Improving the welfare of piglets & sows

An exploration of teeth reduction under the 3 S's framework

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3Ts Alliance

3Ts Alliance

- Teeth, Testicles and Tails
- Established by WAP in 2019
- Global alliance of stakeholders, calling for an end to painful piglet procedures
- Scientists, producers, NGOs, consultants/advisors and veterinarians, industry reps


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Investigating risk factors behind piglet facial and sow teat lesions through a literature review and a survey on teeth reduction

Jen-Yun Chou[1,2,3]*, Jeremy N. Marchant[4], Elena Nalon[5], Thuy T. T. Huynh[6], Heleen A. van de Weerd[7], Laura A. Boyle[1] and Sarah H. Ison[8]†

Teeth reduction – legislation

- Council Directive 2008/120/EC (min. standards for the protection of pigs)
  - *"Neither tail-docking nor reduction of corner teeth must be carried out routinely but only where there is evidence that **injuries to sows' teats or to other pigs' ears or tails have occurred**. Before carrying out these procedures, other measures shall be taken to prevent tail-biting and other vices, taking into account environment and stocking densities. For this reason inadequate environmental conditions or management systems must be changed"*


SCIENTIFIC OPINION

EFSA Journal

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Welfare of pigs on farm

- Terms of Ref. 4 relates to the welfare of weaners and rearing pigs
- Tooth clipping one of 10 exposure variables evaluated
- Tooth 'reduction' rather than 'resection'

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Objective

Animal (2012), **6:8**, pp 1261–1274 © The Animal Consortium 2012
doi:10.1017/S1751731112000262

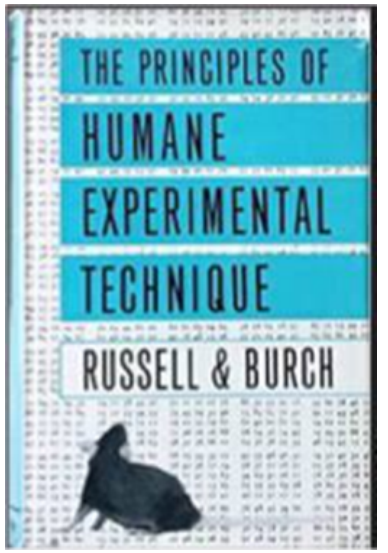
animal

Minimising pain in farm animals: the 3S approach – 'Suppress, Substitute, Soothe'

R. Guatteo[1,2,3†], O. Levionnois[4,5], D. Fournier[6,7], D. Guémené[8], K. Latouche[9], C. Leterrier[10], P. Mormède[11], A. Prunier[12], J. Servière[13], C. Terlouw[14] and P. Le Neindre[15]

To employ the 3S Framework to elucidate solutions to the animal welfare problems associated with teeth reduction

1. **Suppress the need for teeth resection**
2. **Substitute - methods**
3. **Soothe the pain**



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Background

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Teat order

- One of two social hierarchies in pigs
- Piglets born with 8 fully erupted canine and 3rd incisor teeth ('needle' teeth)
- Initially oriented outwards
- After birth, piglets fight to establish the teat order
  - Even if there are enough functional teats for all littermates
- Piglets defend preferred teat using the needle teeth

Armed sibling rivalry among suckling piglets

David Fraser & B. K. Thompson

Behavioral Ecology and Sociobiology **29**, 9–15 (1991) | Cite this article

Video credit: Keelin O'Driscoll

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Piglet facial lesions

- Pain and stress
- Facial skin necrosis
- Greasy pig disease

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Sow teat lesions

- Teat lesions
  - Bite marks, bleeding wounds, complete /partial tip missing, split or amputated teats
- Udder lesions
- Complications *(e.g. mastitis)* → early culling?
- Pain
- Physical environment, e.g. flooring *(Edwards and Lightfoot, '86)*

It is 90–100% certain that, although current legislation highlights teat damage as evidence to justify tooth reduction, facial damage to litter mates is a more related animal-based measure

