

CHAPTER 7.5.

SLAUGHTER OF ANIMALS

[Article 7.5.1.]

[Article 7.5.2.]

[Article 7.5.3.]

[Article 7.5.4.]

[Article 7.5.5.]

[Article 7.5.6.]

Article 7.5.7.

Stunning methods

1. [...]
2. [...]
3. Electrical stunning

a) [...]

b) Electrical stunning of birds using a waterbath

This section should be read in conjunction with Article 7.5.7.3 a) and with Article 7.5.7.5.

There should be no sharp bends or steep gradients in the shackle line and the shackle line should be as short as possible consistent with achieving acceptable line speeds, and ensuring that birds have settled by the time they reach the waterbath. A breast comforter can be used effectively to reduce wing flapping and calm birds. The angle at which the shackle line approaches the entrance to the waterbath, and the design of the entrance to the waterbath, and the draining of excess 'live' water from the bath are all important considerations in ensuring birds are calm as they enter the bath, do not flap their wings, and do not receive pre-stun electric shocks.

In the case of birds suspended on a moving line, measures should be taken to ensure that the birds are not wing flapping at the entrance of the stunner. The birds should be secure in their shackle, but there should not be undue pressure on their shanks. The shackle size should be appropriate to fit the size of the shanks (metatarsal bones) of birds.

Birds should be hung on shackles by both legs.

Birds with dislocated or broken legs or wings should be humanely killed rather than shackled.

The duration between hanging on shackles and *stunning* should be kept to the minimum. In any event, the time between shackling and *stunning* should not exceed one minute.

Waterbaths for *poultry* should be adequate in size and depth for the type of bird being slaughtered, and their height should be adjustable to allow for the head of each bird to be immersed. The electrode immersed in the bath should extend the full length of the waterbath. Birds should be immersed in the bath up to the base of their wings. Electrical shock before *stunning* should be prevented.

The shackle-to-leg contact should be wetted preferably before the birds are inserted in the shackles. In order to improve the electrical conductivity of the water, it is recommended that salt be added to the waterbath as necessary. Additional salt (as a solution) should be added regularly to maintain a suitable constant concentration in the waterbath.

The waterbath should be designed and maintained in such a way that when the shackles pass over the water, they are in continuous contact with the earthed rubbing bar.

The control box for the waterbath stunner should incorporate an ammeter which displays the total current flowing through the birds.

~~The shackle-to-leg contact should be wetted preferably before the birds are inserted in the shackles. In order to improve the electrical conductivity of the water, it is recommended that salt be added in the waterbath as necessary. Additional salt should be added regularly as a solution to maintain suitable constant concentrations in the waterbath.~~

The effectiveness of the stun depends on the interaction of several parameters in the *stunning* process such as current type (alternating current (AC) or direct current (DC), amperage, voltage, frequency, electrical wave form, electrical impedance, length and width of the live electrode, contact with the earth rail, depth of bird immersion and bird dwell time in the waterbath and the size, weight, and age of the birds. AC is more effective than DC at inducing unconsciousness. Higher frequencies require higher amperage for an effective stun.

The management of these parameters to ensure all birds are effectively stunned should be set out in standard operating procedures in the *slaughterhouse/abattoir's* dedicated plan for animal welfare, taking into account manufacturers' instructions and traceability concerns.

As birds will have different impedances and are generally stunned in groups, the equipment should be adjusted so that the total current is the minimum required current per bird to achieve unconsciousness. The effective current for a particular *slaughterhouse/abattoir's* operation should be adjusted through monitoring specific indicators such as voltage, calculated amperage and frequency.

Standard procedures should be implemented to ensure that small birds do not go on the line amongst bigger birds and that these small birds are stunned separately.

~~Using waterbaths, birds are stunned in groups and different birds will have different impedances. The voltage should be adjusted so that the total current is the required current per bird as shown in the table hereafter, multiplied by the number of birds in the waterbath at the same time. The following values have been found to be satisfactory when employing a 50 Hertz sinusoidal alternating current.~~

~~Birds should receive the current at least 4 seconds. While a lower current may also be satisfactory, In any case, the current ~~shall~~should in any case be such as to ensure that unconsciousness occurs immediately and lasts until the bird is braindead ~~has been killed by cardiac arrest or by bleeding. When higher electrical frequencies are used, higher currents may be required.~~~~

The following table shows the minimum average current required in experimental conditions according to frequency range for AC using a sinusoidal wave form.

