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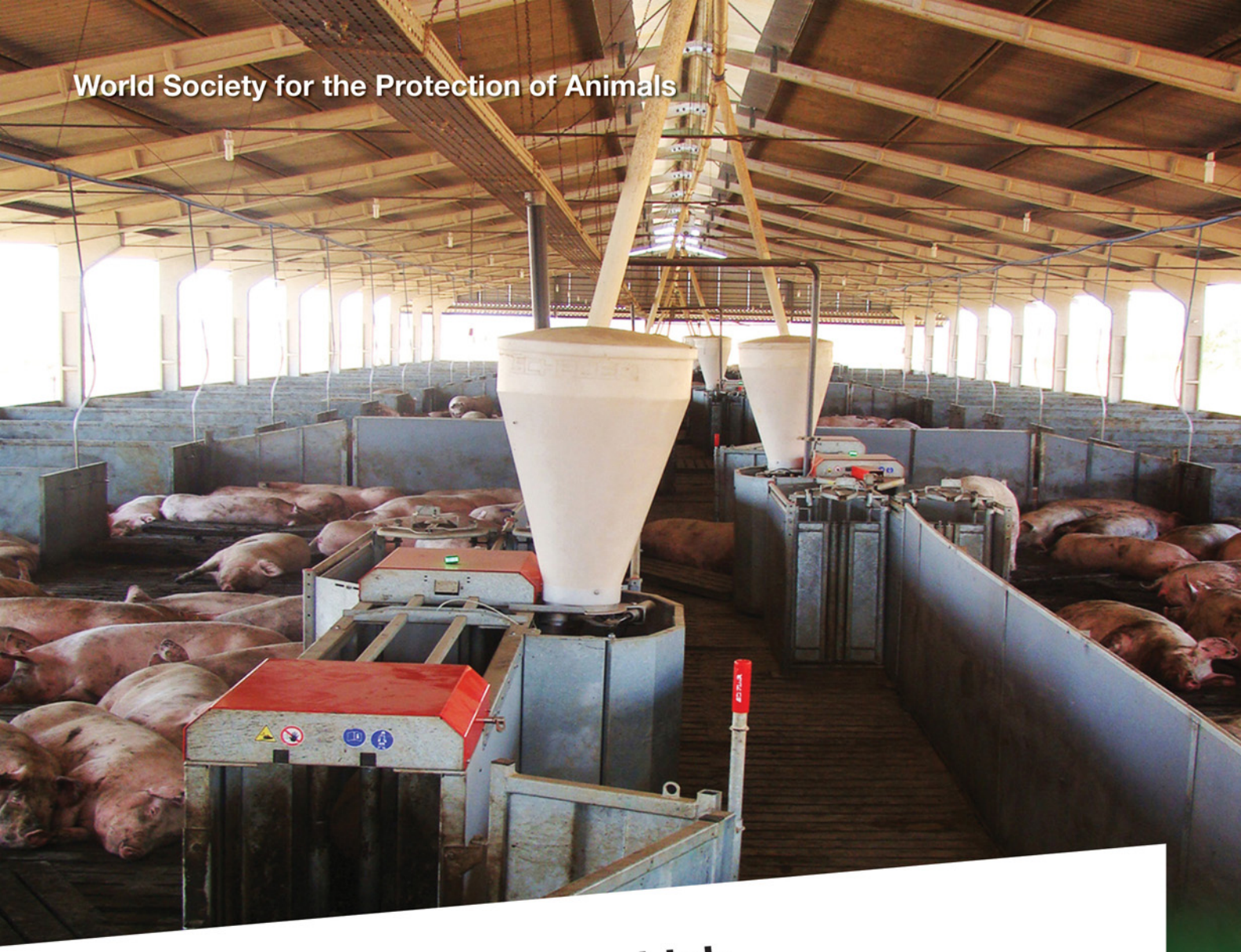


Group housing: Ways in which sows' welfare is improving productivity of brazilian pig production

WSPA

Improvements to facility conditions for housing gestating sows have a positive impact on work environment and productivity

Sows housed in isolation (individual stalls) during gestation show chronic stress as a result of lacking physical exercise and performance of normal behaviours, such as: social interaction with the group, exploring the environment, defining their own space and resting area. These factors can cause behavioural, physiological and health issues, leading to stereotypic behaviours, frustration, social stress, laminitis, urinary infections and leg lesions.

For many years, it was believed that these housing systems met production needs, as they allowed for feeding, supervision and control of sow performance parameters. However, with advances in research and computerized systems, integration of technology to the farm and to pigs' welfare, it has been possible to improve conditions of sow gestation facilities with no negative impacts on productivity. With this process, group housing of gestation sows was adopted in many countries and stalls are progressively being banned.

Sow performing stereotypic behaviour (abnormal behavior of bar biting) caused by stress, frustration and limited space

Table 1 – Overview of European Union member states in relation to conformance with new legislation for group housing of gestation sows

Country	Data collected up to 2011
Austria	70% of sows kept in group housing
Belgium	36% of producers converted their facilities to group housing
Czech Republic	94% of sows kept in group housing
Denmark	75% of sows kept in group housing
France	70% of sows kept in group housing
Germany	70% of sows kept in group housing
Ireland	40% of farms were completely converted to group housing
Italy	35 to 40% of farms house sows in groups
Holland	Over 50% of farms converted to group housing
Spain	Approximately 50% of large size producers converted to group housing
Poland	70 to 80% of farms converted to group housing

Source: British Pork Executive (BPEX, 2012)
Available in http://www.bpex.org/downloads/302042/300896/Market Impact of EU Regulations On Group Housing of Sows.pdf

Miunça Farm: Producing toward a better future

The Miunça Farm, owned by Rubens Valentini and located at PAD-FD, rural area of Federal District of Brazil, has 300 hectares in land and a housing capacity for 3,800 sows divided into two sites (gestating/farrowing and finishing barns). Within the last years, Valentini's family has felt unhappy raising sows isolated in stalls, with limited space, and negatively impacting animal welfare. For this reason, the family has sought improvements toward pig welfare and farm productivity by implementing group housing for over 800 gestating sows, a Brazilian pioneering project at the pork commercial scale.

