


Electrical Stunning efficiency

Stunning



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How to monitor stunning and bleeding efficiency after electrical (head-to-body) stunning?

- Slaughter must legally spare animals any avoidable pain, distress or suffering. This implies that the stunning device renders the pigs unconscious as quickly as possible, and remains the pigs unconscious and insensible until death occurs.
- Animal-based indicators should be used to measure the effectiveness of stunning and bleeding. They should be tested with caution, preferably assessing the pigs immediately after ejection, after ca. 40 sec. and during bleeding / before further slaughtering. 
- First observations shall be done immediately after the ejection from the stunning box as a visual check of each pig for the presence of a tonic state, absence of directed movements, vocalisations, regular breathing or a spontaneous blinking. About 40 seconds after the end of the stun additional reflex tests such as the palpebral or corneal reflex and the pain reflex can be performed.

Recommended are thoroughly checks on a daily basis on 20% of the hourly slaughter performance, immediately after the ejection, approx. 40- 60 sec. after sticking/during bleeding.

Pigs classified as "Questionable" must be observed further or stunned again as a precaution (safety stunning).

Pigs classified as "Not OK" must be safely re-stunned.

If pigs are classified as "Not OK", a troubleshooting is carried out including the stunning protocol of the recording system of the stunning device. Systemic errors shall be corrected.

(Bsi Schwarzenbek, 2020)

Legal requirements

Council Regulation (EC) No 1099/2009: Requirements associated with handling and stunning at the time of slaughter:

- {Chapter II, Article 3, Point 1., Point 2.d}: General requirements for killing and related operations.
- {Chapter II, Article 5, Point 1., Point 3.}: Checks of efficiency of the stunning process.
- {Chapter II, Article 6, Point 2.b}: Standard Operating Procedures ensuring the effectiveness of stunning.
- {Chapter II, Article 7, Point 2.d}: Level and certificate of competence.
- {Chapter III, Article 16, Point 2.}: Monitoring procedures at slaughterhouses.

Note: Listed requirements are not comprehensive. Moreover, there might be stricter national legislation in place.

Inspection method (recommended)

- The official inspector assesses stunning efficacy after stunning, after sticking and during bleeding.
- If pigs show signs of an improper stunning efficiency, the inspector evaluates the Business Operators' SOPs concerning monitoring the stunning efficiency and pre-slaughter management.
- In case of infringements, the inspector reports findings to Business Operators and/or Animal Welfare Officers.
- In case of infringements, the inspector verifies the SOPs of the slaughterhouse and corrective actions are carried out to ensure the situation complies with legal requirements in the future.

Electrical Stunning efficiency Assessment method

Inspectors assess resource- and/or management-based indicators to evaluate compliance with Council Regulation 1099/2009. However, this should always be complemented with the evaluation of animal-based indicators to evaluate the welfare of pigs at slaughterhouses.

Check	OK Sufficient stunning at the time of testing	Questionable Shallow stunning, waking up of the animals is possible continue to observe these pigs	Not OK Animals must be stunned immediately if any of these signs occur (one sign = one line)
Inspection time-point A within approx. 30 s after the end of the current flow through the head (i.e. during the phase in which epilepsy occurs, in case sufficient current has been applied)			
Body Movements¹ (Musculo-skeletal System)	Signs of epilepsy, tonic muscle spasms after removal of the tong /at landing, front legs extended/ stretched, hind legs pulled under the belly, then paddling movements	head lifts up (may be part of epileptic state, but without epileptic seizures also signs of improper stunning)	no convulsion/ no tonic phase coordinated movements, e.g. rightening
Eyes²	trembling of the eyeball / eyelids	pupil constricts again	spontaneous closure of the eyelid (=spontaneous blinking) directed movements of the eye
Breathing / vocalisation³	none (noises may occur when the electrodes are removed)	sporadic gasping	regular breathing/ ≥ 4 movements (mouth or chest) continuous or repeated vocalisations
End of epilepsy (approx. 25-40 seconds after end of current flow) - at this stage A transitions into B. Inspection time-point B: later than approx. 40 s after end of the current flow through the head.			
Body Movements	Paddling, running movements (subsiding), transition to relaxation after approx. 60 s	Long-lasting muscle spasms, also with movements (often jerkily)	directed movements (e.g. pulling head/neck up/backwards/to the side, curling/stretching front legs)
Reaction to nose pinch	no or single positive reaction	repeated positive reaction without any further signs	repeated positive reaction together with another signs in this column
Reactions at the eye⁴	Eyeball fixed and eye wide-open without any reactions, single eye lid reflex or corneal reflex	pupil not wide and/or repeated eye reactions (eyelid, cornea or pupil reaction to light stimulus) without any further signs	spontaneous eyelid closure (blinking) or directed eye movements repeated eye reactions together with another signs of this column
Respiration	none	movements up to 4 x (e.g. mouth, chest, abdomen, blowing out air)	regular breathing (>4 respiration movements)
Vocalisation³	none	isolated sounds possibly together with breathing movements	repeated or continuous vocalisation
Signs of absence of life before further slaughtering			
Blood flow, movements and pupil	cessation of bleeding, relaxation of the body or absence of muscle tone/ no movements, dilated pupils	incomplete cessation of bleeding, incomplete relaxation of the body or preserved muscle tone/ movements (including mouth opening), no dilated pupils	

