

How to solve a conflict without getting into a fight



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Introduction

Excessive aggression is an important welfare issue in pig husbandry and mainly occurs when unfamiliar pigs meet. In natural settings the agonistic behaviour of pigs comprises various threat displays, to which withdrawal may follow. In this way, dominance relationships can be established and maintained without escalation. Commercial housing may impede this process and consequently provoke escalated fighting.

Objective. Determine the importance of the full expression of agonistic behaviours on the time and strategy to settle conflicts.



Photo 1. Escalated fighting between size-matched pigs

Methods

Contests ($n=52$) were staged between unfamiliar pairs of pigs (55 ♂ / 49 ♀) of 10 wk of age and of similar body weight. The contest arena measured 2.9x3.8 m. Pigs had no previous experience with fighting except within their own litter (no mixing had taken place). Contests lasted until a clear winner was present, which was when one pig retreated and did not retaliate within 2 min (or after 30 min). Behaviour was observed from video by a single observer.

Results

Contests between pairs of equal size and age lasted on average 5½ min (339 ± 19 s). Of this, 87 ± 6 s was spent on display behaviour (e.g. parallel walking, Photo 2), 35 ± 6 s on pushing each other, and 54 ± 6 s on escalated fighting (Photo 1). Pairs showing more display behaviour had a longer total contest duration ($b=2.4 \pm 0.3$ s/sec display; $P<0.001$), but did not differ in time spent on fighting ($P=0.96$).