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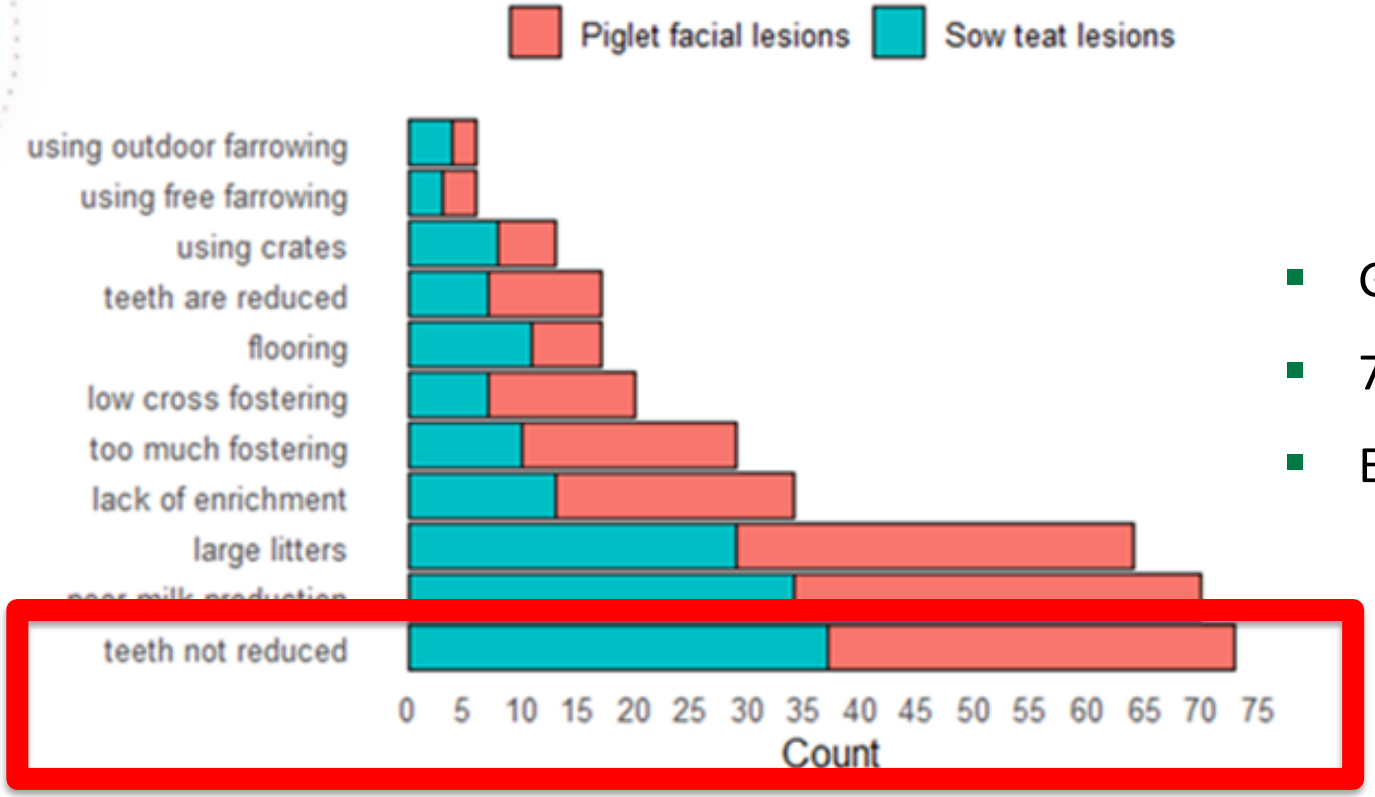
Main causes of piglet facial and sow teat lesions



- Global survey in 8 languages
- 75 respondents; 17 countries
- Europe = 64% of responses

- Respondents believed **<u>leaving teat intact</u>** is main risk for piglet facial and sow teat lesions

Teeth reduction in practice

- Clipping or grinding 8 teeth in first few days of life *(Prunier et al., 2020)*
- Manual clipping (performed using side-cutting pliers, called 'clippers') or electronic grinders (tooth abrasion with a stone)
- Total (to the gum) or partial (pointed tip/top third)
  - Should not involve opening of the dental pulp!
- All piglets or selective (e.g. teeth of smallest left intact)

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Extent of teeth reduction

- Globally - unknown
- Performed in most European countries *(Fredriksen et al., 2009)*
- Does/does not reduce teeth = 50/50
- Grinding employed by 59.5% of those who reduced piglets teeth
  - Respondents were already more conscious of teeth reduction issues?

