Pig Session

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FIRST WORKSHOP FOR VETERINARY PRACTITIONERS

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Pig Legislation: Introduction and current challenges

Critical Animal Welfare Issues
Most important aspects:
- Ban the use of individual stalls for pregnant sows
- Increase the living space
- Improve the quality of the flooring surfaces
- Allow permanent access to materials for rooting
- Introduce higher level of training and competence on welfare issues for the stockmen and the personnel in charge of the animals
EU Legislation

COMMISSION DIRECTIVE 2001/93/EC of 9 November 2001

Most important technical aspects:
- Light requirements and maximum noise levels.
- Permanent access to fresh water.
- Additional restrictive conditions to carry out mutilations on pigs.
- Minimum weaning age of four weeks.
EFSA scientific opinions

- On the castration of piglets
- On the effects of different space allowances and floor types
- On animal health and welfare in fattening pigs in relation to housing and husbandry
- On the animal health and welfare aspects of different housing and husbandry systems for adult breeding boars, pregnant, farrowing sows and unweaned piglets
- On the risks associated with tail biting in pigs and possible means to reduce the need for tail docking considering the different housing and husbandry systems
Pregnant sows

Agenda

• 01/01/2003: Ban the construction of new stalls installations
• 01/01/2006: Ban the use of tethers for sows and gilts
• 01/01/2013: Ban the use of individual stalls
Individual stalls

- Facilitate supervision
- Facilitate individual feeding
- Eliminate aggressions

But.... Welfare problems

- Social stress
- Movement restrictions
- Lameness
- Urine infections
- Lesions
- Stereotypes
Feeding behaviour

- Forest-dwelling
- Opportunistic omnivore
- Scavenger

Exploratory behaviour:
- Appears early in its development
- From 6 to 8 hours a day
- Highly motivated behaviour
Food restriction

Chronic hunger

Exploratory behaviour

Lack of stimulus

Development of simple elements of foraging behaviour

Incomplete behaviour due to movement restriction

Stereotypes

Repetición ESTEREOTIPIAS

Appetite behaviour more motivated

Pregnant sows

SCAHAW, 1997
Group housing

- From 4 weeks after the service to 7 days before the expected time of farrowing.
- The total unobstructed floor area available for gilts and sows must be at least 1.64 and 2.25 m\(^2\) respectively.
- At least 0.95 m\(^2\) per gilt and at least 1.3 m\(^2\) per sow, must be of continuous solid floor.
- The pen where the group is kept must have sides greater than 2.8 m in length.
Social behaviour

In society
- Defence against depredator
- Access to food
- Maternal groups (mothers with newborns and offspring of the previous year)
- Dynamics groups of 10-12 animals
- Males: Solitary or in unstable groups
Social behaviour

Groups

Hierarchy

Aggressions

• Food
• Resources
• Reproduction
Agonistic behaviour is less frequent in natural conditions

- Stable groups
- Small groups
- Progressive integration of litters
- Appeasing mechanisms (pheromones)

Facilitate individual recognition
Pregnant sows

Group housing

- Aggression
- Injuries

Mixing

Dominance order

Competence for resources

- Space
- Food
Mixing of sows

- Keeping sows in static groups vs. dynamic groups.
- Keeping large groups (>40) the unobstructed floor area may be decreased by 10%.
- Pre-mixing small groups of dry sows before introduction to a large dynamic.
- Pre-exposure.
- Enough space to escape and protection
### Feeding

Sows and gilts kept in groups must be fed using a system which ensures that each individual can obtain sufficient food even when competitors for the food are present.

**Feeding system:**

- On the floor
- Trough
- Individual feeding stalls
- Slow feeding system
- Electronic feeding system
To satisfy their hunger and given the need to chew, all dry pregnant sows and gilts must be given a sufficient quantity of **bulky or high-fibre** food as well as high-energy food.

**Feeding**

1. Higher water retention
   - Delay of the gastric emptying
   - Higher gastrointestinal distension

2. Production of VFA in the large intestine
   - Constant flow of nutrient absorption
   - Higher satiety

**Reduction long term sensation of hunger**

Meunier-Salaun et al, 2001
Maternal behaviour

1-3 days before farrowing, sows:

• Separate from the group
• Look for a place to nest
• Dig with the snout a circular hollow of 10 cm depth and 1.5 m diameter
• Build the nest (dried grass or straw)
• Finish 2-4 hours before birth

It is a very regular pattern
Nest building behaviour

Depends on:

• Internal factors: Prostaglandin F2α

• External factors:
  - Presence of material
  - Room temperature
  - Location of the nest

