

ANIMAL WELFARE

Title: Assessment of lameness, pain and culling risk in sows – NPB #07-039

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Scientific Abstract:

Discussions of animal welfare are often focused on measurable and visible factors such as restrictions on space and movement. However, the most important challenge to the welfare of farmed animals may very well be pain. Lameness is a prevalent condition that is usually due to an underlying painful condition. Pain can also adversely affect productivity. Although in the short term, pain may enhance immune function (and allow the animal to rest (which aids the healing process), ongoing pain can have negative consequences for animal productivity.

The present study aimed to assess the methods of identifying the level of pain and lameness in sows. In order to achieve this, behavioral and biochemical indicators of pain were identified along with those of lameness and the relationship between indicators of lameness and indicators of pain were established. The use of these indicators as a predictor of financial outcome associated with the treatment and retention of sows was also assessed.

In prior studies we had shown that there was a marked decrease in almost elimination of signs of lameness with the use of analgesia in sows. Though this indicated that pain inhibited normal gait and other signs of lameness, we did not find that lameness was correlated with PGE₂ and Substance P in saliva using enzyme immunoassay. In fact only low levels were found, suggesting that these chronic conditions do not result in continued high levels of these biochemical indicators.

Conversely, behavioral assessment of sows was proven to be useful as a predictor of lameness and subsequent productivity. A subjective four grade assessment was assessed using a latent class model and found to have a sensitivity of 71% and a specificity of 90%, with increases seen when further training is focused on head dipping and limping. Diagnostic accuracy was also increased with the use of rubber mats and concrete flooring in combination. The diagnosis was also refined with the identification of defects in the claw wall and a history of low feed intake.

When compared to historic fecundity, fertility and age, the diagnosis of lameness was the strongest predictor of future productivity. In the four great scale of lameness, with the first grade being non-lame, grades two and three were not found to be different and were found to have a future daily productivity that was 41% less than non-lame counterparts. They were also found to have an odds of removal that was 3 ½ times as high as non-lame counterparts.

These research results were submitted in fulfillment of checkoff-funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer-reviewed.

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