

Assessment of Animal Welfare - Starting Point for Sustained Improvement of Their Quality of Life

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Abstract

The Welfare Quality® European Protocol represents today the assessment reference standard for farm animal welfare and makes use of measurements for both animals and resources. The scope and purpose of this study is to assess the welfare of fattening pigs raised intensively by monitoring the sanitary and behavioral status of animals while applying this protocol. The assessment was conducted in a farm raising fattening pigs (n: 580), over the course of two years, monitoring the welfare criteria and principles described by this protocol. Data obtained showed differences amongst the three lots of animals monitored from the perspective of behavioral displays and health condition - incidence of lesions and laminitis was higher with the first lot while the behavioral displays evolved differently over the course of the study. Data analysis, causes identification and suggestions made based on the former two led to an improvement of welfare levels comparable amongst the three lots of pigs that underwent the study. Welfare Quality® system, represents a safe instrument which, once applied in welfare assessment of pigs raised in intensive systems, contributes to the improvement of the animals' life quality.

Keywords: animal welfare, fattening pig, intensive livestock production, Welfare Quality®

1. Introduction

Animal welfare is nowadays a domain vested with great interest from each of the food chain levels, from farmers, whose perceptions on the welfare of their animals are valuable and positive, to those of the consumers that are generally negative towards it [1]. An important and very present part of the food chain is the food industry which takes part in the discussion on introducing the different labeling of products of animal origin that would guarantee elevated standards of animal welfare [2]. These enhanced requirements on animal welfare have imposed creating a comprehensive assessment system at farm level. Under these circumstances, standardized methods for animal welfare assessment at farm level have been developed (Welfare Quality®, 2009) within the European Union that are meant to evaluate food

quality and safety (2006-2010) for several species including pigs raised for meat.

Health condition as part of animal welfare is important and in many cases connected to negative experiences such as pain, discomfort or animal suffering [3]. Scott et al. (2009) have used the Welfare Quality® system to evaluate sows and piglets in several husbandry systems and showed that incidence of health issues signaled by means of the assessment system was generally low. Temple et al. (2011) have showed that measurements conducted in pig raising farms from different systems displayed insignificant variations to differentiate amongst these units but they may be used to identify the poor level of animal welfare in intensive farming systems. Likewise, they have emphasized that, for an assessment system to be feasible, it should be relatively easy to apply, without clearly setting the necessary time to evaluate the welfare level. The assessments performed in cow farms by Knierim and Winkler (2009) have showed that welfare should be evaluated during the course of 1 day

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visit. Otten et al. (2013) mention the importance of reliability of the welfare assessment system in intensive farming of fattening pigs as a requirement in establishing a practical assessment system.

The present study aims to assess the welfare of fattening pigs raised in intensive farming systems, starting from the monitoring of animals' sanitary and behavioral condition by use of Welfare Quality® protocol.

2. Materials and methods

The study was conducted in an intensive system farm of fattening pigs located in the South of the country. The farm, equipped with modern breeding technology raises 1800 – 2000 pigs/lot. Pigs are housed in 2 row collective boxes that ensure the minimal requirements necessary for fattening pigs. Box flooring is discontinuous on all surface and the feeding and watering systems ensure an easy consumption of dry fodder and water. An artificial ventilation system with modular control of the microclimate (temperature, humidity) and an alarm system are in place. The farming unit is populated with pigs purchased from other units, crossbreed of Duroc and Landrace with an average weight of 28-35 kg/animal.

The study was conducted within the span of two years and monitored three lots of fattening pigs, (lot A, B and C), over the course of three visits (one per each fattening stage) at 8 week intervals /lot. A representative number of animals were selected per lot (lot A, n: 180; lot B, n: 200 and lot C, n: 200), a visit protocol was developed with questions for the farmer (on shelter microclimate, feeding type, recorded weight gain, mortality rate, castration procedures, tail docking, etc) and welfare indicators were assessed monitoring the Welfare Quality® protocol principles and criteria (Table 1).

Primary data obtained at this preliminary stage, were statistically processed (ANOVA) in order to compare health condition and adequate behavioral assessment amongst the three lots. Subsequent to this stage, all measurements were introduced in the simulation system of Welfare Quality® protocol, thus establishing pigs' welfare level for the two principles.

Table 1. The measures for the welfare assessment of growing pigs on farm (Welfare Quality®, 2009)

Welfare principle	Welfare criteria	Welfare indicators
Good feeding	Absence of prolonged hunger	Body condition score
	Absence of prolonged thirst	Water supply
Good housing	Comfort around resting	Bursitis, absence of manure on the body
	Thermal comfort	Shivering, panting, huddling
	Ease of movement	Space allowance
Good health	Absence of injuries	Lameness, wounds on body, tail biting
	Absence of disease	Mortality, coughing, sneezing, pumping, twisted snouts, rectal prolapse, scouring, skin condition, ruptures and hernias
	Painful management procedures	Castration, tail docking
Appropriate behaviour	Expression of social behaviour	Social behaviour
	Expression of other behaviour	Exploratory behaviour
	Good human-animal relationship	Fear of humans
	Positive emotional state	Qualitative behaviour assessment (QBA)

3. Results and discussion

Starting from the fact that presence of lesions and lameness are indicators of poor welfare and that multifactorial diseases reflect most of the times the quality of the environment the animals live in, health condition was the first criterion to be assessed in evaluating fattening pigs' welfare.

