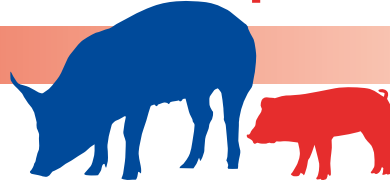


Abattoir Update

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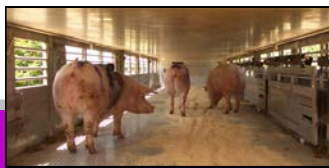


Fit for transport?



© Dr. Michael Marahrens

Practical Guidelines to Assess Fitness for Transport of Pigs



New guidelines to assess the fitness of pigs for transport have been published by the European Livestock and Meat Trades Union (UECBV).

They have been put together following two years of work by UECBV and several key stakeholders, providing a document for professionals in the sector, including enforcement agencies.

The guidelines are designed to provide easy-to-understand help and advice to those involved in the transportation of pigs and aim to complement existing European Legislation.

They provide a comprehensive list of situations that may occur and represent the real situation today. These include conditions that may result in an animal being classed as unfit for transport and will help

operators ensure that animal welfare is always maximised.

The guidelines are very visual and use photographs or drawings along with text to help all operators decide on the suitability of pigs for transport.

A copy of the guidelines can be requested from the UECBV (www.UECBV.eu)

VisStick – a new system for sticking control

Although pigs are stunned before slaughter, it is the sticking and bleeding that actually causes death.

Sticking of pigs is carried out manually and, therefore, there is a minor risk that a pig may not be stuck properly, resulting in an animal that may still be alive at scalding.

This raises serious welfare issues. As a result, the Danish Technological Institute (DMRI) has developed a vision-based automatic system to monitor all pigs, which ensures they have been stuck before moving to the next stage of the process.

The system consists of a camera, fluorescent light, control panel and computer.

From the two pictures taken, it detects whether or not blood is running from the pig's snout. If there is no sign of blood, an alarm is activated to ensure proper sticking.

How reliable is the system?

For each installation, system approval tests were carried out by DMRI, monitoring 250 non-stuck pigs randomly dispersed in 500 pigs that had been successively slaughtered.

The false positives and false negatives were recorded. A false negative occurred if the VisStick system did not detect an unstuck pig.

A false positive alarm occurred if VisStick gave an alarm even though the pig was actually stuck.

In five approval tests, a detection range from 98 to 100% of unstuck pigs was achieved.

In the DMRI approval criteria for installations, it is deemed that at least



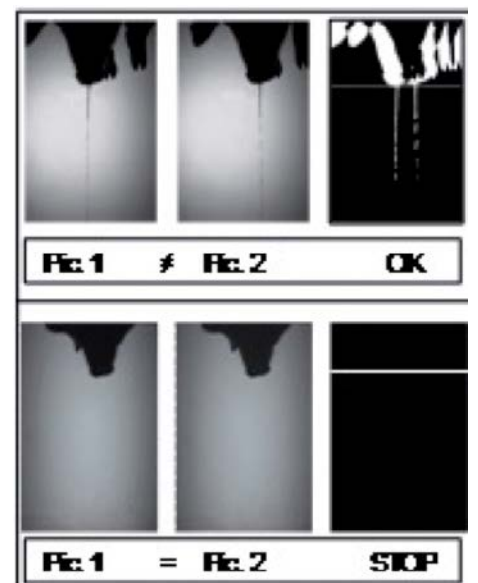
vision-based automatic system to monitor all pigs

97% of unstuck pigs are captured by the system and that the number of false positive alarms does not exceed 2%.

Conclusion

The VisStick system has proven to be reliable and cost effective and has improved animal welfare at slaughterhouses.

What's more, the system has been installed in all major Danish slaughterhouses for more than two years and is now being installed in several slaughterhouses in the EU and the USA.



Photos taken from the VisStick system

No blinking good

The question has been posed: Is blinking in response to touching the eye ball (corneal reflex) the result of ineffective stunning or residual brain-stem activity in a dying, but well-stunned animal?

The European Food Safety Authority is quite clear on the matter, concluding that effectively electrically stunned pigs show no response to touching of the eye ball.

In other words, poorly stunned animals, or those recovering from the stun prior to sticking or during bleeding, will show such a corneal reflex and must be re-stunned.

However, residual reflex activity can occur after a successful head-to body stun from 22 seconds after the initiation of a cardiac arrest because this is when the higher parts of the brain necessary to maintain consciousness have died.

But any reflex eye activity before 22 seconds following a cardiac arrest has been induced at the point of stunning and therefore should be taken as an indicator that the pig is not insensible and needs re-stunning.

