

# Pain management and Enrichment for Pigs



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# Outline

- Code requirements: Pain control
- Meeting the code of practice
  - Drugs, format, timing, labour
- Code requirements: Enrichment
- Enrichment ideas for
  - Farrowing
  - Nursery pigs
  - Sows and gilts



# Why use pain control?

- Widely used in humans and companion animals
  - Improves comfort and speeds recovery
- But, adoption of pain control in Farm animals has been slow...
- *Why?*
  - Prey animals hide symptoms of pain
  - Few drugs approved for livestock
  - Withdrawal times must be met
  - Cost of drugs and time

# When to use pain control?

- Painful conditions and procedures...

## Examples:

- Piglet processing
  - castration, tail docking, teeth clipping, ear tagging
- Sow lameness
- Sows at farrowing
- Weaning?
- Mixing grow/finish pigs?



# Elective Husbandry Procedures



# Code Requirements

## Pain Control at Castration-

- As of July 1<sup>st</sup> 2016: Castration performed at any age must be done with **analgesics** to help control post-procedure pain
- Castration performed after 10 days of age must be done with **anesthetic *and* analgesic** to control pain



# Code Requirements

## Pain Control at Tail docking-

- As of July 1<sup>st</sup> 2016: Tail-docking *at any age* must be done with **analgesics** to help control post-procedure pain
- Routinely monitor pigs for tail-biting – take corrective action

# Use of post-operative analgesics

- Improve piglet welfare at/following procedure
- Improve public acceptance of pork production
- **But**- no measurable production benefits...
  - Tenbergen et al. (2014): no effect of pain control on ADG
  - **However**: Untreated piglets nursing older sows were 4 x more likely to die than piglets given meloxicam
- **Anecdotal**- reduced mortality, esp in smaller pigs
  - Further studies are needed...





# Options for Pain Control

- Post-operative pain: NSAIDs, analgesics

Metacam<sup>®</sup>, Ketoprofen<sup>®</sup>, Banamine<sup>®</sup>, Pracetam<sup>®</sup>



# Cost of Pain Control

- Post-operative pain: NSAIDs
  - Metacam, Ketoprofen- injectable
  - Metacam, Pracetam (acetaminophen)- oral
- Use of injectable analgesics involves **drug, materials and labor costs**
  - Meloxicam: \$0.36/pig
  - Ketoprofen: \$0.22/pig
- Total cost to industry: \$5-9 million annually to provide post-operative pain management to all piglets: castration and tail docking

# Meeting Code

- *Drugs and format?*
- Metacam or Anafen (Ketoprofen)
- Original formats designed for adult animals
- New drug formats are less concentrated
- Diluted formats can be prepared
  - Injectable or oral administration



# Meeting Code

- *Timing of injection?*
- Drugs take 30 min to become effective
  - Ideal is to inject, then wait 30 min
- But added handling of piglets is stressful
  - Causes delays and added labour
  - Stress of catching twice may outweigh the benefits of pain relief

# Recommendations

## Provide analgesic first:

- As soon piglets are collected, or first step in processing
- Proceed with castration, tail docking, iron injection



# Recommendations

After processing:

- Return piglets to the sow, monitor closely
  - Provide additional pain control if needed
- Delay processing in smaller piglets



# Options for Not Castrating

- Improvest – immunocastration
- immunological control of boar taint
  - Blocks Gonadotropin releasing factor (GnRF)



Reduces androstenone & skatole levels in male pigs

- Two injections:
  - 1<sup>st</sup> at 9 weeks of age
  - 2<sup>nd</sup> four weeks after 1<sup>st</sup> injection (13 weeks of age)

# Improvest

Approved in:

- Sixty Countries, including EU, Japan, Korea, Russia, USDA & Canada
- Used for over 10 years...
- Farms must sign a declaration per shipment





