

Environmental enrichment to improve pig welfare

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Directorate-General for
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Executive
Agency for
Health and
Consumers

EU regulations require:

[...] pigs must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities, [...]

★ When signs of severe fighting appear [...] providing plentiful straw to the animals, if possible, or other materials for investigation.

Annex to Council Directive 2001/93/EC

★ [...] sows and gilts shall have permanent access to manipulable material [...];

Council Directive 2001/88/EC

Intention of the Directives

To improve Animal Welfare

Providing rooting materials reduces the risk of abnormal behaviours



Activity patterns: exploratory behaviour

In nature, pigs are omnivorous with a large home range area:

53% of the time is spent foraging (rooting and grazing) and 23% in locomotion and investigation of environment....

...followed by short periods of rest (Stolba and Wood-Gugh, 1989).

Activity patterns: exploratory behaviour

Pigs have developed a complex feeding strategy connected to the exploratory behaviour, which involves mouth and snout by rooting, sniffing, biting and chewing edible and indigestible materials.

★ ★ ★ ★ Exploratory behaviour, composed by all the specific elements, is a need in pigs (Jensen and Toates, 1993).

Why exploratory behaviour is important

Exploration is a behaviour with an high motivation:

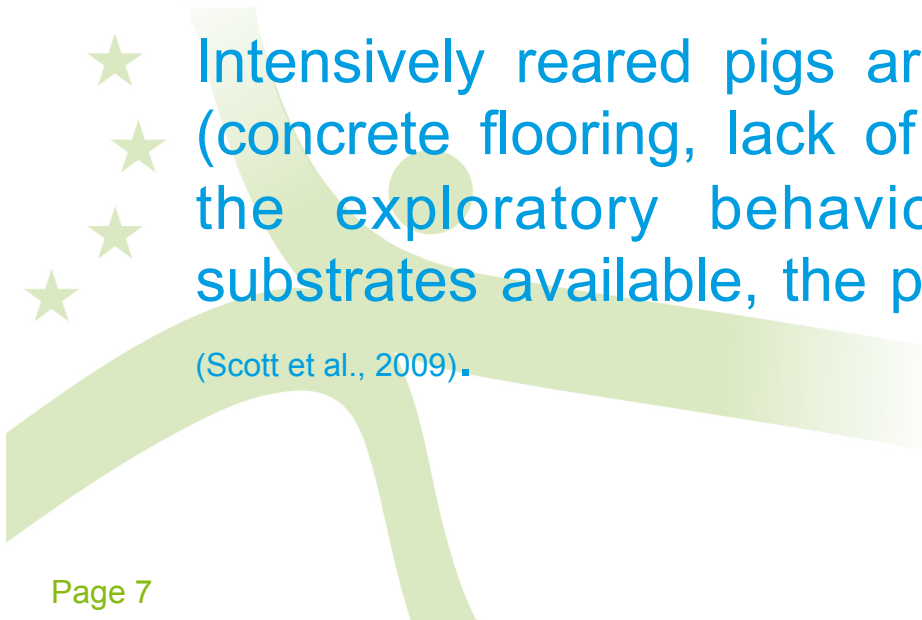
- finding food,
- finding a place of rest,
- obtaining information about the environment (curiosity/boredom).

→ same specific behavioural elements (Wood-Gush and Vestergaard, 1989).

Implication for rooting materials

Pigs are motivated to explore as they have developed a behavioural repertoire adapted for complex environments

(Studnitz et al., 2007).



★ Intensively reared pigs are kept in barren environments (concrete flooring, lack of rooting materials, etc.) and the exploratory behaviour is directed at the only substrates available, the pen-mates and pen components

(Scott et al., 2009).

Intensive pig production

Pregnant sows

Farrowing sows

Boar

Weaned piglets

Growing pigs

Environmental enrichment

There are different housing systems with different implications:

- Alternative enriched
- Straw based
- *With point-source enrichment objects* (Van der Weerd e Day, 2009)

Lack of suitable material

It is a major problems for welfare and production.