	<u>Minimum average current (milliamperes per bird)</u>			
<u>Frequency (Hz)</u>	<u>Broilers</u>	<u>Turkeys</u>	<u>Layers (spent hens)</u>	<u>Ducks and geese</u>
<u>From 50 to 200 Hz</u>	<u>100 mA</u>	<u>250 mA</u>	<u>100 mA</u>	<u>130 mA</u>
<u>From 200 to 400 Hz</u>	<u>150 mA</u>	<u>400 mA</u>	<u>No data available</u>	<u>No data available</u>
<u>From 400 to 1500 Hz</u>	<u>200 mA</u>	<u>400 mA</u>	<u>No data available</u>	<u>No data available</u>

The use of other wave forms, current, amperage and voltage combinations should be scientifically validated to demonstrate effective *stunning* (immediate onset of unconsciousness until death) prior to implementation.

The means of assessing the welfare outcomes of the *stunning* process should also be set out in the standard operating procedures in the *slaughterhouse/abattoir's* plan for animal welfare. The effectiveness of *stunning* should also be regularly monitored by assessing the following indicators and their corresponding outcomes of consciousness at two key stages: (a) between the exit from the waterbath stunner and neck cutting and (b) during bleeding. It is better if bird welfare monitoring is focused on detecting consciousness. A list of selected indicators is proposed to check for signs of consciousness. The staff responsible for welfare outcome monitoring should choose the most appropriate set of indicators (more than one, but as many as practical) from the list according to their expertise and the available infrastructure in the *slaughterhouse/abattoir*. Assessment using a single indicator may be misleading. Multiple indicators should be assessed in order to reach a reliable conclusion. Ideally, at any time after application of an electric current, birds should not display signs of consciousness. In any event the number of indicators used must demonstrate the required welfare outcome.

Indicators to confirm unconsciousness at slaughter are as follows:

- a) presence of tonic seizures
- b) absence of rhythmic breathing
- c) absence of spontaneous blinking
- d) absence of corneal or palpebral reflex
- e) absence of vocalisation
- f) absence of wing flapping
- g) absence of spontaneous swallowing
- h) absence of head shaking

The first three indicators in the list (tonic seizures, absence of rhythmic breathing, absence of spontaneous blinking) are considered the most important and practical indicators before exsanguination.

If the indicator shows that an effective stun is not being delivered then the operator should take immediate corrective action by adjusting the stun parameters to ensure birds are rendered immediately unconscious until death by bleeding occurs. In case of repetitive failure, the management of the *slaughterhouse/abattoir* should develop an improvement plan.

Indicators b) and f) (absence of rhythmic breathing, absence of wing flapping) are considered the most important and practical indicators during bleeding.

~~Every effort shall be made to ensure that no conscious or live birds enter the scalding tank.~~

~~In the case of automatic systems, until fail-safe systems of *stunning* and bleeding have been introduced, Whatever cutting system is used, a manual back-up system to should be in place to ensure complete severance of the carotid arteries that any birds which have missed the waterbath stunner and/or the automatic neck-cutter are immediately stunned and/or killed immediately, and they are dead before entering scald tank.~~

No conscious or live birds should enter the scalding tank.

A sampling and monitoring programme to demonstrate that the relevant welfare outcomes are attained should be developed and included into the dedicated plan for animal welfare of the *slaughterhouse/abattoir* (Article 7.5.2. point 1).

To lessen the number of birds that have not been effectively stunned reaching neck cutters, steps should be taken to ensure that small birds do not go on the line amongst bigger birds and that these small birds are stunned separately. The height of the waterbath stunner should be adjusted according to the size of birds to ensure even the small birds are immersed in the water bath up to the base of the wings.

Waterbath *stunning* equipment should be fitted with a device which displays and records the details of the electrical key parameter.—

Minimum current for *stunning* poultry when using 50Hz is as follows:—

Species	Current (milliamperes per bird)
Broilers—	100—
Layers (spent hens)—	100—
Turkeys—	150—
Ducks and geese—	130—

Minimum current for *stunning* poultry when using high frequencies is as follows:—

Frequency (Hz)—	Minimum current (milliamperes per bird)—	
	Chickens	Turkeys
From 50 to 200 Hz—	100 mA—	250 mA—
From 200 to 400 Hz—	150 mA—	400 mA—
From 400 to 1500 Hz—	200 mA—	400 mA—

4. [...]

5. [...]

[Article 7.5.8.]