Welfare benefits

- ⇓ injury to piglets face
- Inconsistent effects on mortality, fighting, growth, teat order
- Sow teat and udder lesions - less clear *(Hay et al., 2004; Gallois et al., 2005; Menegatti et al., 2018)*
- Behavioural indications of disturbance in sows with intact litters in farrowing crates

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Applied Animal Behaviour Science 90 (2005) 233–249
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The effect of two teeth resection procedures on the welfare of piglets in farrowing crates. Part 1

E. Lewis[a,b,*], L.A. Boyle[a], P.B. Lynch[a], P. Brophy[b], J.V. O'Doherty[b]

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The effect of two piglet teeth resection procedures on the welfare of sows in farrowing crates. Part 2

E. Lewis[a,b,*], L.A. Boyle[a], P. Brophy[b], J.V. O'Doherty[b], P.B. Lynch[a]

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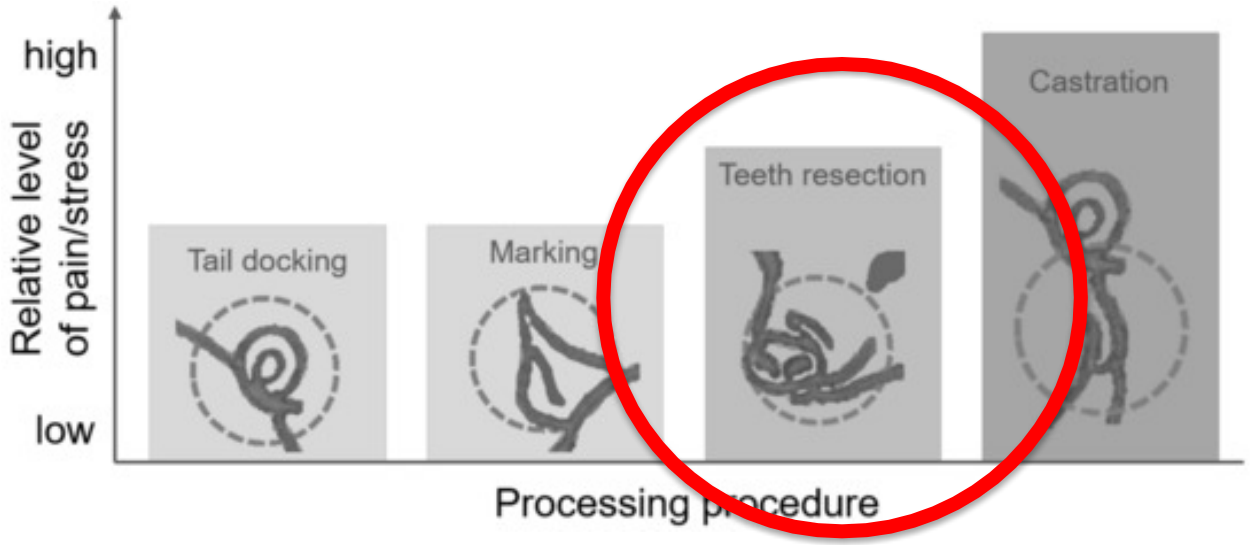
Welfare detriments

- Inexperience/splintering → injuries to the lips, gum
- Incisors and canines have different lengths → exposure of dental cavity/pulp → pulpitis and gingivitis
- Handling and restraint → fear and stress



