

Implications of Farrowing Crates on Welfare Lactating Sows

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Abstract. The research monitored the welfare evolution of lactating sows that were housed in farrowing crates, in commercial farms, based on the skin lesions and lameness. The observations were carried out on lactating sows (Mangalitzza, n: 40), during their entire lactation period and the animals were grouped in two lots: A lots, housed in farrowing crates with continuous, concrete flooring on 75% of the surface and a type of grate in the defecation area for the sows and the piglets to use (25%); B lot, housed in improved farrowing crates featuring discontinuous plastic flooring on the entire surface of the box. The skin lesions on the sow and piglets were assessed by inspection on days 7th, 15th, 24th following farrowing. The number of sows displaying skin lesions was higher in A lot (59%) compared to B lot (41%), while skin lesions in piglets was 65% for the B lot compared to 35% for A lot. The monitored indicators varied in both types of farrowing crates. Welfare of lactating sows must be assessed depending on the animals' housing system.

Keywords: lactating sows, animal welfare, farrowing crate

INTRODUCTION

Living conditions of pigs are totally different in their natural habitat from the intensive husbandry systems, as they are subject to several stress factors derived from specific activities, such as: tails docking and tooth clipping, castration, mixing process at the end of production cycle and transport to slaughter house. The negative implications of long-term exposure to traumatic situations are frequently obvious during the critical stages of animal production and reproduction cycles and threat to negatively impact their welfare (EFSA, 2007).

Crate flooring type is mentioned amongst risk factors associated with skin lesions and lameness in all pig group ages (Barnett et al., 2001). The quality of crate flooring is essential to pigs' welfare level with direct effect on their health and productivity when slaughtering. Results of similar research in the field have pointed to the fact that skin lesions may be caused by housing of pregnant sows in collective crates prior to farrowing, as the animals display aggressive behaviour when mixed as well as during the last week of their gestation.

Piglets housed on concrete or grate type of floors cannot pursue their natural behaviours of searching for food and exploring the environment, tend to stay much more inactive and aggressive compared to the ones reared in an alternative system (Smith et al., 2003).

Some research has shown that housing systems of discontinuous concrete floored crates are associated with severe problems of the cloven hoof, while housing sows in plastic floored crates of grate type is associated with minimal problems of the cloven hoof. The

factors that may contribute to the occurrence of laminitis are: bacterial infections, heredity, flooring type and nutrition (Courboulay et al., 2009).

MATERIALS AND METHODS

The research has monitored the welfare evolution in lactating sows (n 40, Mangalitza) housed in two commercial farms in conventional as well as improved farrowing crates. The research period was March through October; animals were not removed from the production cycle and were identified with marker spray in order to facilitate their observation.

Depending on the flooring of the farrowing crates, the lactating sows were grouped in two lots: A lot (n: 20), housed in farrowing crates with continuous, concrete flooring on 75% of the surface and 25% grate type (concrete and metal) defecation area for the sows and the piglets to use and B lot (n: 20), housed in improved farrowing crates featuring discontinuous plastic flooring on the entire surface of the box. The housing surface was larger for the B lot, and the crates had the same facilities for sow and piglet feeding and drinking. Feeding was carried out according to age and production specific recipes while all animals had free access to water.

Skin lesions were assessed by numerical evaluation and observation, keeping the same distance from the animals (Tab. 1).

Tab.1

Numerical system of assessing skin lesions and lameness

Numerical evaluation	Evaluation by inspection	Description of skin lesion
0	no lesions	clean, healthy skin
1	superficial lesions	superficial skin erosions, red areas
2	severe lesions	hardened skin areas, with dried/wet blood

The numerical evaluation was conducted on days 7th, 15th, and 24th following farrowing. Likewise, the research monitored the presence or absence of lesions in piglets at limb and tail level for the same time interval.

Statistical analysis of data was conducted by the t test in order to emphasize the incidence of skin lesions and lameness in animals included in the research and the results were expressed as percentages.

RESULTS AND DISCUSSION

The majority of laminitis monitored were recorded during the first period of the lactation in both lots, and their number gradually decreased until piglets were weaned. The number of lactating sows with skin lesions (Fig. 1) was higher in lot A (59%) compared to B lot (41%) during the entire span of lactation period.

The majority of lesions and infections at limb level, which generate lameness in animals, are connected to the type of flooring. Practice has shown that these lesions may appear both in animals reared in individual crates with limited space as well as in animals housed in collective crates. However, research has demonstrated that in farms that benefit from a good management and flooring system the most severe problems appear in sows housed in individual crates with limited space (Zoric et al. 2004).

Flooring in farrowing crates may negatively impact sow and piglets health under certain conditions but may have also a positive effect as far as their bodily hygiene is concerned (Appleby et al. 2005).

