

Slaughter and killing of pigs

EURCAW-pigs Competent Authority & Policy meeting 2021

Marien Gerritzen



Main topics according to the discussions

1. CO₂ stunning, issues and alternatives
2. Methods for the mass depopulation of pigs in case of a disease outbreak
3. Euthanasia on farm

CO₂ stunning:

- In most countries the most important method applied.
- Benefit over electrical stunning based on stunning in groups.
- Handling in electrical stunning systems is an animal welfare issue.
- Failure rate is higher in electrical stunning.
- Malfunctions of gas stunning systems are not always easy to fix.
- How to improve gas stunning (mixtures, 2-fase system, concentrations)
- How to check effective stunning

Scientific point of view: alternative gas mixtures for high CO₂

- Research focussed on :
 - Nitrogen or mixture of Nitrogen with CO₂ (incl. N₂ filled foam)
 - Lower CO₂ concentrations or 2 phase methods
 - Other gasses like Argon, Helium

Scientific point of view: alternative gas mixtures for high CO₂

- Lower CO₂ concentrations or two step methods results in longer induction time with aversive reactions and a shorter stun-stick interval.
- N₂ or N₂ /CO₂ mixtures leads to less aversive responses, longer induction time and fast recovery of consciousness
- For alternative gasses like argon or helium there are no serious results published or developed.

Scientific point of view: electrical stunning

- Electrical stunning is the best alternative for CO₂ stunning
- Negative aspects that need to be improved are
 - handling of animals prior to stunning,
 - placement of the electrodes to guarantee effective stunning

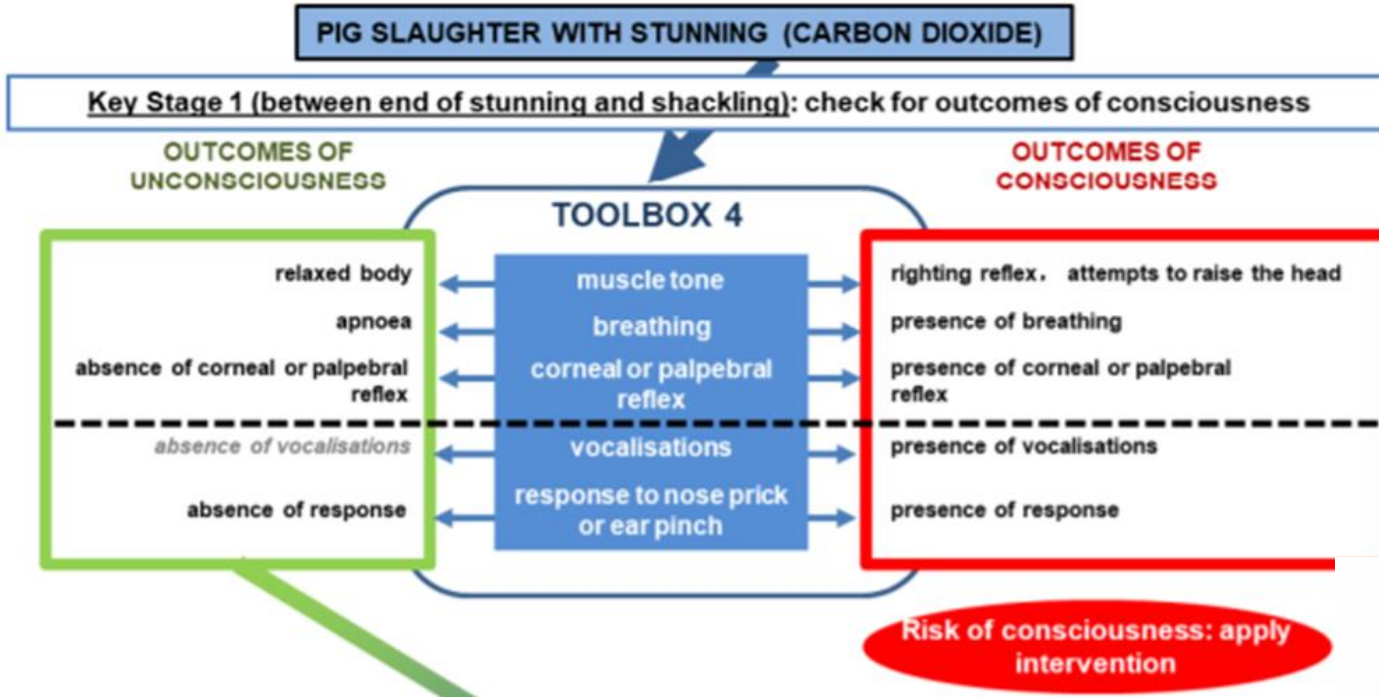
Scientific point of view: improving electrical stunning

- reduce the pressure on moving animals from lairage to the point of stunning
- Design of the raceway and the entrance of the stunner help to create better flow of the animals and will reduce stress.
 - Curved raceways, walk from dark to light, takeout distractions, give animals time to orientate,..
- Reduce the throughput rate will reduce pressure on animals
 - Use two stunners instead of one

Checking effective stunning

- There is no practical device that can check unconsciousness.
- Toolbox with animal based indicators are provided by EFSA <https://efsa.onlinelibrary.wiley.com/doi/pdf/10.2903/j.efsa.2020.6148> and can be found in the EURCAW review <https://www.eurcaw.eu/en/eurcaw-pigs.htm>