Overall score:

"Not OK": one line of eye, respiration or locomotor system "Not OK";

"Awake": animals are usually "Not OK" if more than one line is "Not OK".

¹ due to the immobilising effect of currents with changing frequencies reactions may be only weakly pronounced

² in the case of existing epileptic activities, reflexes in the eye are not to be evaluated!!

³ due to immobilisation the voice can be very quiet

⁴ due to the immobilisation reactions on the eye may be difficult to interpret

Source for the assessment method: [bsi Schwarzenbek, 2020](#)













EU Reference Centre
for Animal Welfare *Pigs*

If you have any questions or suggestions regarding this factsheet please contact info.pigs@eurcaw.eu

Electrical Stunning efficiency Assessment method

Please scan the QR codes to see video examples of classification into the three categories based on the assessment of the different organ systems.

Check	OK	Questionable	Not OK
Inspection time-point A			
Body Movements, Eyes, Breathing/ Vocalisations	<p>Scan the QR code to watch these pigs showing rigidly stretched front and flexed hind limbs, then paddling mostly of the hind legs.</p> 	Pig lifts head up, pupil constricts again or sporadic gasping.	 <p>©EURCAW-Pigs</p> <p>Scan the QR code to watch one of these pigs showing one spontaneous closure of the eyelid and directed movements of the eye.</p>
	<p>Scan the QR code to watch these pigs showing trembling of the eyeball / eyelids.</p> 		
	<p>Scan the QR code to watch these pigs showing dilated pupils and no eye movements.</p>  <p>©EURCAW-Pigs</p>		
Inspection time-point B			
Body Movements	<p>Scan the QR code to watch these pigs showing paddling movements (subsiding) and the transition to relaxation.</p>  <p>©EURCAW-Pigs</p>	<p>Scan the QR code to watch this pig showing very weak Fading mouth opening (gasps) >4x, but then no other signs.</p>  <p>©EURCAW-Pigs</p>	<p>Directed movements, repeated positive reaction together with other signs in this column, spontaneous blinking or directed eye movements, repeated eye reactions together with other signs of this column, regular breathing (>4 respiration movements), repeated or continuous vocalisation</p>
	<p>Reaction to nose pinch</p>		
Reactions at the eye/ Respiration, Vocalisation	<p>Scan the QR code to watch these pigs showing no positive corneal reflexes. Eyeball fixed and eye wide-open without any reaction.</p>  <p>©EURCAW-Pigs</p>	<p>Scan the QR code to watch a pig showing repeated corneal reflexes, but no other signs.</p>  <p>©WQ</p>	
Signs of absence of life before further slaughtering			
Blood flow, movements and pupil	<p>Scan the QR code to watch these pigs with relaxed bodies, absence of muscle tone and no movements.</p>  <p>©EURCAW-Pigs</p>	<p>Scan the QR code to watch this pig showing an incomplete relaxation of the body and a preserved muscle tone accompanied by movements.</p>  <p>©GenbaSolutions</p>	



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