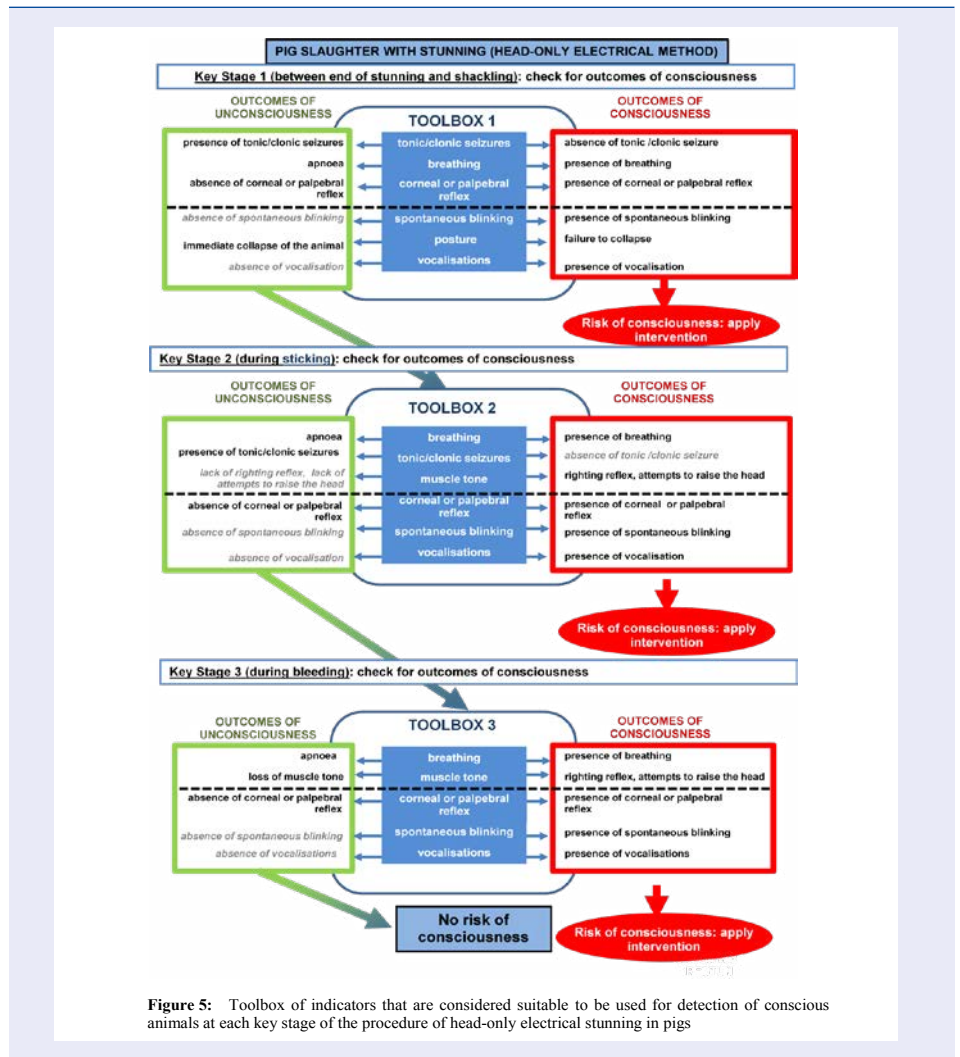


Figure 5: Toolbox of indicators that are considered suitable to be used for detection of conscious animals at each key stage of the procedure of head-only electrical stunning in pigs

Figure: Toolbox of indicators that are considered suitable to be used for detection of conscious animals at each key stage of the procedure of head-only electrical stunning in pigs (EFSA Journal 2013;11(12):3523).

When was the last time you calibrated your stunning methods?

It's important that you regularly check your standard operating procedure (SOP) and the manufacturer's recommendation for maintaining and calibrating your stunning and back-up equipment.

If asked, could those responsible for stunning answer auditors' questions about calibration and maintenance?



Low atmosphere pressure stunning



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Following a chance meeting of a pilot and an animal scientist, a new poultry stunning idea was born. The pilot proposed simulating the conditions of high altitudes, where oxygen pressure is low, to humanely stun poultry without using gas.

Turn the clocks forward 10 years and this method, using this principle, is now in place in a commercial plant in the United States.

Low atmosphere pressure stunning, or 'LAPS' for short, induces unconsciousness by gradually reducing the oxygen tension

in a controlled atmosphere chamber until the animals are unconscious through a lack of oxygen in the brain (hypoxia).

Designed for poultry, the system also shows potential for use in pigs, although substantial development and EU-approval is required first.

The pig industry has a unique opportunity to help shape and develop this possible new method. Billed on its higher welfare potential, it's important to look into the commercial aspects of LAPS simultaneously, such as maintenance of line speed, running costs and meat quality.

AHDB recently commissioned a report into the commercial application of a LAPS-type system for pigs to help kick-start this process.

While still very much at the beginning of the journey, this is an exciting opportunity with good potential to deliver a commercially viable and high-welfare stunning method.

Undercover auditor

Assessment of stunning

The concept of an effective electrical stun is embedded in European and national law as well as a variety of certification and retail standards.

One of the roles of the animal welfare officer for any Food Business Operator (FBO) is to ensure the application of systems and procedures so that the stun is effective.