Checking effective stunning



On farm killing for disease control

- What methods are available
- How to decide on the best practice related to human animal interaction, animal welfare, effectivity

Methods for on-farm stunning and killing of pigs (overview)

Physical methods		Chemical methods	
<u>Mechanical methods</u>	<u>Electrical methods</u>	<u>Inhaled methods</u>	<u>Noninhaled methods</u>
✓ Penetrative captive bolt	Electrocution for killing pigs during disease outbreak	✓ Gas mixtures	Lethal injection <i>(Its use is reserved to veterinarians!)</i>
✓ Non-penetrating captive bolt		✓ Gas-filled foam	
✓ Percussive blow to the head			
✓ Firearm with free projectile		Stunning/killing in groups → use for mass depopulation of pigs during disease outbreaks	

Individual stunning/killing, e.g. of non-viable pigs at farm level

Knowledge and skills of the operator are crucial for a successful performance of the methods with regard to animal welfare.

Available methods: Electrical Killing

Passing an electrical current through the brain to induce unconsciousness followed by passing an electrical current through the heart to induce death.

Considerations:

- Individual animal handling
- Limited capacity
- Easy to move
- Controllable killing method
- Check for heart failure



Available methods: Captive bolt

A penetrating captive-bolt is applied to induce immediate unconsciousness by a concussive blow to the head and penetrating the brain.

Considerations:

- Individual animal handling
- Limited capacity
- Easy to move
- Stunning method
- Requires additional killing action (bleeding or pithing)



Available methods: Mobile gas unit

Pigs are placed into a mobile container that will be filled with a gas or gasmixture.

Considerations:

- Handling and moving live animals
- Animals can be moved and killed in groups
- Capacity much larger than other methods
- Controllable killing method
- Measure gas concentrations
- Check if all animals died before disposal.



Attention points during depopulation

- Choice of method depends on the farm situation
- Respect limitation of a method
- Prevent handling of live animals if possible
- Monitor applied methods and adjust settings if required
- Check if all animals are dead before disposal
- Keep back-up measures available
- training of staff is essential

More info on BTSF e-learning:

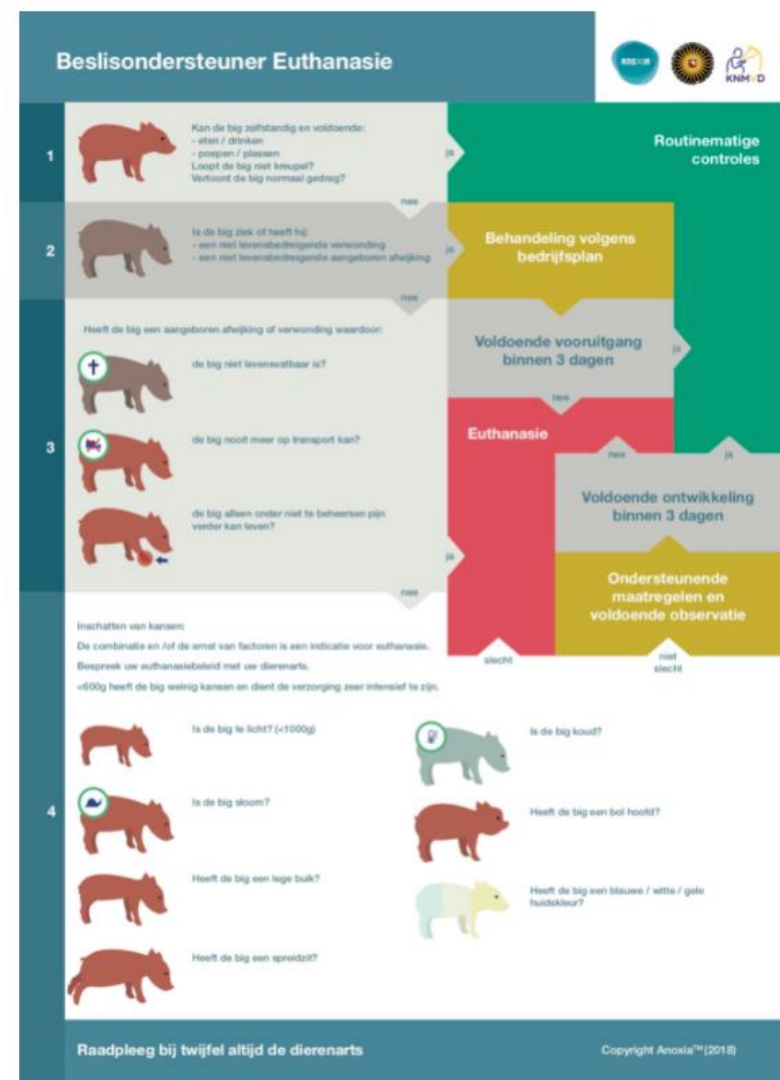
<https://btsfacademy.eu/training/mod/page/view.php?id=132>

Euthanasia

- guidelines on how, when and who is allowed to kill animals from company working

Euthanasia decision support

- Example of Dutch decision tool
- Euthanasia methods can be found in the regulation 1099/2009
- EURCAW dossier on farm killing is expected later this year



Thank you for your attention.



info.pigs@eurcaw.eu



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