



Reducing aggressive behaviour in young piglets by cognitive environmental enrichment

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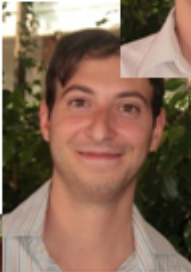


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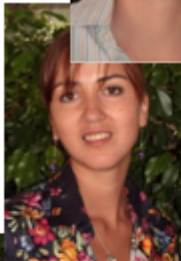


IMAGE ANALYSIS



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EXPERIMENTS &
FARM OBSERVATIONS





Introduction

Environmental enrichment



- Directives 2001/88/EC and 2001/93/EC.
 - “Pigs must have permanent access to a sufficient quantity of material to enable proper investigation and manipulation activities, such as straw, hay, wood, sawdust, mushroom compost, peat or a mixture of such, which does not compromise the health of the animals”
 - Examples of enrichment already used:
 - Feed for distraction, straw, toys, hiding place
- **Cognitive challenges in connexion with foraging behaviour has the potential to enrich the environment of pigs, having beneficial effects on their behaviour and welfare (Puppe et al., 2007)**

Can we use this approach to reduce aggressive interactions of pigs?

Introduction

Why is there a need for finding new strategies to reduce aggression in pigs?

- Violent aggression can cause:
 - Major physical injuries, social stress and loss of productivity
 - Affecting animal health, welfare and economic efficiency ([Stookey & Gonyou, 1994](#)).
- It is related to the establishment of a stable social group hierarchy and competition for resources ([Marchant-Forde and Marchant-Forde, 2005](#); [Puppe et al., 2008](#)).





Material and Methods



Objective:

Reduce aggression in pigs using cognitive environmental enrichment

Method:

- Training of suckling piglets in the farrowing unit for 8 days using an electronic feeder (sound + feed)
- Resident-Intruder test of piglets after 4 days of weaning

Verify the effectiveness of conditioned behavioural responses to reduce aggression in piglets.

Piglet Training:

- The experiment was carried out at TiHo's Research farm in Ruthe
- The pigs were 3,5 weeks old and the average weight was 7 kg \pm 1 kg;
- In each round, two litters of 8 - 12 piglets each were used;
- The animals were trained with an electronic feeder, filled with chocolate candies, activated every 10 minutes.

Resident-Intruder test:

