignored by successive governments.

## **5.9 Position outside the UK**

Sweden and Switzerland have both prohibited religious slaughter in the sense that they require all animals to be stunned before throat-cutting even if the animals are being slaughtered for the food of Jews or Muslims.

As indicated earlier, New Zealand is one of the world’s largest – if not the largest – exporter of halal meat. All that meat derives from animals which have been stunned before slaughter (the stun is such as to render the animals unconscious, but not to kill them). This is accepted by their Muslim customers in the Middle East.

## **6.0 ENFORCEMENT**

Responsibility for enforcement of the welfare laws lies with the Meat Hygiene Service (MHS). The MHS’s primary duty, however, is in the field of food safety. With increasing public concerns about this subject, the vast majority of MHS officials’ time is spent focusing on meat hygiene; this means that they spend most of their time in that part of the abattoir where the animals are processed after slaughter. We fear that relatively little of their time is spent in that part of the abattoir where they would need to be if they were, on a reasonably regular basis, to monitor compliance with the welfare rules on pre-slaughter handling and the slaughter process itself.

We urge MAFF to carry out an urgent survey as to whether sufficient time is being spent on enforcement of the welfare rules.

## **7.0 TRAINING AND WRITTEN PROCEDURES**

CIWF is most concerned to learn from the Animal Welfare Survey Report 1997/8 published by the Meat Hygiene Service that 50% of plants had no staff who had undergone formal training and 33% of premises had no written procedures regarding welfare. We believe that it is essential that all plants should have staff who have undergone formal training and should have written procedures to safeguard welfare.

The Meat Hygiene Service’s (MHS) Animal Welfare Review published in March 2000 reported that many slaughterhouses have still not responded to MHS advice that the production of written procedures on welfare would have a positive effect on overall standards. The MHS also reported that in a high proportion of poultry slaughterhouses the person responsible for live birds has not attended a training course.

## 8.0 CONCLUSIONS

1. The science establishes that one of the key factors in producing an effective stun is the use of a sufficiently high current. Accordingly, CIWF Trust believes that a minimum stunning current for each species (including poultry) should be laid down by law, rather than being left to an unenforceable Code.
2. The 1993 Bristol University pig abattoir survey found that, in the abattoirs which did not restrain pigs for stunning, (i) 36% were stunned in the wrong head position, i.e. the tong placement did not span the brain, (ii) the average stun-to-stick interval was 30.1 seconds, (iii) 15.6% had to be re-stunned, (iv) 2.3% had to be restuck and (v) 20.5% were exhibiting rhythmic breathing (and thus were possibly recovering from the stun) at the time of sticking. CIWF Trust believes that an independent survey should now be carried out to establish the present extent of these problems.
3. The European Commission's Scientific Veterinary Committee (SVC) has stated that for all species the stun-to-stick interval should not exceed 15 seconds when head-only electrical stunning is used. Indeed, prolonged stun-to-stick intervals are one of the principal factors involved in animals regaining consciousness during bleeding out. CIWF Trust believes that a maximum stun-to-stick interval of 15 seconds should be laid down by law.
4. The SVC stressed that:

“In order to ensure rapid brain death following exsanguination, both the carotid arteries (or blood vessels from which they arise) should be severed.” (Our underlining).

CIWF Trust believes that the law must be amended to require the severing of both carotid arteries, rather than just the one carotid presently required by the law.

5. CIWF Trust is firmly opposed to the carbon dioxide stunning/killing of pigs and believes this method should be prohibited. Raj & Gregory (1996) concluded that pigs show a profound aversion to a high concentration of carbon dioxide and that this gas leads to “severe respiratory distress”.
6. As regards alternative gas mixtures for killing pigs, the science clearly indicates that 90% argon in air is preferable from a welfare viewpoint to a mixture of 30% carbon dioxide and 60% argon in air.

CIWF Trust believes that, if abattoirs switch to using gas mixtures, they should choose 90% argon in air which the science shows causes minimal respiratory distress before loss of consciousness rather than to a mixture of 30% carbon dioxide and 60% argon which the science concludes induces moderate distress (Raj & Gregory, 1996). Surely minimal distress must be preferable to moderate distress.