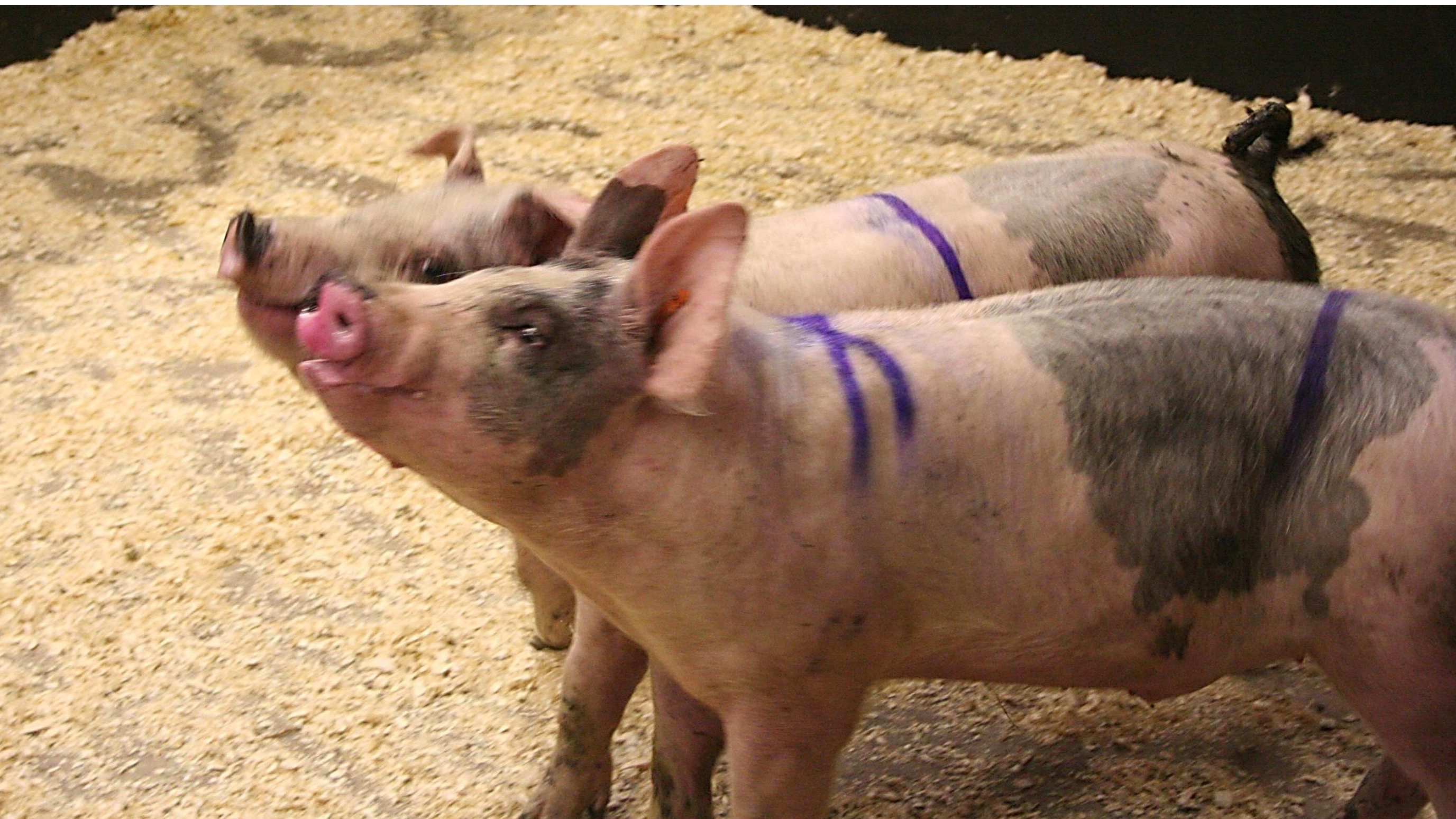


Photo 2. Display behaviour: Parallel walking

In contests without a fight, which were 28% of the contests, a clear winner could still be determined. In these contests there was 53% more non-damaging investigation of each other (Table 1), 46% more parallel walking (Photo 2), and less time spent in the 'heads up' position (Photo 3) and less pushing. Bullying, whereby the winner chases the loser, increased 2.8 fold in contests without a fight, which might be due to more energy reserves or a heightened need to affirm the outcome.

Table 1. Behaviour	No fight ($n = 15$)	Fight ($n = 37$)	P-value
Non-damaging investigation	5.8 ± 1.1	3.8 ± 0.4	0.06
Heads up	1.2 ± 0.2	2.8 ± 0.3	0.009
Parallel walking	4.3 ± 0.6	2.6 ± 0.3	0.01
Nose wrestling	3.8 ± 0.6	2.9 ± 0.3	0.19
Shoulder to shoulder	12.4 ± 1.4	14.3 ± 1.1	0.35
Pushing	3.1 ± 0.9	8.6 ± 1.4	0.04
Unilateral biting (n bites)	8.0 ± 2.9	12.8 ± 2.0	0.10
Fight	0.0 ± 0	14.7 ± 1.1	.
Bullying	23.6 ± 5	8.5 ± 1.3	0.0006
All non-agonistic behaviour	45.9 ± 4.9	41.9 ± 1.8	0.37

Conclusions

Escalated fighting did not seem a requirement to solve dominance relationships between unfamiliar pigs. Pigs which established a hierarchy without fighting invested more time in display behaviour when given the space to do so. Negative consequences of fighting which may impair welfare and productivity (e.g. injuries, increased energy expenditure) might be reduced when pigs are given more opportunity to signal their intent. Space for conflict resolution should therefore not be regarded as an unnecessary luxury.