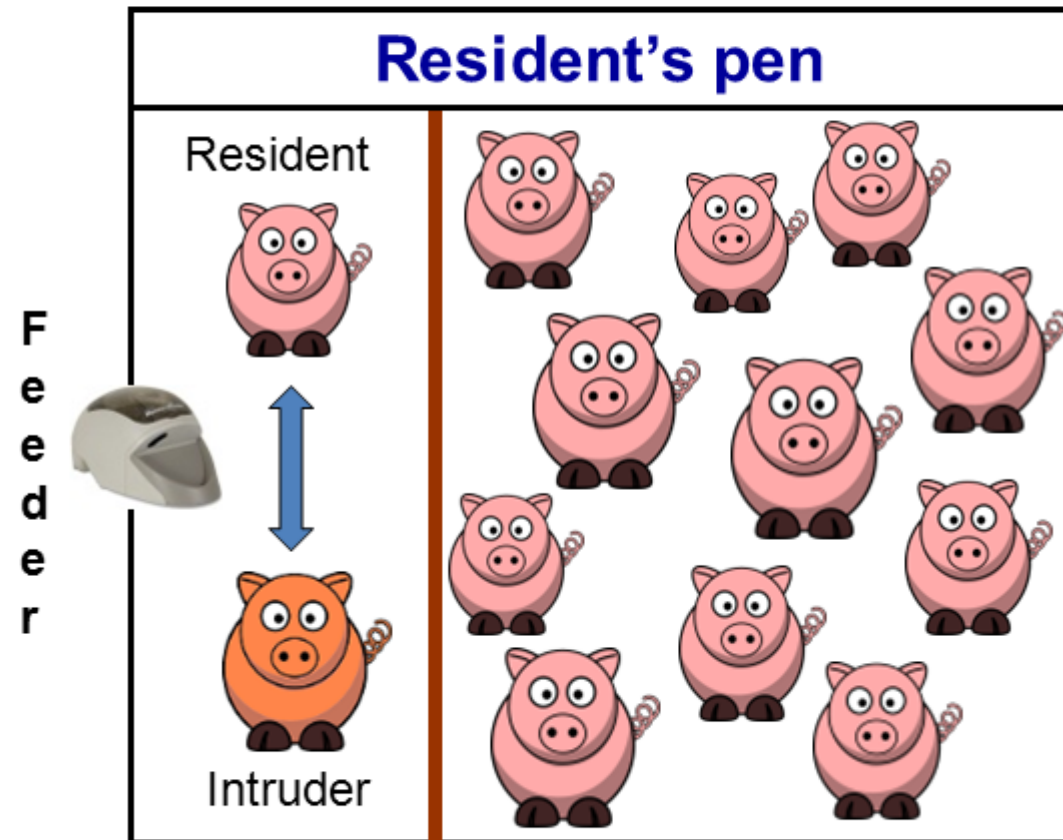
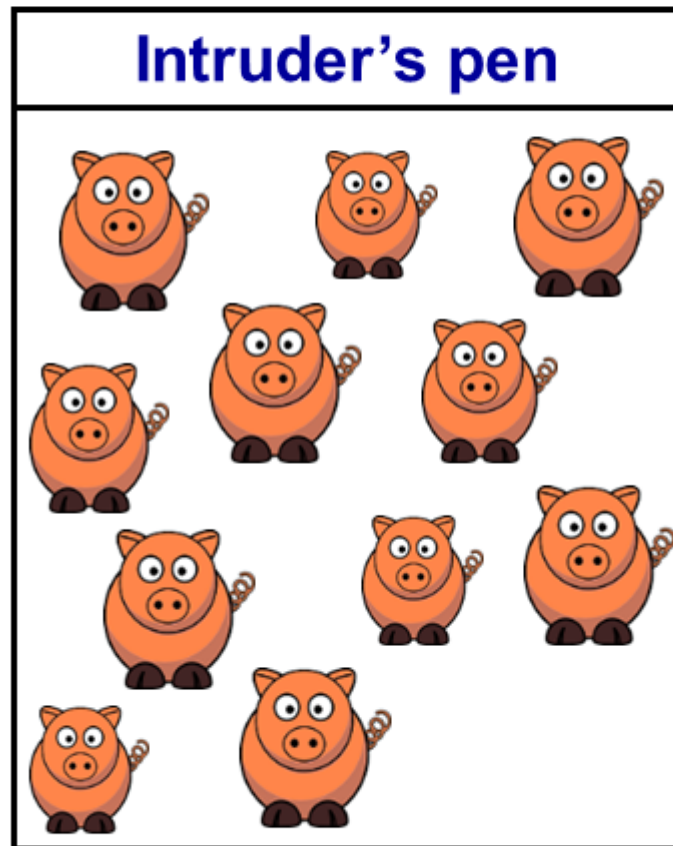
- 4 days after weaning
- Pairs of piglets from 2 different litters
- Activation of the feeder during aggressive interactions (mounting, biting or head knocks) (12 encounters in each day during 2 days)