The results from the first year (2011) of production using this housing system show that productivity indexes (Table 1), when assessed in gestating sows housed in groups are equivalent or superior to the conventional sow housing system of the farm (stalls), concerning the number of piglets per sow per year, average weight at weaning and litter uniformity.

Group housing systems for sows during the gestation phase is a viable alternative for Brazilian pig production and an important step toward meeting consumer demand for products that are integrated with ethical values by rearing animals with proper welfare conditions and economic practicability.

Table 2 – Averages (standard errors), descriptive levels and F-test probabilities of variables measured in group and individual housing systems for gestating sows

Variable	Group housing of gestating sows	Individual housing of gestating sows (stalls)	Pr> F
Abortion rate	0.961± 0.272	1.141± 0.207	0.6057
Piglets weaned	12.077± 0.185	12.091± 0.174	0.9560
Piglets weaned/sow/year	30.557± 0.243	29.591± 0.372	0.0612
Dead/weaned piglets	7.639± 0.984	8.787± 0.263	0.2278
Mummies	2.706± 0.235	2.379± 0.168	0.2670
Total born	14.726± 0.196	14.598± 0.199	0.6537
Still born	7.110± 0.378	6.947± 0.654	0.8374
Parities/sow/year	2.529± 0.023	2.477± 0.011	0.0445
Body weight at weaning	6.243± 0.174	6.083± 0.055	0.3489
Body weight/born/total	14.726± 0.196	14.596± 0.201	0.6493
Return to estrus	4.339± 0.851	4.500± 0.413	0.8668
Farrowing index	91.985± 1.056	91.604± 0.776	0.7721

Traceability with electronic chip

Entrance to the feeding station

Feeding stations in the pens

The WSPA thanks the Miunça Farm (Rubens Valentini and Wilson da Silva) and Integrall Solutions in Animal Production (Glauber Machado) for providing support and data that allowed for the publication of this material

Group housing of sows – behaviour

In order to achieve success when housing sows in groups, we must take into consideration some aspects related to their normal behaviour:

Pigs are social animals and naturally tend to live in stable groups of 6-10 sows. They have a social hierarchy established by dominance order that is ranked by dispute for access to resources. When a new animal is introduced to the group, fights occur as an attempt to reestablish the social hierarchy. Pigs have an exploratory feeding behaviour and spend an average 6 to 8 hours per day searching for feed in groups (rooting, nosing, foraging).

Pens' layout

When elaborating a project to house sows in groups, pen density (Directive 120/2008/European Commission) as well as behavioural aspects of the animals must be considered.

Many variables must also be considered when building the facilities, among them are: group size to be housed, feeding system, presence of a fleeing area and availability of enrichment substrate.

Choosing a layout with one main group pen (largest) and several small pens for sow fleeing aids by minimizing agonistic interactions (fights), especially when social hierarchy is disrupted and there is dispute for resource access (feed, water). This layout of pens also assists in forming segregating areas, where sows in the large pen carry out their main activities (dirty area). When in the smaller pens, sows rest or use the space for fleeing, as sows form several subgroups with their own social hierarchies.

Pigs are sociable animals, tending to form stable social groups

Farm facilities with segregation of dirty from resting or flee area

Presence of areas for fleeing minimize agonistic interactions

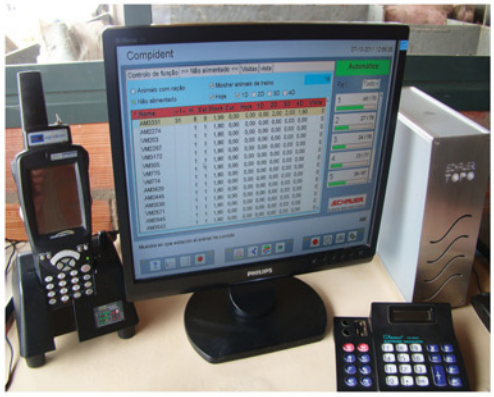
Feeding

Access to feed is one of the main problems associated with group housing because sows compete for ration. Offering feed to sows many times throughout the day by using an automated system (electronic sow feeder) can reduce agonistic interactions. With this system, adequate to large groups of animals, each sow carries an identification chip in the ear that is detected by an electronic sensor that is located at the entrance of the electronic feeding station.

The information acquired by the system allows (or denies) sows access to the interior of the equipment, which disposes the exact amount (portion) of ration calculated by the farm's integrated and computerized system. It is important to allocate the feeding stations in well designed pens while taking into account space distribution and activities in the area, thus promoting a continuous flow of equipment use and minimizing fights, pushes, bites and lesions.

Improvements to be considered when investing in a commercial scale group housing of sows with automated feeding system

Sensor for identifying the electronic chip



Center for data integration, with smaller and better qualified teams

Quality of work environment promotes greater data control

- Improvement to facilities, targeting animal welfare;
- Fewer farm workers, with better qualification;
- Better working conditions (reduction of routine activities);
- Workers more motivated, as group housing presents a more pleasing environment;
- Ease to segregate a sow from the group for routine procedures (individual care), soon after feeding;
- Equipment that allows rapid identification of sows (traceability);
- Easy operationalisation;
- Less waste of feed;
- Better control of sow individual feeding with precise data.