However, beyond meeting statutory current delivery and contact times, how do you actually assess the effectiveness?

Corneal response and rhythmic breathing are two key indicators but, in the case of eye movement not all responses are of equal concern. Nystagmus can be seen and this is an involuntary oscillating of the eye.

However, this is distinct from 'blinking'

or fixed, focused eye movement.

Any of the latter responses are a cause for concern and are indicative that the animal was not, or is no longer effectively stunned.

Why does it matter if the animal is going to be stuck anyway? Well in the same way that it's of concern if the animal is already kicking, ie showing clonic responses, at the point of sticking, these all indicate that the animal is going into recovery. There is no guarantee or indeed likelihood that the stun will persist until the effects of blood loss (unconsciousness and death) take effect.

The argument is that an ineffective stun is an infrequent occurrence. However, any occurrence is too frequent, although it is surprising how much more frequently it seems to occur during independent inspections. The problems extend from animal

welfare and meat quality issues through to potential health and safety of personnel (if you have pigs showing excessive clonic movement at stick).

So - ensure that stunning is regularly assessed, that equipment is calibrated and well-maintained (clean tongs or electrodes which can produce good contact and conveyors that ensure accurate pig presentation in automated systems). Poor stunning can cost you money and your reputation.



What's new elsewhere?

In July 2015, the Humane Slaughter Association held its international symposium on 'recent advances'.

A total of 31 talks from researchers and policy makers were complemented by a further 30 posters – all available via the Humane Slaughter Association website. Below is a selection of some relevant papers.

Hot-water spraying is a sensitive test for signs of life before dressing and scalding in pig abattoirs with carbon dioxide CO₂ stunning

BSI Schwarzenbeck, Max Rubner-Institut and Leipzig University, Germany.

Pigs showing a response to being sprayed with hot water on their muzzle, head and forelegs looks to be a promising method to detect signs of life after stunning and sticking.

Carried out in Germany, where CO₂ is only required to stun, this method was trialled on over 37,000 pigs under commercial circumstances.

The researchers are working at automating detection, using a video detection system. Work is also underway to develop this system for electrically stunned pigs.

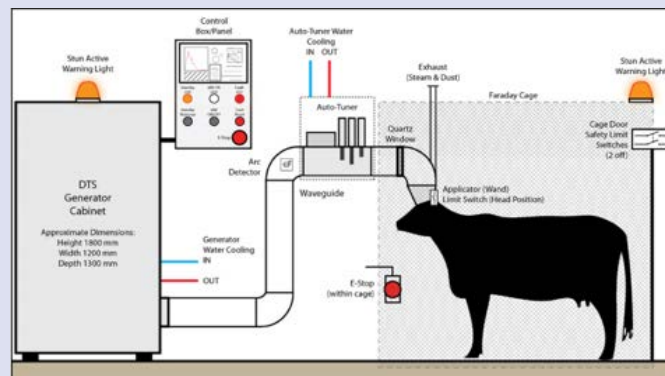
Aversion to and stun quality of 80% N₂ and 20% CO₂ versus 90% CO₂

Swedish University of Agricultural Sciences, Sweden and IRTA, Spain

A commercial, high-throughput abattoir in Europe allowed researchers to replace the usual gas mixture of 90% CO₂ with 80N₂/20%CO₂ to assess whether pigs showed less aversion to the latter.

Pre-determined dwell times in the N₂/CO₂ mixtures needed to be considerably longer than in the CO₂ mixture (six vs three mins) but, during the trial, were no longer than five and a half minutes.

Pigs stunned in both systems showed similar levels of aversion while conscious. However, effectiveness of the stun was not as good for the N₂/CO₂ mixture, although this may have been influenced by the pressure to reduce the dwell time.



DTS: Diathermic Syncope

Levels of O₂ above 2% also seemed to negatively impact on stunning success of the alternative gas mixture. Therefore, this does not seem to be a candidate to take forward in its current form.

Stunning microwaves

DTS: Diathermic Syncope® - induction of insensibility in cattle and CSIRO, Advanced Microwave Technologies and Wagstaff Food services, Australia.

Development of a new stunning method in the world of cattle focuses on the use of electromagnetic energy – in other words, microwave technology.

The Diathermic Syncope®, or DTS, selectively increases the temperature in the brain by 7-8°C until fainting occurs. The challenge in cattle is to not take it so far that irreversible brain damage and death occurs, to make it an acceptable option for use in certain religious markets.

It's early days, but the DTS successfully induces insensibility in cattle and has produced comparable post-slaughter meat quality to those stunned using the captive bolt. The work is now focusing on optimising energy parameters and consistency of recovery.

Women: Reach your peak

The third Meat Business Women event, 'Reach Your Peak', will be held on Wednesday 25 May in London.

The event will promote relationships within the meat supply chain, with the key objective of making the industry attractive to female talent and improving professional networking. The cost is £55. To book, please go to:

<https://meatbusinesswomenuk.eventbrite.co.uk>

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