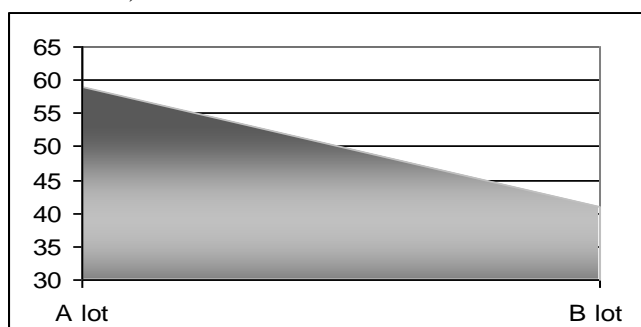


Fig.1. Lactating sows incidence of skin lesions (%) in different growing systems

The lack of movement in sows housed in conventional farrowing crates resulted in an increased incidence of skin lesions of the rear end for A lot (54%), in the first two weeks following farrowing, compared to 23% on B lot (Fig. 2). The conventional farrowing crates impeded the sows' possibility to easily lie down on the resting area, which generated a higher number of lesions especially on their rear end.

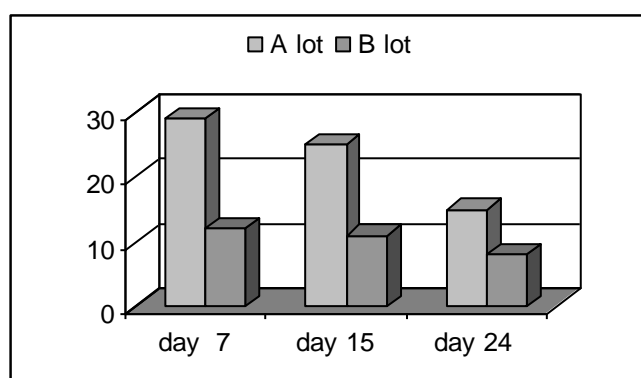


Fig 2. Rear end skin lesions (%) in lactating sows

The advantages of farrowing crates are: the possibility to monitor farrowing; low mortality rates in piglets due to crushing; easy animal health control by early signalling of any illness and immediate start-up of treatment protocol in case of disease. The disadvantages of farrowing crates are: the impossibility of the sows to manifest nesting behaviour and decrease of behavioural displays prior to farrowing.

Some research has indicated a low risk of disease with the reproductive system in periparturient sows when they are reared in alternative systems (Karlen et al. 2006).

In the conditions of continuous concrete flooring with metal grate in the defecation area, the piglets from the farrowing crates (A lot) have recorded more lesions at limb and tail level (65%) compared to the ones from the B lot - 35% (Fig. 3).

Most often-observed skin lesions such as excoriations at piglets' limb level are probably due to their contact with the floor during suckling and appear within 10 days from birth (Moultotou et al., 1999).

Concrete floors are rigid and abrasive and contribute to damaging of the cloven hoof and skin erosion in newborn piglets' limbs, with the result of obvious lameness (Barnett et al., 2006).

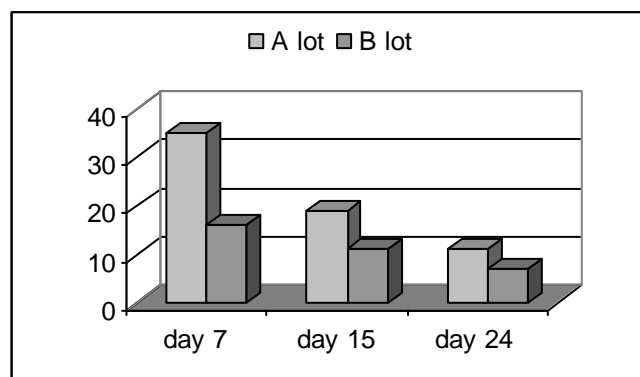


Fig. 3. The incidence of skin lesions of piglets (%) in the farrowing crate

The vigorous growth of the livestock sector, its importance for income generation, food security, human nutrition and health, and its impact on various public goods and services require careful attention by the international community. The livestock sector plays a crucial role in the provision of global public goods and services (Bogdan et al., 2010).

CONCLUSIONS

- Skin lesions were obvious from the first week of housing, more numerous with A lot compared to B lot. The majority of cases monitored were recorded during the first period of the lactation with both lots, and their number gradually decreased until piglets were weaned.
The highest incidence of lesions in piglets was recorded in the first week after farrowing, and decreased until the end of the period (weaning).
- Both flooring type and farrowing crate construction negatively influence the welfare of lactating sows and their piglets. Assessment of welfare must be conducted depending on the housing system, the crate improvement implemented or not and by final correlation of all indicators monitored.
- The welfare indicators monitored have recorded variations with both housing systems, showing a depreciation of the animals' welfare.

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