Poster 8

HAPTOGLOBIN AND PIG-MAP AS INDICATORS OF STRESS IN PREGNANT SOWS

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Introduction

Council Directive 2001/88/EC forces to house pregnant sows in groups between day 29 of pregnancy and 1 week before parturition. This will affect production (management and feeding) as well as welfare. Acute phase proteins like Haptoglobin (Hp) and pig-MAP (pM) are proposed as possible indicators of chronic stress in pigs. In a previous work, 60 pregnant sows were housed in individual stalls (IS), with slow feeding system (SF) and with electronic feeding system (EF). Hp and pM were analysed on weeks 9th and 14th of gestation. Hp results suggested a lower level of chronic stress in EF animals, while PM did not showed differences among groups (Chapinal et al., 2003). The aim of this study was to analyse different physiological markers of stress in two different group housing systems, compared to sows kept in individual stalls.

Materials and Methods

One hundred and twenty pregnant sows (Lw x Ld) from first to eighth parity, were housed between day 29-30 of gestation and 1 week before parturition in three different systems: individual stalls (IS), slow feeding system (SF), and electronic feeding system (EF). Each group consisted on 20 animals; this design was repeated introducing the replica (season) effect: winter *vs* spring replicas.

Blood samples were obtained the 7-9th and the 12-14th week of pregnancy from 6 to 10 sows per group. For statistical test, repeated measures ANOVA and Spearman correlation test were applied. Pig-MAP and haptoglobin plasma levels were analysed by immunodiffusion.

Results

In the second replica, pM showed neither time nor housing system effects, while Hp decreased in SF and EF ($p<0.007$) but maintained levels in IS. When using all data, both pM and Hp showed a replica effect ($p<0.001$) with higher values in winter than in spring.

Discussion

Our data suggest that individual stalls are more stressing than group housing systems, whereas no differences were found between the two group housing systems studied. When using all data, the correlation coefficients between the first and the second samples were significant and higher than 0.632 ($p<0.002$) for Hp and pM plasma levels in winter and spring replicas.

The replica effect should be confirmed since other factors, such as stockmanship and timing of blood sampling, could be present. Nevertheless, our data suggest that animals were less stressed in spring than in winter.