

**The relationship between response to humans and social aggression in pigs**

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Mixing unfamiliar pigs is common in modern production, resulting in intense fighting that can lead to injury and stress. To address this concern we need to understand how aggression is related to other behavioural traits. Responses in human approach tests (HAT) and handling tests were compared with skin lesions to assess the relationship between aggression and human-response for 257 grow-finish stage barrows across 20 pens. Pigs were mixed at 10 wk. Skin lesions (fresh, red marks), a reliable proxy of social aggression, were counted pre-mixing, 24 h post-mixing, and 3 wk post-mixing (stable) by body location (front, middle, and rear) because of research showing differences in fighting strategy based on location. Behaviour tests were conducted at 14 wk. For HAT, frequency and intensity (low/moderate or extreme force) of oronasal contact with observer was recorded every 30 s for 9 min. For handling tests, activity and reactivity while entering, in, and leaving a weigh crate were recorded. General linear mixed models compared HAT responses and skin lesions. For analysis in stable groups, the response variable was lesions by body location; fixed effects were human approach response, repetition, lesion observer, pen as random effect, and weight at mixing as covariate. No effect was found for stable score lesions and interaction with observer ( $P>0.05$ ). For analysis of 24 h post-mix, pre-mix lesions added as a fixed effect. We found that pigs bullied after mixing (high rear lesions) interacted more intensely in HAT ( $P=0.026$ ). The same models were used for handling scores. Pigs bullied in stable groups were less active in the weigh crate ( $P=0.021$ ). Results suggest that social aggression is related to human-related behaviour, but more research is needed. This study is part of a larger study comparing video-recorded affiliative and aggressive behaviours, lesion scores, and genotypes ( $n=1,070$  pigs) for further understanding of pig sociality.