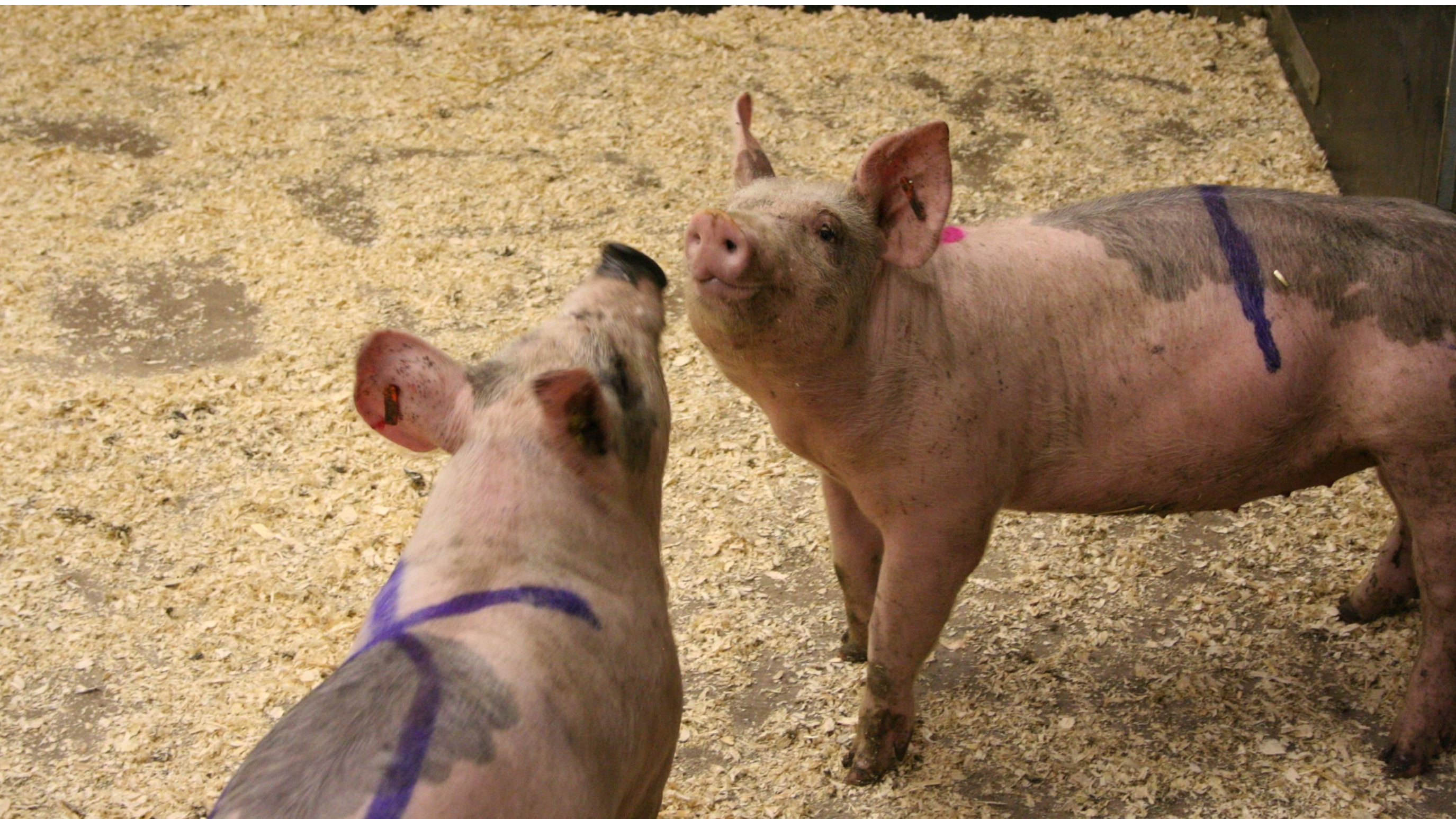


Photo 3. Display behaviour: Heads up position

Future work

The overall aim of the project is to gain a better understanding of pigs' decisions to engage in aggressive behaviour. This is being investigated using a game theoretical framework. Future work is aimed at investigating the effect of fighting experience, piglet socialization, and group mixing on pigs' abilities to assess their opponent during an agonistic interaction. Please contact the author for further information or to participate in stakeholder groups.



Photo 4. Aggressive behaviour: biting (while foaming)

Acknowledgements

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