

Stunning effectiveness



What are iceberg indicators?

Iceberg indicators can be described as animal-based indicators which reflect a multitude of underlying welfare issues. Although, animal welfare is multi-dimensional, iceberg indicators provide an initial overview of pigs welfare state, which could help to estimate the risk to animal welfare. Therefore, the number of pigs which are not stunned sufficiently and categorized as "Not OK", or "Questionable" (see next pages) is considered to be a suitable animal-based iceberg indicator to assess the welfare of pigs during slaughter.



What does the stunning effectiveness indicate?

- If pigs are stunned insufficiently they might experience distress, fear and pain.
- The percentage of pigs that were insufficiently stunned indicates further animal welfare problems within the slaughterhouse.
- Insufficient stunning can be due to many causes, e.g.:
 - Agitation of the pigs
 - Inadequate maintenance of the stunning devices
 - Inappropriate settings of the stunner/equipment
 - Untrained or overtired personnel.

Inspection method (recommended)

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

Signs of consciousness are a righting reflex, regular breathing, a reproducible reaction to pain stimuli, corneal or palpebral reflex tests, and vocalisations.

Signs of return of consciousness are recovery of breathing (incl. gasping), positive corneal reflexes, or spontaneous blinking of the eye lids.



Recommended are checks on a daily basis 20% of the hourly slaughter performance. Each pig is examined for signs of consciousness or return of consciousness.

Overall score:

"Not OK": Pigs if one line of eye, respiration or, body movements is scored as "Not OK";

"Awake": Pigs if more than one of the signs of the eyes, respiratory organs, or body movements is scored as "Not OK".

The percentage of insufficiently stunned pigs will be calculated. 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.

Check	OK	Questionable	Not OK
	Sufficient stunning at the time of testing	shallow stunning, waking up of the animals is possible continue to observe these pigs	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
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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](#)



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for Animal Welfare Pigs



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Check	OK	Questionable	Not OK
	Sufficient effective stunning at the time of testing	Shallow stunning, waking up is possible, continue to observe these pigs or re-stun "in case"	Animals must be re-stunned immediately, if any of these signs occur
Eyes			
Eyelid	does not close (spontaneously/ on touch)	closes once (spontaneously/ on touch)	closes and opens without touching regularly = spontaneous blinking
Cornea	touching is possible without eyelid closure	eyelid closure can be triggered 1-2 times	eyelid closure can be triggered regularly (+ presence of regular breathing movements)
Pupil	wide open and central	normal dilatation	narrows on exposure to light (+ presence of regular breathing movements)
Respiratory organs			
Nostrils	are motionless	move	move regularly (+ reactions at the eye or body movements)
Chest	motionless	single movement (1-2 times)	regular movements (+ reactions at the eye or body movements)
Mouth	closed, motionless	opens 1-4 times	opens regularly > 4x (+ eye or body movements), vocalisations
Body movements			
Body Movements	no movements, muscles relaxed	kicking during hoisting, curling of the forelegs reaction to bleeding	lifting of head, ongoing (running) movements, forelegs not hanging down or righting attempts when hanging on the rail
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, no dilated pupils

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