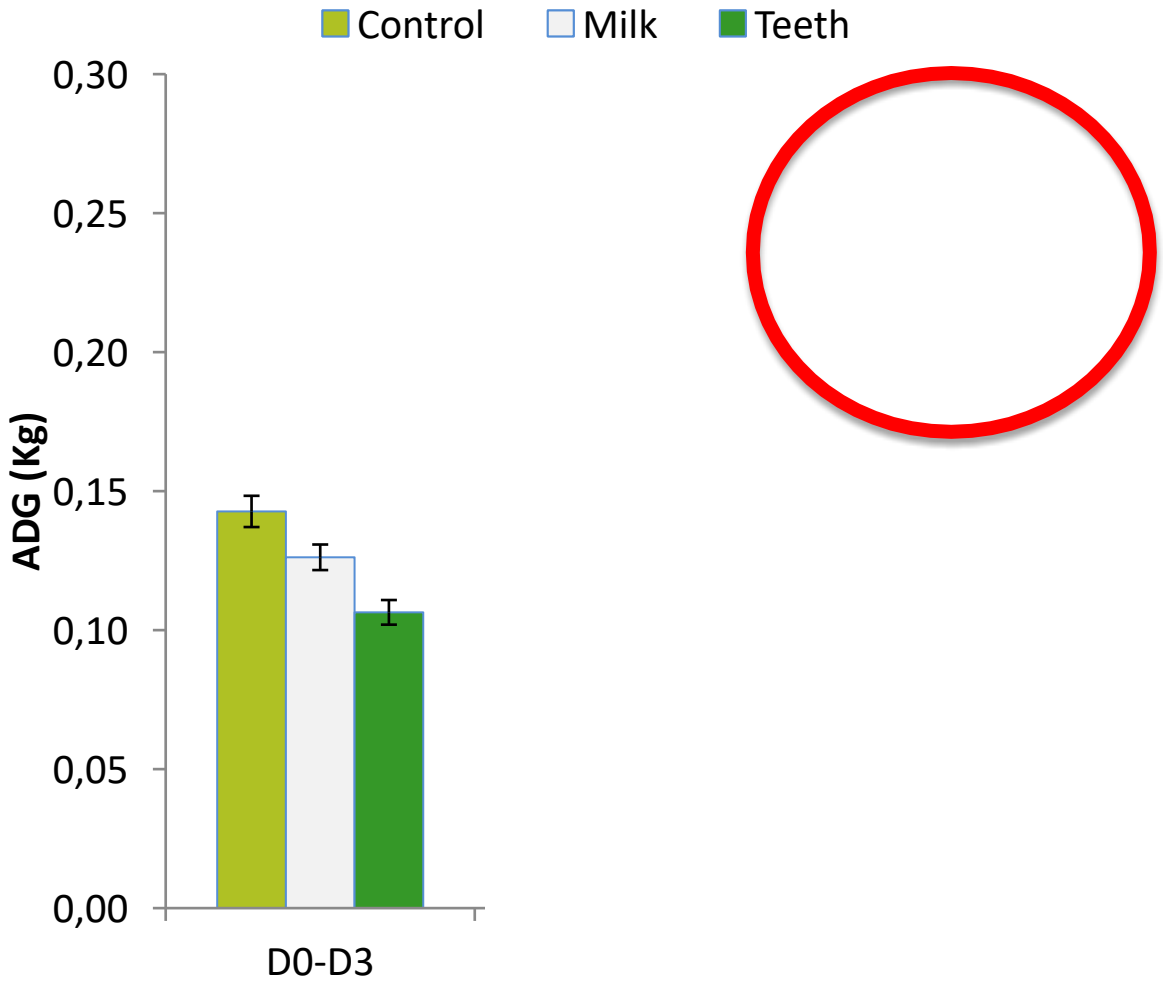
Pain

Sleeping

Activity


veterinary sciences
MDPI
Review
Impact of Routine Management Procedures on the Welfare of Suckling Piglets
Simone M. Schmid and Julia Steinhoff-Wagner *

Benefits of removing pain/stress/fear associated with teeth reduction



Leaving teeth intact had the same beneficial impact for growth, as providing a supplementary energy source during 1st 10 days of life to piglets in large litters

(Keelin O'Driscoll – unpublished)