# Alternatives to Castration

- Slaughter market boars at a lighter weight
  - Prior to sexual maturity
    - Separate males and females
    - Packing plants must have boar taint control measures in place
    - Commonly done in UK, Spain, Portugal
- Future developments may offer:
  - Semen selection for females
  - Boars that do not produce taint

# Summary

- Pain control is now required at castration and tail docking
- Research is ongoing on alternative drugs and formats
- Potential to reduce pre-weaning death losses



# Enrichment in the Code

*“Pigs must be provided with multiple forms of enrichment that aim to improve the welfare of the animals through the enhancement of their physical and social environments”*

“A way of changing the environment of the pig to their benefit”



# Enrichment Goals:

- Increase the number and range of normal behaviours
- Prevent, or reduce the severity, of abnormal behaviours
- Increase positive utilisation of the environment (e.g. use of space)
- Increase the ability to cope with behavioural and physiological challenges

# Social enrichment

Direct or



Indirect contact

(visual, olfactory, auditory)

# Nutritional Enrichment



Straw and hay pellet dispenser for pigs and sows



Activepigs

 Subscribe 12

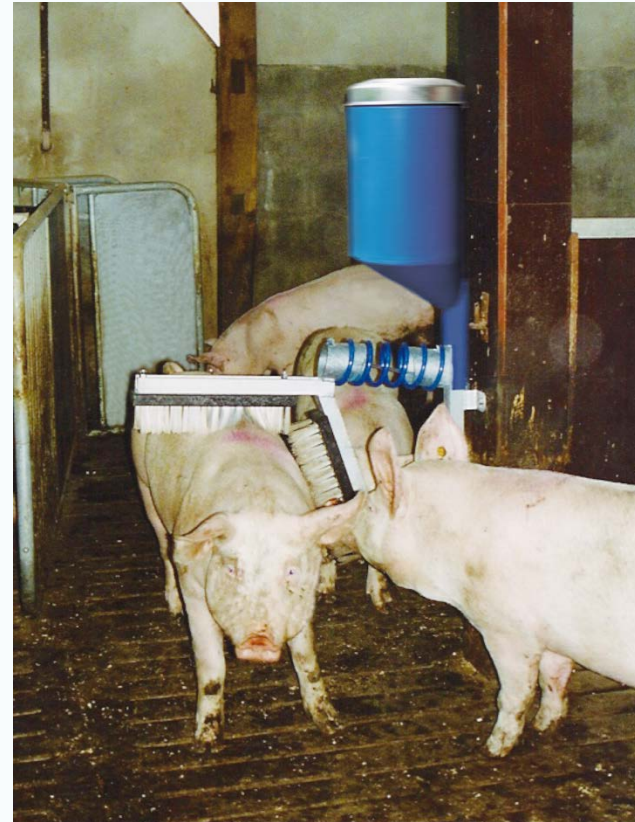
- **search 'Activepigs'**

66 views

# Sensory: Visual, auditory, taste



## Tactile



# Occupational and Physical





# Enrichment benefits

- Chewable enrichment (rope/paper) provided before weaning reduced tailbiting severity in the later stages: **C: 32%** vs **Enr: 9%**  
(Telkänranta et al. 2014)
- Post-weaning, manipulation of pen mates was significantly lower, and manipulation of objects significantly increased (Telkänranta et al. 2014)



# Enrichment benefits

- **Reducing fear & excitability (Grandin, 1989)**
  - More willing to walk down chutes, and to approach unfamiliar humans



- **Barren raised pigs show a stronger reaction to novel stimuli than enriched pigs (De Jong et al. 2000).**

**“Neophobia”**

- **Reduced: manipulation of pen mates, fighting, inactivity in piglets. Improved weight gain (Vanheukelom et al. 2011).**



# Effective enrichment is:

- **Complex**
- **Malleable**
- **Chewable**
- **Destructible**
- **Encourages foraging and exploratory behaviour**
- **Straw bedding one of the most effective**
- **Liquid manure systems???**