7. Gas mixtures should only be used to kill pigs, not to stun them. In commercial practice there could be problems with both argon and a mixture of carbon dioxide and argon. Neither lead to rapid death. In both cases, if the pigs are not left in the gas long enough to kill them, they regain consciousness relatively quickly after stunning and therefore it is essential that there is a short stun-to-stick interval. Clearly pigs must be left in the gas long enough for them to be killed rather than just stunned.
8. The Ministry of Agriculture (MAFF) should commission an independent survey to establish what proportion of poultry slaughterhouses are using sufficient current to kill the majority of broilers in the stunner, and what proportion are severing both carotid arteries.
9. CIWF Trust is extremely concerned about the move by some poultry slaughterhouses to adopting high frequency electric currents. The science has established that, from the welfare viewpoint, it is best to try and kill birds in the stunner to avoid the risk of them regaining consciousness during bleeding out. High frequency stunning compromises welfare as high frequency currents never or rarely kill broilers in the stunner, and decrease the incidence of turkeys being killed in the stunner. CIWF Trust urges the industry not to use high frequency currents.
10. A considerable number of broilers receive pre-stun shocks. Urgent steps must be taken to stop this happening.
11. A significant number of broilers may well still be conscious at neck-cutting. Action is urgently needed to prevent this.
12. CIWF Trust urges the industry to develop an effective constant current (as opposed to constant voltage) multibird waterbath stunner which would be beneficial from both a welfare and meat quality viewpoint.
13. Some slaughterhouses have already started using gas stunning for broilers. The two gas mixtures that are mainly talked about in the literature are (as with pigs) 90% argon and a mixture of 30% carbon dioxide and 60% argon. CIWF Trust is concerned that the industry appears to be adopting the carbon dioxide/argon mixture rather than the 90% argon in air. This is disturbing as the latter is likely to cause much less distress. The industry should adopt the gas mixture which causes less distress, i.e. 90% argon.
14. The SVC made it clear that if birds are only stunned (rather than killed) with the gas mixtures, they regain consciousness “very rapidly”. This means that, in order to prevent birds regaining consciousness, they must be killed (rather than stunned) by the gas.
15. CIWF Trust is firmly opposed to the use of 30% oxygen and 40% carbon dioxide as this mixture prolongs the time taken to reach unconsciousness.

16. CIWF Trust believes that it is anomalous that the law places a maximum of 3 minutes on the time for which broilers can be left hanging upside down from the shackles, while it allows the much heavier turkey to be left hanging upside down for up to 6 minutes. CIWF Trust believes that the law must be changed to greatly reduce the time for which turkeys can be left hanging in the shackles.
17. A 1993 University of Bristol survey found 57.5% of turkeys to be experiencing pre-stun electric shocks. The SVC's 1996 report stressed that "The prevalence of pre-stun electric shock in turkeys is high (about 80%)". CIWF Trust believes that urgent action is needed to reduce the incidence of such pre-stun shocks.
18. CIWF Trust fears that a number of turkey slaughterhouses fail regularly to induce cardiac arrest at stunning and to sever both carotid arteries despite the clear welfare advantages of doing so.
19. The dangers involved in the turkey slaughter process were highlighted by a 1988 survey which showed that 0.1% of turkeys were still alive on entering the scalding tank. MAFF should commission an independent survey to examine whether this problem still exists.
20. In seasonal slaughterhouses, many turkeys are killed by neck dislocation. Scientific research shows that the neck dislocation does not usually have an immediate effect on the brain (Gregory & Wotton, 1990). In other words, unconsciousness may not be instantaneous. In the light of this, CIWF Trust believes that neck dislocation should be prohibited.
21. Turkeys are sometimes plucked within seconds of neck dislocation. In many cases, they are still alive when being plucked. Unfortunately, there is a serious loophole in the law. For most methods of turkey slaughter, the 1995 Regulations require a 2-minute gap between neck cutting and plucking to ensure that the turkeys are dead when being plucked. Surprisingly, this rule does not apply to turkeys killed by neck dislocation. CIWF Trust believes that the law should be changed to require at least 2 minutes to elapse between neck dislocation and plucking to prevent turkeys being plucked while still alive.
22. CIWF Trust is opposed to the religious slaughter of animals (including poultry) where such slaughter means that the animals are not stunned before slaughter. We believe the law must be changed to require all animals and poultry to be stunned before slaughter even when being slaughtered for the food of Jews or Muslims.
23. A significant proportion of meat from religiously slaughtered animals finds its way to non-Jewish and non-Muslim consumers. CIWF Trust believes that, in the interests of informed consumer choice, the meat from religiously slaughtered animals should be labelled as such.

24. CIWF Trust believes that the law should be strengthened to prohibit the slaughter of animals without prior stunning where the meat is destined for export rather than for consumption by the Muslim and Jewish communities in the UK.
25. CIWF Trust believes that all public bodies should be instructed to ensure that, if they supply halal meat, it should only be given to Muslims or, preferably, that they should only provide halal meat which comes from animals which have been stunned before slaughter.
26. Much greater priority to enforcement of the welfare rules should be given by the Meat Hygiene Service.
27. All slaughterhouses should have staff who have undergone formal training and should have written procedures to safeguard welfare.

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