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The 3S's
S1. Suppress

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Main causes of piglet facial and sow teat lesions

- Physical environment of farrowing house
- Piglet management
- Provision of enrichment
- Large litters
- Milk production


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The large litter problem

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www.ufaw.org.uk

Animal Welfare 2013, 22: 199-218
ISSN 0962-7286
doi: 10.7120/09627286.22.2.199

The welfare implications of large litter size in the domestic pig I: biological factors

KMD Rutherford*†, EM Baxter†, RB D'Eath†, SP Turner†, G Arnott†, R Roehe†, B Ask§, P Sandøe‡, VA Moustsen§, F Thorup§, SA Edwards#, P Berg¶¥ and AB Lawrence†

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The welfare implications of large litter size in the domestic pig II: management factors

EM Baxter*†, KMD Rutherford†, RB D'Eath†, G Arnott†, SP Turner†, P Sandøe‡, VA Moustsen§, F Thorup§, SA Edwards# and AB Lawrence†

The Telegraph

TELEGRAPH.CO.UK

Piglet litters becoming too big for sows to feed babies

Campaigners call for crackdown on breeding of 'super pigs' as ministers…

Litter size

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- ↑ litter size ↑ no. fights ↑ facial lesions in larger litters
  - Influences the proportion of 'teat fighters' and the prevalence of the resulting injuries
- ↑ litter size ↑ sow teat injuries
  - Failures to establish a stable teat order ↑ teat fighting, missed sucklings, udder massage and udder damage
- ↑ Milk shortages in large litters when there are more piglets than functional teats *(Hansson and Lundeheim, 2012)*
  - Or due to insufficient milk supply by the sow (e.g. in very young or old sows, or if they suffer from mastitis)
  - Sparse research on effect of milk supplementation

Other risk factors for piglet facial lesions

- Physical environment of farrowing house
  - Farrowing crate vs pen
  - Flooring
  - Both more related to sow teat lesions
- Piglet management
  - Cross fostering (and co-mingling) associated with fighting so both ↑ facial lesions
  - Use of nurse sows???
  - Interactions with litter size….
- Provision of enrichment
  - Could channel piglets attentions away from sows udder/littermates

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Suppression

- ⇑ focus on sow mothering traits and sow nutrition
- ⇑ piglet water intake and nutrition
- Better animal husbandry in the farrowing house
- Use of nurse sows
- Free farrowing
- ↓ Litter size
  - those who did not reduce piglets teeth considered this the **<u>main cause of lesions</u>** and the **<u>top rated measure taken to alleviate</u>** sow facial and sow teat lesions *(Chou et al., 2022)*