# Six Simple Criteria for Choosing Enrichment

**SAFE!**

**Suspended**

**Sanitary**

## The Six S's

**Site**

**Soft**

**Simple**

# Piglets

- Less destructive than growers or sows
- More diverse enrichments can be used
  - Eg dog toys, peat moss, hay cubes



## Enrichment in farrowing

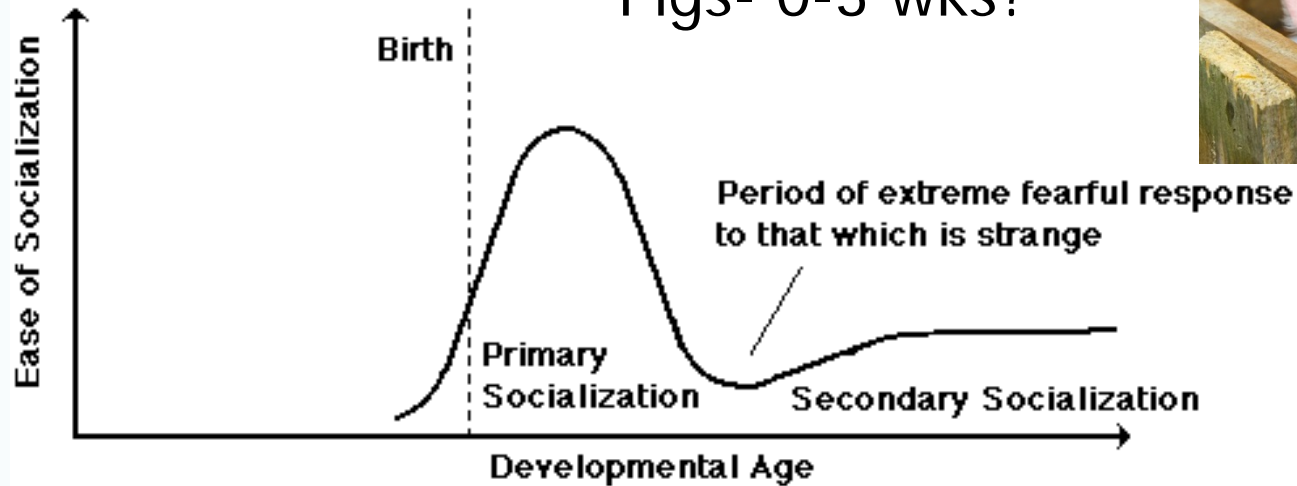
- Creep pellets or liquid mash feeds
- Peat moss or sterile earth- rooting
- Encourage foraging- transition to feed
- Pigs are **precocial!**