→ Video recording



Material and Methods

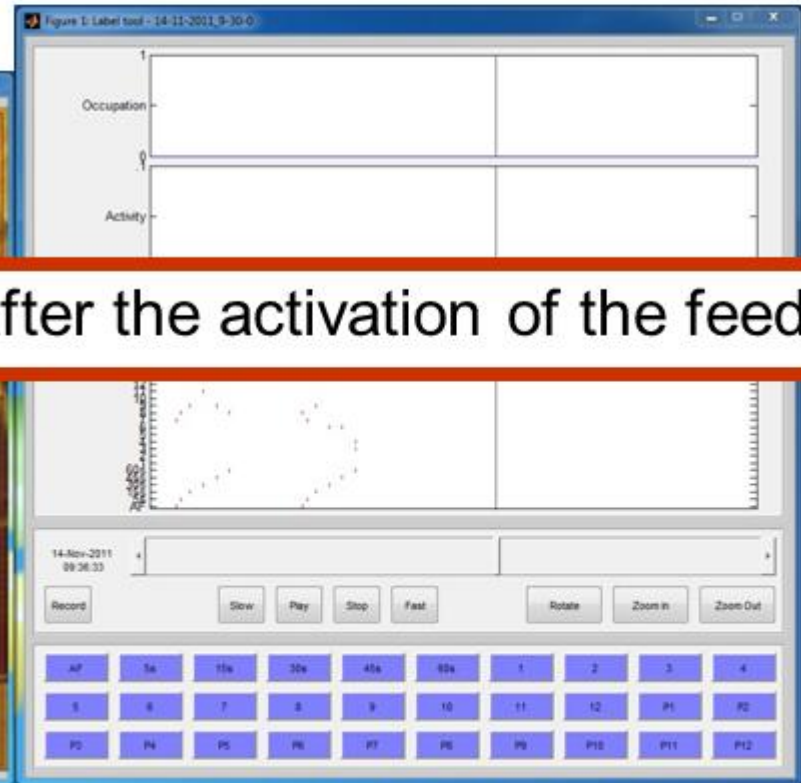
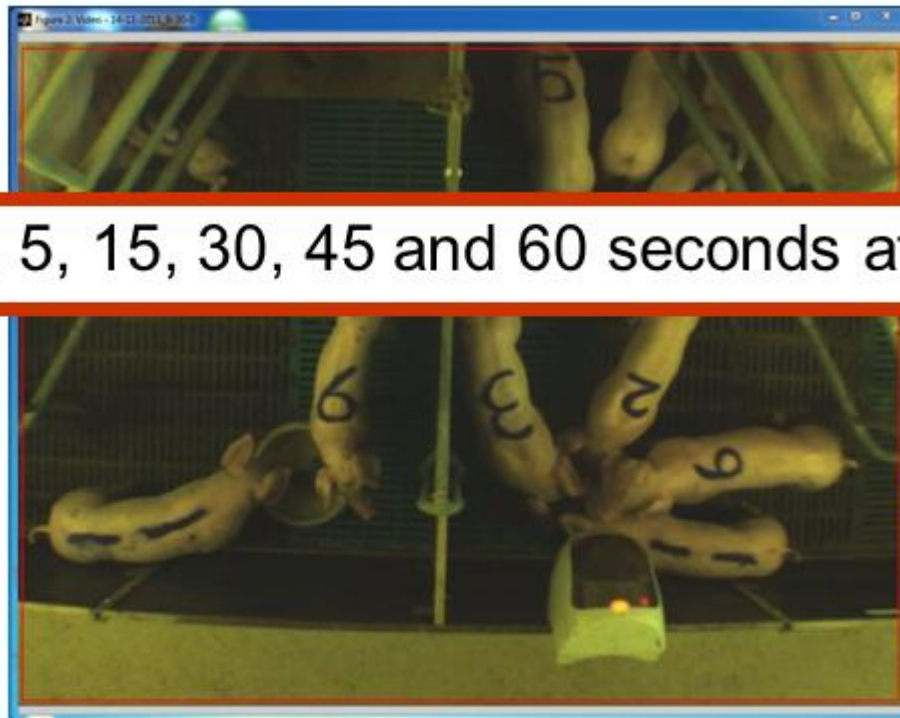
Resident-Intruder test