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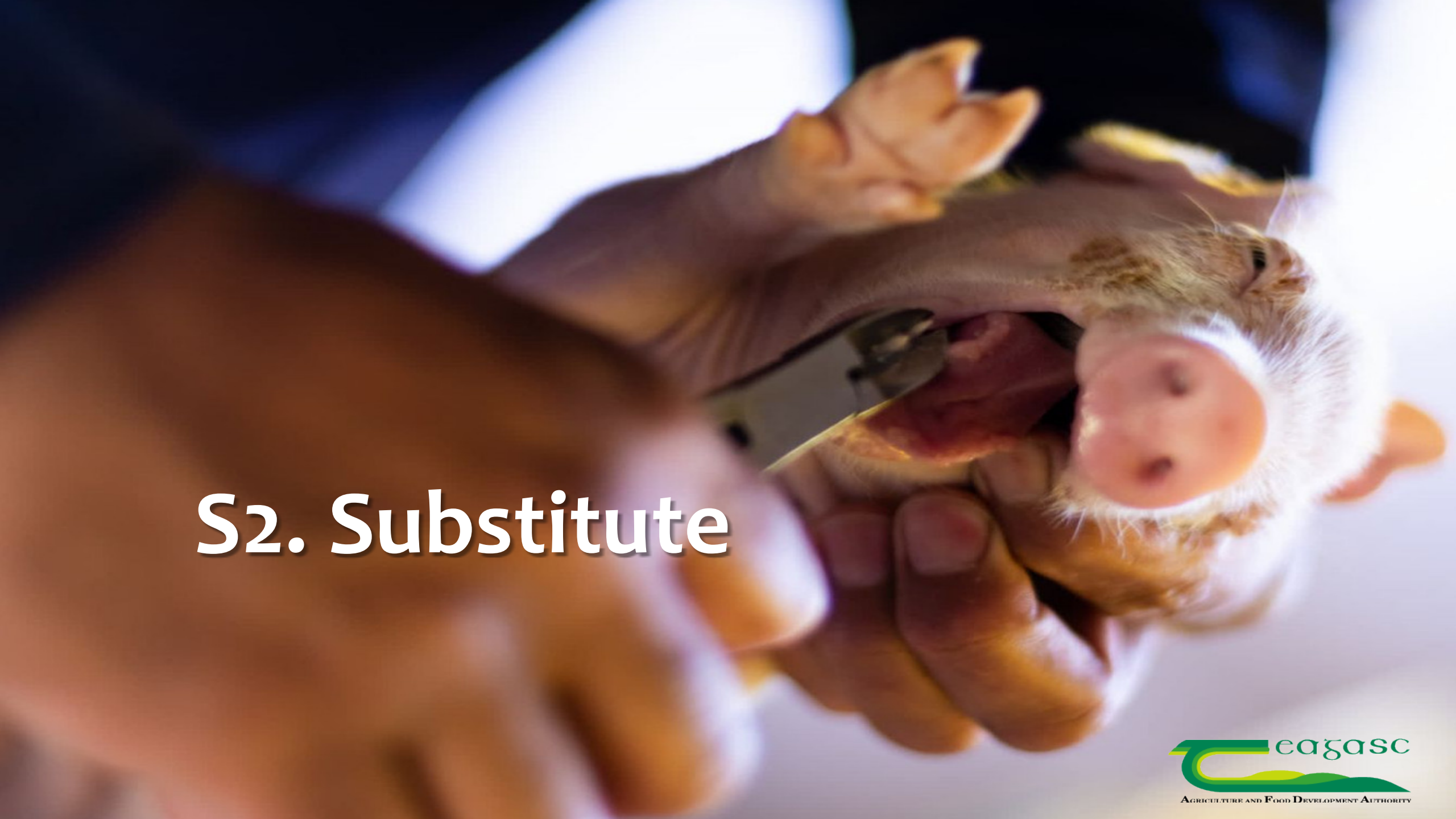

S2. Substitute

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Teeth grinding *vs* clipping

- ⇓ teeth/mouth/gum injuries
  - Splintering: Clipping 10x times > grinding
  - ⇓ 'chomping' behaviour compared to clipping
- ⇓ facial lesions compared to intact (slightly higher than clipped)
- ⇓ acute phase proteins compared to clipping


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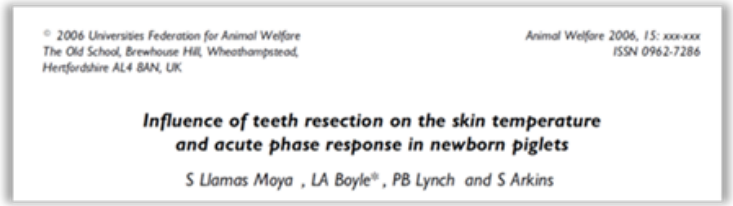
Welfare of pigs on farm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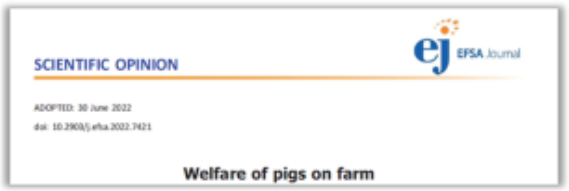
Animal Welfare 2006, 15: xxx-xxx
ISSN 0962-7286

Influence of teeth resection on the skin temperature and acute phase response in newborn piglets