The lack of suitable materials for expressing exploratory behaviour has been indicated as the cause of adverse and potentially dangerous abnormal behaviours: excessive aggressive behaviours and tail biting.

Which material is suitable?

Environmental enrichment with rootable materials needs to satisfy the need of:

- searching,
- manipulating,
- eating.

The stimulus value of a material is increased if it is:

Complex – Changeable – Destructible – Edible

(Stutniz et al., 2007)

Tail biting: multifactorial problem

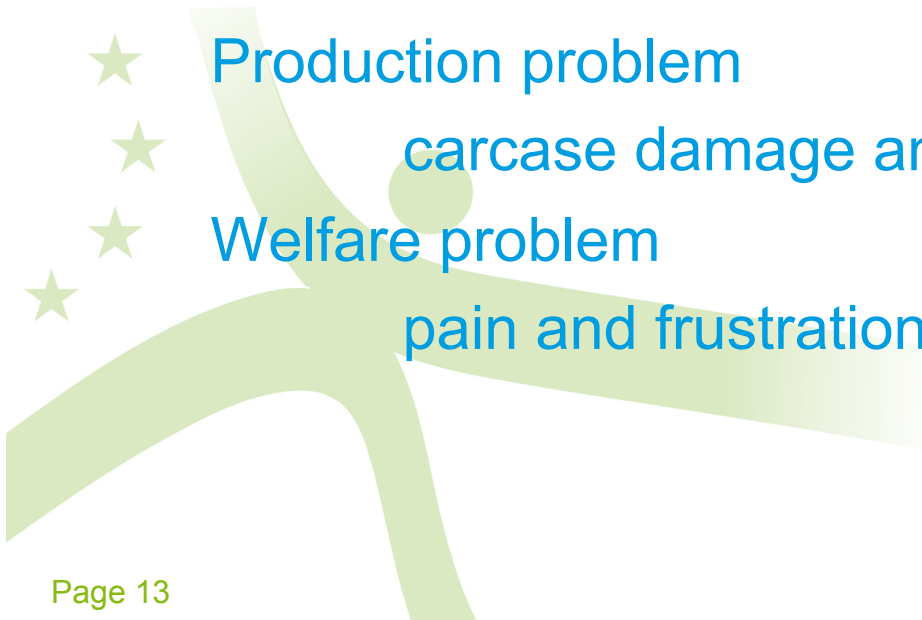
Many factors increase the likelihood:

- barren environment
- restlessness
- overcrowding
- social instability
- nutrition
- animal characteristics

...causes of poor welfare resulting from inadequate housing or management

Tail biting: characteristics

TB is an abnormal behaviour that starts as exploratory/foraging behaviour (Tail-In-Mouth). If uncontrolled, TB leads easily to cannibalism.

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- ★ Production problem
 - carcase damage and decrease of DWG
 - ★ Welfare problem
 - pain and frustration

Tail biting: possible solution

Tail docking is practised to reduce the welfare and production problem of tail biting.

But tail docking:

- causes pain and distress,
- increases the risk of infection,
- can lead to chronic pain (neuromas),
- does not address the housing and/or management problem

Environmental enrichment: different material

It will maintain value when...

Exploratory behaviour + Feeding + Comfort + Maternal
behaviour + Temperature control

...is allowed.



Environmental enrichment: different allocation

- ✓ Material presented on the floor becomes soiled by faecal materiel.
- ✓ Material offered at pig head level is more accessible.