The results obtained indicated a high incidence of skin lesions (Figure 1) in lot A of 34.63% compared to lot B where incidence was 22.9% and lot C with an incidence of 7.4%. The results were significant ($p \leq 0.01$).

During the first visit, the results obtained for each lot (Figure 2) have showed a higher lesion incidence (24.8%) compared to the second (14.3%) and the third visit (5.7%), results were distinctly significant ($p \leq 0.001$). Upon processing the first results (A lot), the identified causes were long term transport related stress, as animals had

been brought from a different farm, and aggressive behavioral displays due to group hierarchy fighting in the collective boxes.

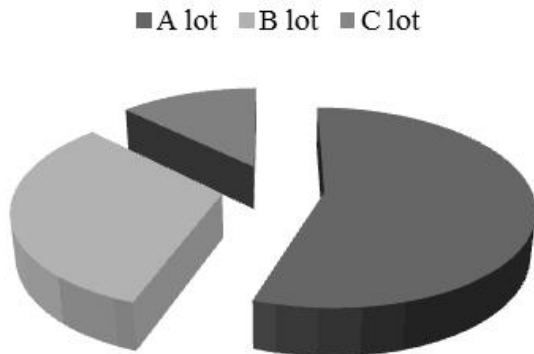


Figure 1. Incidence of skin lesions (%) for animals in the study

As animals adapted to the environment and started relating to each other incidence of these lesions dropped (Figure 2) while still visible on each visit of the three lots and decreasing to 0.4% in the finishing period for C lot.

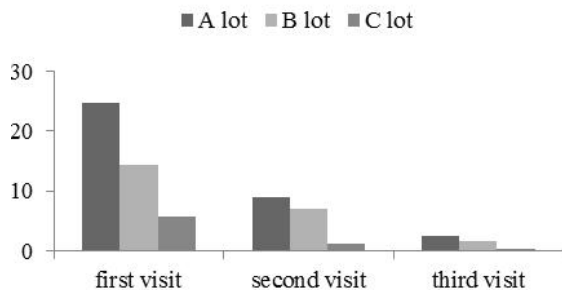


Figure 2. Incidence of skin lesions (%) for animals in the study

Spoolder et al. (2009), state that animals housed in collective boxes display normal social interactions, but inadequate management of the farming system may determine an increased aggressiveness of pigs' interactions. Moreover, these interactions may favor one aspect of welfare but at the same time they may be detrimental to other aspects of their welfare.

During our study, following suggestions made to the farmers, they succeeded in decreasing the incidence of lesions in C lot, by enriching the collective box environment with different occupational elements and by a better group

management as far as the social hierarchy were concerned. Thus, upon assessment of health condition in fattening pigs we noticed that skin lesions are a useful indicator of animal welfare.

The principle - adequate behavior - is important in assessing animals' needs and preferences and finally in their overall welfare level.

The results obtained during our study, have showed that in the first visit, the percentage of exploratory behavior (Figure 3) was high (24.6%) compared to the rest of the period in all three lots (9.86%), results being significant ($p \leq 0.01$).

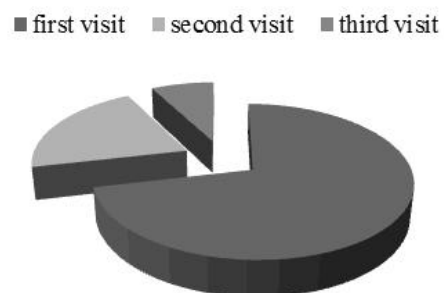


Figure 3. Variation of exploratory behavioral displays (%) for animals in the study

Pigs have by nature a powerful instinct to grout the earth or their bedding if they have one. In the case of our assessment bedding was missing and animals' welfare was affected, as they frequently displayed visible signs of stress by showing aggressiveness (ear biting or biting other body parts of other pigs).

Identifying the behavioral changes is important in diagnosis of subclinical diseases, in pathology prevention and control, as it is the most frequently used parameter in assessing farm animal pain [8]. Behavioral changes often represent animal's first level of response to an adverse or stressful environment. When associated to physical suffering, behavior signals poor welfare and may be a strong practical indicator in assessing welfare by the farmer. Good raising management of pigs in collective boxes with a stable social hierarchy may diminish pigs' aggressive behavior.

We were unable to assess castration and tail docking indicators for this criterion because animals arrived at the farm castrated and tail docked. This fact led to a decrease in welfare level for this criterion once we introduced the data into

the simulation system of the Welfare Quality® protocol (acceptable).

Otten et al. (2013) finalized a preliminary study by showing that Welfare Quality assessment system is a reliable and feasible instrument in assessing the welfare of fattening pigs raised in intensive farming systems, which coincides with our findings.

4. Conclusions

Data analyzed in this preliminary study have showed that during the first stage of raising pigs' incidence of lesions and laminitis was higher as a result of transport related stress, accommodation period to their new environment and establishing new group hierarchy. During the other two stages incidence of lesions decreased as animals adapted to their new environment and socialized with each other within all three lots. The investigation behavioral display was increased in the first stage of the fattening period compared to the rest of the period in all three lots.

Because we were unable to assess castration and tail docking indicators for this criterion, the pigs welfare level for this criterion it was just acceptable.

The Welfare Quality® protocol represents a practical instrument when it aiming to improving animal life quality.

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