S Llamas Moya , LA Boyle*, PB Lynch and S Arkins

Teeth grinding vs. clipping

- Takes longer = more labour
- Grinding ⇑ exposure to noise, heat and handling
- ⇓ body temp (activation of the SNS – not simply a product of cold stress)
- As injurious as clipping if not performed properly (grind sharpest part of the teeth)
- Training is essential
- Longer procedure + need for training ⇑ costs of production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2022 Scientific opinion on pig welfare

Conclusions

- It is 66–100% certain that tooth reduction is a stressful procedure that if performed incorrectly causes short- and long-term pain. In particular**, clipping is inherently injurious**
- It is 66–100% certain that **grinding to only blunt the sharp tip** of the tooth **does not injure sensitive tissue** when correctly performed

Recommendations

- **Tooth clipping should not be used**
- Only **well-trained staff** judged to be competent should perform tooth reduction by **correct grinding procedure** that does not injure sensitive tissue

S3. Soothe

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Soothe

- Analgesia in teeth reduction not well studied
- Acute (procedure) and chronic (inflammation) pain
- Persists for up in 6wks
- Pain management
  - Extension of exemptions (e.g. for farmers to administer local anaesthetic)
  - National or European legislation on pain management
  - Animal welfare codes by retailers
  - Decision support tools for farmers and vets


animal

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- Pain relief (Meloxicam) required for tooth reduction in Austria & Israel *(Pozzi and Alborali, 2016)*
- Veterinary intervention unfeasible/impractical/uneconomic in pig production???

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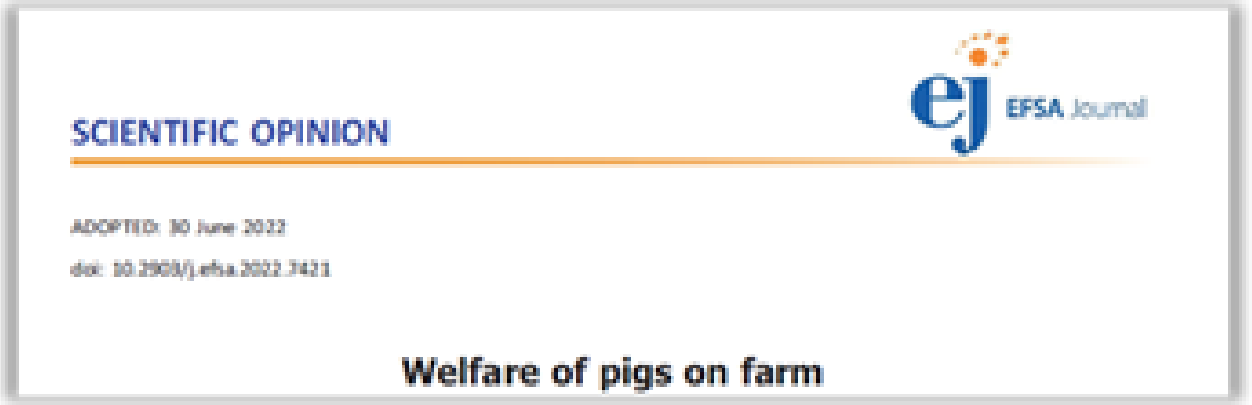
Soothe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Welfare of pigs on farm

- No recommendations re analgesia….
- Focus is on risk mitigation with limited use of grinding thereafter

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Teeth reduction masks underlying problems and does not address the causes while perpetuating suboptimal breeding, housing & management practices

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Discussion

1. Where teeth reduction practised – rare that other potentially effective measures are employed
2. Perhaps producers tried them and finding them useless resorted to teeth reduction (as per EU legislation)
3. Or teeth reduction (like tail docking) has become habitual thereby discouraging efforts to try alternative means
4. "System inertia"

Conclusions

1. **Substitute** clipping for grinding in cases where teeth reduction is absolutely necessary
2. **Soothe** the pain where injury is caused by leaving the teeth intact or grinding (minimised by training stockpersons)
3. **Suppress** the need to reduce piglets teeth by addressing the risk factors…..

Stop/reverse/reduce focus on large litters…

Thank you!

- Postgraduate and summer placement students
- Farm staff

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