Material and Methods

Labelling

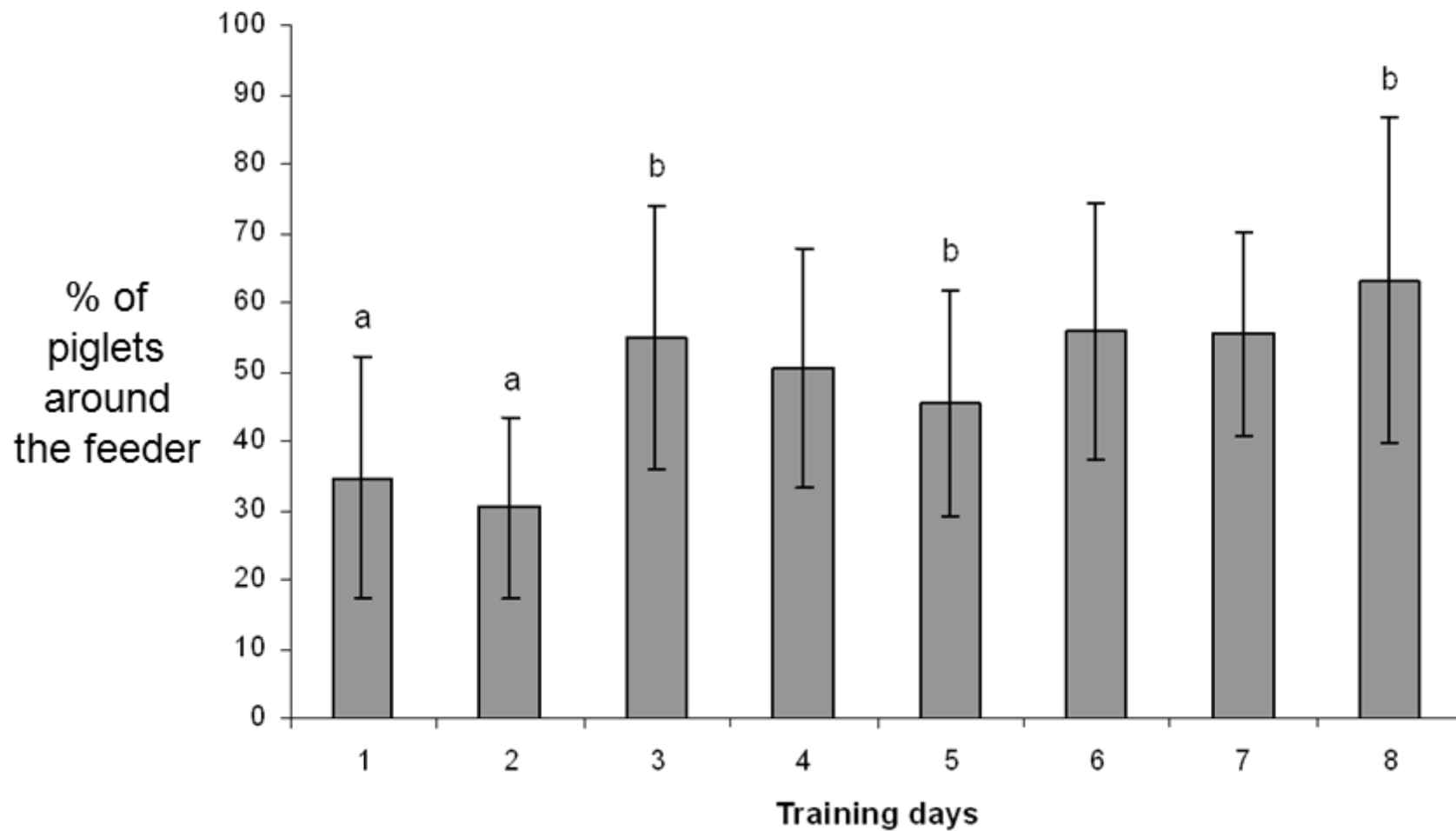
	Training									Resident-Intruder test	
Timeline	1	2	3	4	5	8	9	10	15	16	
Age	24 days old	25 days old	26 days old	27 days old	28 days old	30 days old	31 days old	32 days old	38 days old	39 days old	
Weight	7 kg ± 1 kg	→								12kg ± 1 kg	