Material deformable and suspended are more interesting

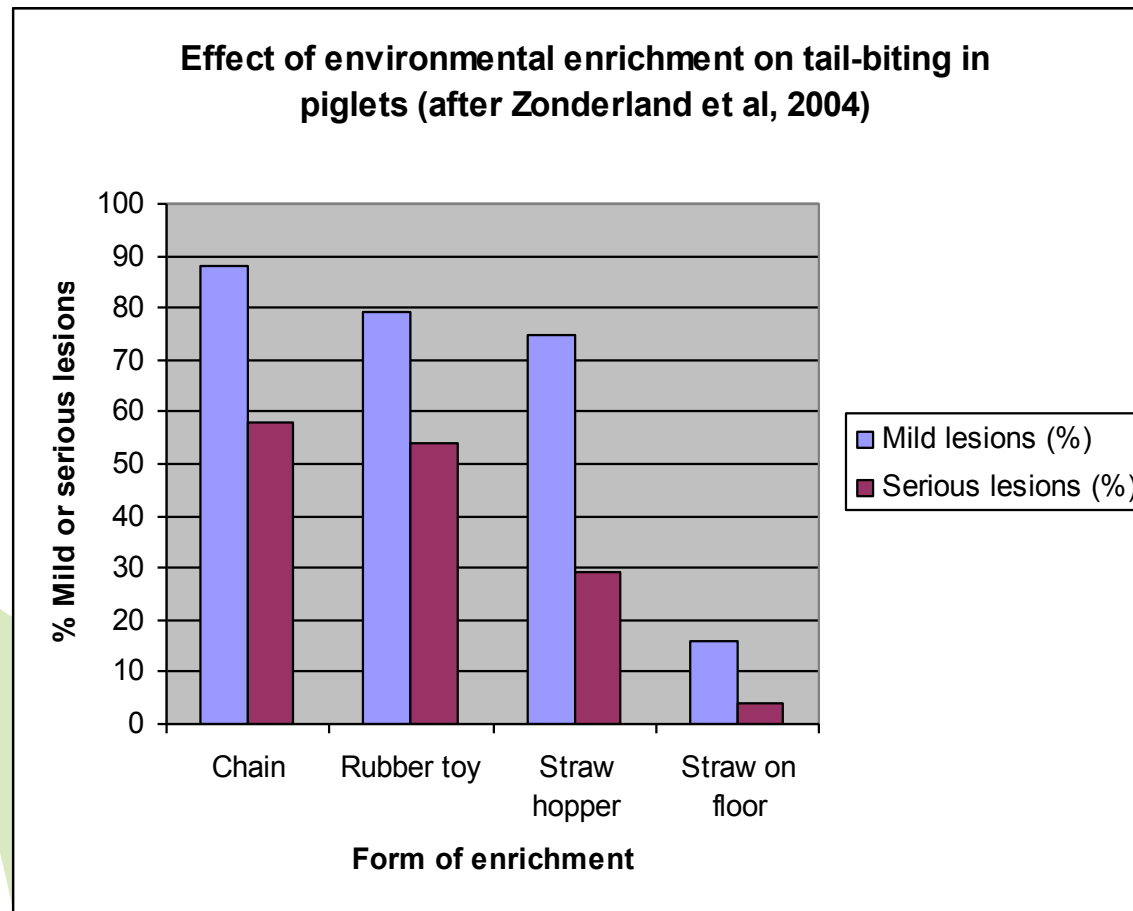
(Averos er al., 2010)



Different for straw bedding

(Scott et al., 2009)

Environmental enrichment: different material



Which material is effective to reduce abnormal behaviour?

Environmental enrichment with straw or other rootable material reduces tail-biting by encouraging normal exploring behaviour

Not destructible material like chains and rubber toys are less since they do not allow to express all the specific behavioural elements.

The Green Pig Production Chain

Ager is a cooperative project between 13 Italian grant-making foundations aimed at boosting scientific research in agro-food.

★ *Environmental sustainability and animal welfare in the pig production chain to reduce its impacts and maintain profitability (September 2011 – August 2014)*

Dipartimento di Scienze Animali - Università degli Studi di Milano

The Green Pig Production Chain

Pig feeding strategy to reduce pollution and environmental enrichment to improve pig welfare (WP2)

Different activities:

- survey on housing and management
- experimental trials
- on-farm feasibility
- comparative economic analysis

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Thank you!

Any questions?