High motivation to build the nest

Although providing a nest, sows will try to build another
Role of the nest:

• Gives protection to offspring against predators
• Creates a comfortable environment for the sow and the piglets
• Reduces risk of hypothermia (Sows does not lick the piglets)
• Inactivity after birth (to avoid crushing)
• Defecate outside the nest
• Lactation (synchronization between mother and piglets)
• Each piglet has its own teat
Presence of other animals

Impossibility to build the nest

Other factors
1. Experience
2. Breed

Farrowing sows

Stress during farrowing
In the week before the expected farrowing time sows and gilts must be given suitable nesting material in sufficient quantity unless it is not technically feasible for the slurry system used in the establishment.
Hormonal regulation

Oxytocin release

Milk flow

Sows vocalization

Grams / Second

Piglet activity

1st Phase
Massage and suckling

2nd Phase
ingestion

3rd Phase
Massage

Milk flow graph:
- 20-90 Sec.
- Milk flow range: 50-70 Grams / Second

Oxytocin release:
- Release peak at 70 Sec.

Hormonal regulation:
- Release of oxytocin

Piglet activity phases:
- 1st Phase: Massage and suckling
- 2nd Phase: Ingestion
- 3rd Phase: Massage

Hormonal regulation diagram:
- Hormonal regulation leading to oxytocin release
- Oxytocin release causes milk flow increase

Diagrams and graphs show the relationship between hormonal regulation, sows vocalization, milk flow, and piglet activity phases.
Neonatal mortality in pigs

• Weak piglets have difficulties to compete with littermates and gain access to the udder

• This may cause hypothermia and starvation, and increases the risk of crushing by the sow

• Hypoxia is a main cause of weakness in newborn piglets

(Edwards, 2002; Baxter et al., 2008)
Neonatal mortality in pigs

• Very long farrowings increase the risk of hypoxia in piglets

• Sows prevented from building a nest have significantly longer farrowings than sows that are allowed to build a nest
• (90 min. longer)

• This is due to a reduction in oxytocin release

(Oliveiro et al., 2008, 2009)
Tail biting

(Redirected exploratory behaviour)
Absence of straw or similar substrate

Redirected behaviour (initial phase)

• Slatted floor
• Competition for feed
• High stocking density
• High temperature

Serious tail biting

• Deficiency of dietary essential amino acids
• Imitation
• Poor health status

Weaners and rearing pigs
Tail biting

- Is not an aggressive behaviour
- Tail biting pigs are likely to be frustrated and impairs health and welfare.
- Those whose tails have been injured are likely to be in pain and distress.
- Associated with a variety of pathological changes (spinal abscesses or pyaemia)
Tail docking

Is likely to cause
- immediate pain
- prolonged pain from neuroma formation

Is detrimental to the welfare of pigs

- Only where there is evidence of Injuries to other pigs’ tails
- Before, other measures shall be taken to prevent tail-biting
- Inadequate environmental conditions or management systems must be changed
Before tail docking

- Permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities (straw, hay, wood, sawdust, mushroom compost, peat)

- Review the composition of the feed

- Review environmental conditions (ventilation, handling etc)

- Separate animals with tail wounds
Castration

80% of male piglets (100 million) are castrated in EU each year
- Avoid boar taint (androstenone/skatole)
- Aggressions and sexual activity

An unpleasant taint perceived through a combination of sensory odour, flavour and taste in pork and pork products during cooking and eating.

It has been described as ‘animal’, ‘urine’, ‘fecal’ and/or ‘sweat’ like in character.

(androstenone/skatole)
Surgical castration without anaesthesia

(Prunier et al 2005)

- Behavioural indicators
- Physiological indicators
New strategies

- Surgical castration with anaesthesia

- Production of entire male pigs
  - Control of boar taint
  - Assessment on slaughter line

- Immunocastration

- Sperm sorting
“The human factor”

- Poor stockmanship lead to poor supervision of the animals
- It may cause chronic fear
- And lead to husbandry practices that are not necessary or acceptable
• Training the stockpeople and the veterinarians is probably the most cost-effective strategy to improve animal welfare.

• Without specific training on animal welfare, veterinarians and animal scientists may miss some important aspects of it.

• Treatment of pain remains a major issue (e.g., Hewson et al., 2007).
Member States shall ensure that:

- Any person who employs or engages persons to attend to pigs ensures that the person attending to the animals has received instructions and guidance on the relevant provisions.

- Appropriate training courses are available. In particular such training courses must focus on welfare aspects.
Thank you for your attention

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