

# Group-housing and mixing of sows



## Biology and needs of pigs

**Sow welfare during pregnancy increases when group-housing facilities and management practices consider more the behavioural and physiological needs of sows and do not force them to cope with stressful housing environments:**

- In nature, sows live in small maternal groups of two to four sows with their offspring and juveniles.
- In nature, unfamiliar sows are rarely allowed to incorporate into a group.
- Within each social group long-time social relationships exist.
- Most often mature sows are dominant over sub-adults.
- Sows generally prefer to synchronise behaviour, i.e. have access to resources (especially food and lying areas) more or less at the same time.
- Within a social group, aggression is rare, but may occur during competition for resources such as for food.
- Sows need static space, behavioural space and interaction space.
- Sows spend 75% of their daytime activity with foraging-related activities in semi-natural environments and are highly food motivated.
- Sows in nature rest together in a communal nest.
- Sows spend approximately 80% of their time lying.
- The sows' thermo-neutral zone is around 15-20°C, and they cannot sweat.
- Heat stress starts above 20°C and is critical above 26°C.

## Legal requirements

The legal requirements related to group-housing and mixing of sows can be found in Council Directives **98/58/EC** on the protection of animals kept for farming purposes, and **2008/120/EC** on minimum standards for the protection of pigs.

Directive **2008/120/EC**: Member states shall ensure that sows and gilts are kept in groups during a period starting from four weeks after the service to one week before the expected time of farrowing. (...)” Whereas, “(...)”. By way of derogation from the first subparagraph, sows and gilts raised on holdings with fewer than 10 sows may be kept individually during the period mentioned in that subparagraph, provided that they can turn around easily in their boxes.” {Article 3(4)}

## Welfare of group-housed and mixed sows

**Based on the sows' biology and needs, four focus areas regarding welfare of sows during group-housing and mixing can be identified:**

### Four focus areas during inspections

- ✓ Mixing of unfamiliar pigs
- ✓ Competition for limited resources
- ✓ Restrictive feeding
- ✓ Climatic and resting comfort



# Four focus areas for inspections

Relevance for pig welfare in conjunction with welfare indicators



## MIXING OF UNFAMILIAR ANIMALS

- Sufficient space, especially the first days after mixing, reduces stress and agonistic interactions.
- Good quality flooring prevents slipping, falling and lameness.
- Opportunities to escape from other sows reduces stress and skin lesions.
- It is preferable to keep sows in static groups where they are mixed only once during gestation.

Skin lesions

Lameness

## COMPETITION FOR RESOURCES



- Aggression is lower with adequate access to resources in space and time.
- Spreading food widely in case of floor feeding, allows all sows access to food simultaneously.
- Adequate design of feeding stalls should prevent sows from being attacked by others, leading to e.g. vulva biting.
- Sufficient space around the Electronic Sow Feeder helps to reduce aggression.
- Competition for food can be reduced by additional provision of roughage.
- There should be enough lying space to allow all sows to rest at the same time.
- Lying areas should be separate from the activity and dunging areas.

Skin lesions

Vulva lesions

Body condition

Manure on the body



## CLIMATIC AND RESTING COMFORT

- Clean, dry bedding (e.g., straw) or cushioning, e.g., using rubber improves resting comfort and reduce leg and claw problems.
- Sow should not lie in their own excreta under warm conditions; losing body heat can be stimulated by e.g., cooled air, floor cooling, misting and sprinkling systems, etc.

Panting

Manure on the body

Lameness

## RESTRICTIVE FEEDING










- Restrictive feeding leads to chronic and persistent hunger, stereotypies, and frustration.
- Providing both fibrous ingredients in the diet and ad libitum access to roughage is the most effective way to increase satiety

