

Title: Understanding and reducing aggression using pre-exposure, when sows are mixed in a grouped gestation system – NPB #07-128 **revised**

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Date Submitted: 01/05/2011

Scientific Abstract:

The largest single challenge of keeping sows in groups is that of inter-sow aggression. We know that sows will fight when mixed and when having to compete for access to resources. However, there is little information on the effects of pre-exposure when sows are mixed together. This project aimed to investigate whether housing sows next to each other in the service house (pre-exposure – or Grouped treatment [G]) would influence the amount of aggression observed when they were subsequently moved into fully-slatted, group gestation pens (2.9 m × 1.7 m), compared to sows that were randomly selected from non-neighbors (Random treatment [R]). Experiment 1 compared lesion scores, production and behavior of 20 groups of 3 purebred Yorkshire and/or Landrace sows from mixing to farrowing, having previously been housed in service crates for 35 days post-service. Experiment 2 compared lesion scores, production and behavior of 20 groups of 3 purebred Yorkshire and/or Landrace sows from mixing to farrowing, having previously been housed in service crates for 7 days post-service. Individual sow data were averaged to give a pen mean, with pen as the experimental unit. Data were analyzed using GLM with Treatment as fixed effect and pen and replicate as random effects. For analysis of the production data, parity was included as a co-variate. The results show that pre-exposure actually appeared to heighten aggression on subsequent mixing. Immediately post-mixing, total body lesion scores were significantly higher for G sows in the 35-day experiment. This difference was due to differences in lesion score for head, neck and shoulders ($G = 2.42$, $R = 1.77$, $F_{1,19} = 7.70$, $P < 0.05$) and mid-body and udder ($G = 2.42$, $R = 1.90$, $F_{1,19} = 4.37$, $P = 0.05$). In the 7-day experiment, more lesions were also seen around the head, neck and shoulders of the G sows post-mixing ($G = 2.25$, $R = 1.71$, $F_{1,14} = 6.61$, $P < 0.05$). These lesions are indicative of pre-exposed sows engaging in more reciprocal fighting behavior. Detailed analysis of the behavioral data is ongoing, but time-budgets indicated no effect of treatment during the early post-mixing period. Closer examination of aggressive behavior so far has shown no significant differences between treatments in aggression, but many of the measures show numerically higher numbers for pre-exposed sows. There is also no effect of treatment on production, with sows in both experiments having similar total litter sizes and numbers born alive and dead. Overall, the study has shown that pre-exposing sows to each other in service crates prior to mixing appears to be disadvantageous at subsequent mixing. Although neighboring sows will acquire some information and familiarity about their neighbors, it seems possible that the inability to resolve aggressive interactions within the service crates actually promotes aggressive behavior when the sows are placed into an environment in which aggression can be resolved. Therefore, we recommend that when sows are selected to from a group from the service crates, non-neighbors should be selected.

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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