# Social development

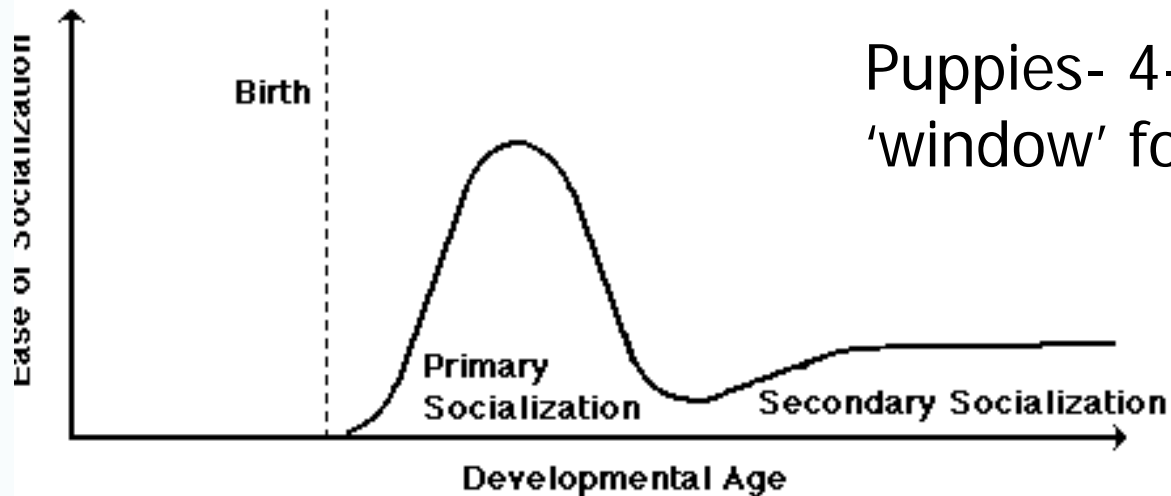
## Precocial Species

Pigs- 0-3 wks?



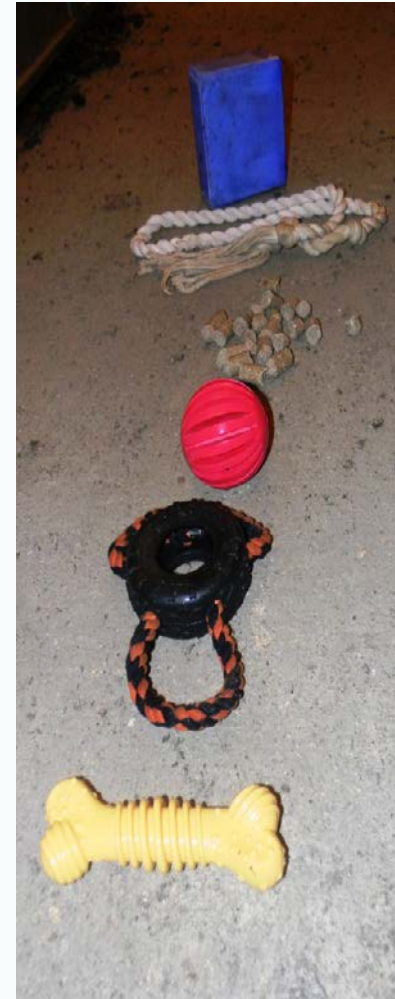
## Altricial Species

Puppies- 4- 8 wks  
'window' for socialization



# Enrichment in the nursery

- **Manipulable objects**
  - Greater benefits in nursery than in farrowing
  - Reduced aggression and improved growth
- **Additional research needed:**
  - More effective creep feeds
  - Feeds providing supplemental iron
  - Improving farrowing and nursery environments



# Grower-finisher pigs

- Animals are highly active
- Greatest risk for damaging behaviours
  - Tail biting, ear biting, flank sucking
- Enrichments can re-direct manipulation
  - Wood on chains
  - Cotton rope
  - Chains
- Commercial products
  - Porci-chew





# Stalled or crated sows

- Nesting material at farrowing
  - Small quantity of straw
  - Hemp/jute fabric
- Increased oxytocin levels
- Gestation stalls
  - Occupational enrichment
  - Fibre and satiety



# Gestating Sows

- Group gestation:
- Enrichment reduces aggression at mixing
  - Occupies dominant sows
  - Less competition and bullying!
- High fibre feeds- can be mixed with feed, or in a separate hopper
  - Beet pulp, starch, chopped straw or hay
  - Increase satiety



# Gilt development

- Enrichments- reduce fear and improve cognitive abilities
- Especially important when developing replacement animals
- Helps in training gilts to use ESF feeders



# Current Research at PSC & UMB

- Development and evaluation of effective enrichments for sows in groups



# Summary

- Enrichment is required in all production stages
- Consider the Six S's

## Resources available:

- “Enriching the living space of pigs to comply with the Code” (CDPQ Factsheet)
- Information available online:
- Eg Youtube site: [Activepigs](#)



# Acknowledgements

- Research support provided by:

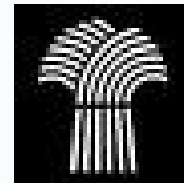
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PRAIRIE  
SWINE  
CENTRE

# *Questions?*