Stereotypies

# Welfare indicators for inspections

To identify welfare issues related to group-housing and mixing of sows



FOCUS AREA	INDICATOR	SHORT DESCRIPTION	INDICATOR FACTSHEET
<b>Mixing of unfamiliar animals</b> 	Skin lesions <i>Also 'Competition for resources'</i> 	Lesions include broken skin, fresh wounds and healing lesions. Skin lesions can result from aggression related to establishing a social relationship with unfamiliar sows and/or competition for resources.	<a href="https://edepot.wur.nl/540105">https://edepot.wur.nl/540105</a>
	Lameness <i>Also 'Climatic and resting comfort'</i> 	When lame, a pig is unable to use one or more limbs in a normal manner. Lame pigs experience pain and discomfort.	<a href="https://edepot.wur.nl/540102">https://edepot.wur.nl/540102</a>
<b>Competition for limited resources</b> 	Vulva lesions Damage to the vulva may indicate competition for food, e.g., when sows are feeding in stalls and are being approached from behind by a competitor/biting <a href="https://edepot.wur.nl/540108">https://edepot.wur.nl/540108</a>		
	Body condition Body condition indicates whether individual sows have obtained sufficient food. <a href="https://edepot.wur.nl/540101">https://edepot.wur.nl/540101</a>		
	Manure on the body <i>Also 'Climatic and resting comfort'</i> 	Sows may be dirty from manure on the body due to e.g., lack of (lying) space, thermal stress or bad ventilation. <a href="https://edepot.wur.nl/540103">https://edepot.wur.nl/540103</a>	
<b>Restrictive feeding</b> 	Stereotypies Behavioural patterns performed repetitively in a fixed order and without any apparent function (e.g., sham chewing, tongue rolling, bar biting). They may be a sign of frustration due to hunger and inappropriate foraging behaviour. <a href="https://edepot.wur.nl/540107">https://edepot.wur.nl/540107</a>		
<b>Climatic and resting comfort</b> 	Panting Sows try to lose heat by high-frequency, open-mouth breathing. <a href="https://edepot.wur.nl/540104">https://edepot.wur.nl/540104</a>		

All indicator factsheets "Group-housing and mixing of sows": <https://edepot.wur.nl/540100>

# Legal requirements

Related to the four focus areas for inspections



## Mixing of unfamiliar animals



### Council Directive 2008/120/EC

- “Measures shall be taken to minimise aggression in groups.” {Annex I, Chapter II, point B1}
- “Member States shall ensure that pigs that have to be kept in groups, that are particularly aggressive, that have been attacked by other pigs or that are sick or injured may temporarily be kept in individual pens. (...)” {Article 3(8)}
- “the total unobstructed floor area available to each gilt after service and to each sow when gilts and/or sows are kept in groups must be at least 1.64 m<sup>2</sup> and 2.25 m<sup>2</sup> respectively. (...)” {Article 3 (1b)}
- “(...). The pen where the group is kept must have sides greater than 2.8 m in length. When fewer than six individuals are kept in a group the pen where the group is kept must have sides greater than 2.4 m in length”. {Article 3(4)}

## Competition for limited resources



### Council Directive 2008/120/EC

- “All pigs must be fed at least once a day. Where pigs are fed in groups and not ad libitum or by an automatic system feeding the animals individually, each pig must have access to the food at the same time as the others in the group.” {Annex I, Chapter I, point 6}
- “Member states shall ensure that sows and gilts kept in groups are fed using a system which ensures that each individual can obtain sufficient food even when competitors for the food are present.” {Article 3(6)}
- “All pigs over two weeks of age must have permanent access to a sufficient quantity of fresh water.” {Annex I, Chapter I, Point 7}

## Restrictive feeding



### Council Directive 2008/120/EC

- “Member states shall ensure that all dry pregnant sows and gilts, in order to satisfy their hunger and given the need to chew, are given a sufficient quantity of bulky or high-fibre food as well as high-energy food” {Article 3(7)}
- “Member states shall ensure that, (...), sows and gilts have permanent access to manipulative material at least complying with the relevant requirements of that Annex.” {Article 3(5)}
- “Notwithstanding Article 3(5), pigs must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities, (...)” {Annex I, Chapter I, point 4}

## Climatic and resting comfort



### Council Directive 2008/120/EC

- Pigs must “(...) - have access to a lying area physically and thermally comfortable as well as adequately drained and clean which allows all the animals to lie at the same time, - rest and get up normally, (...)” {Annex I, Chapter I, point 3}
- “Floors must be smooth but not slippery so as to prevent injury to the pigs (...). (...) and if no litter is provided, form a rigid, even and stable surface.” {Annex I, Chapter I, point 5}

### Council Directive 98/58/EC

- In buildings “Air circulation, dust levels, temperature, relative air humidity and gas concentrations must be kept within limits which are not harmful to the animals.” {Annex point 10}



Co-funded by  
the European Union



WAGENINGEN  
UNIVERSITY & RESEARCH



AARHUS  
UNIVERSITY

FRIEDRICH-LOEFFLER-INSTITUT



Bundesforschungsinstitut für Tiergesundheit  
Federal Research Institute for Animal Health



EU Reference Centre  
for Animal Welfare *Pigs*

For any questions or suggestions  
regarding this factsheet please  
contact [info.pigs@eurcaw.eu](mailto:info.pigs@eurcaw.eu)