2, 5, 15, 30, 45 and 60 seconds after the activation of the feeder

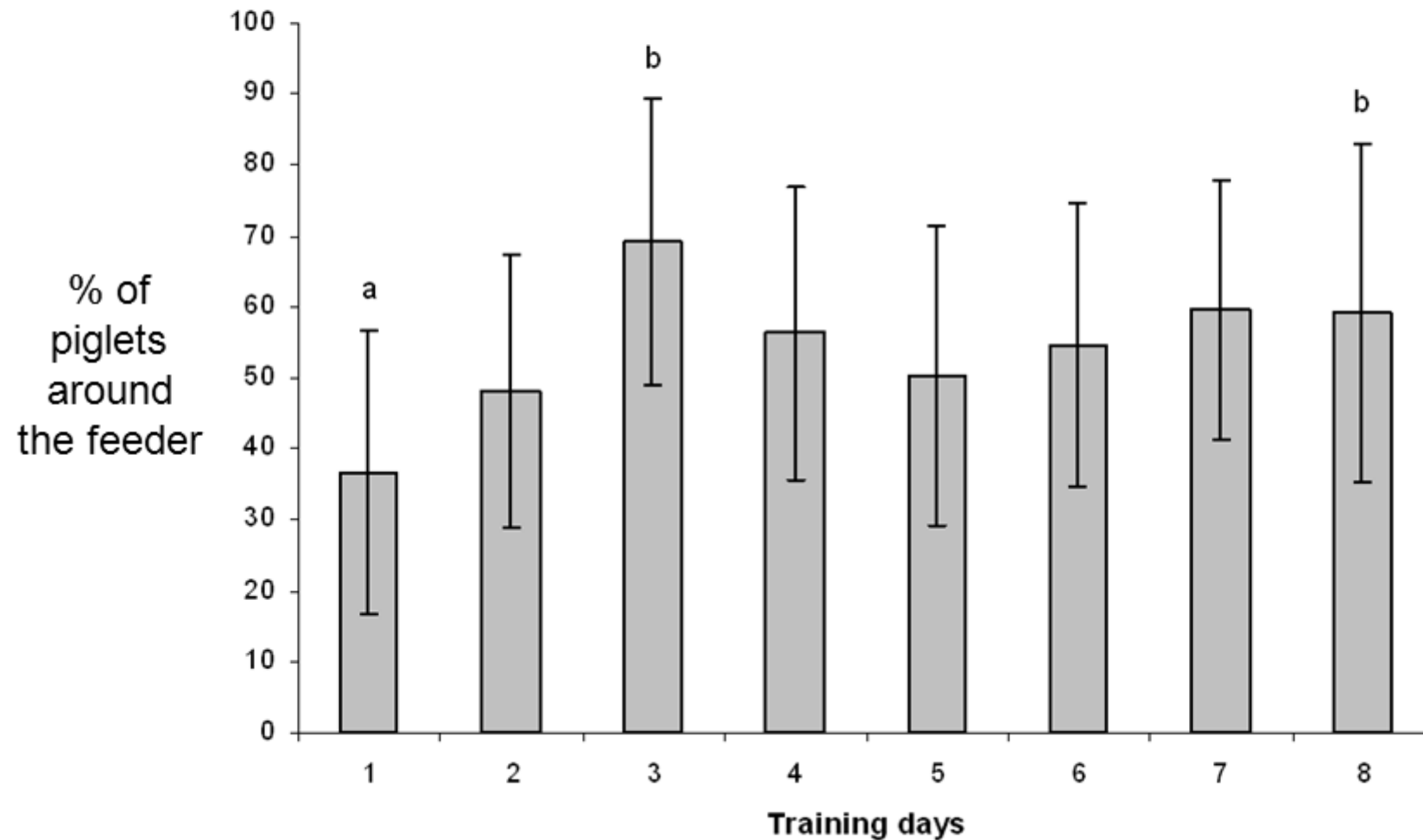
Results

Training – Reaction 05 sec. after feeder activation



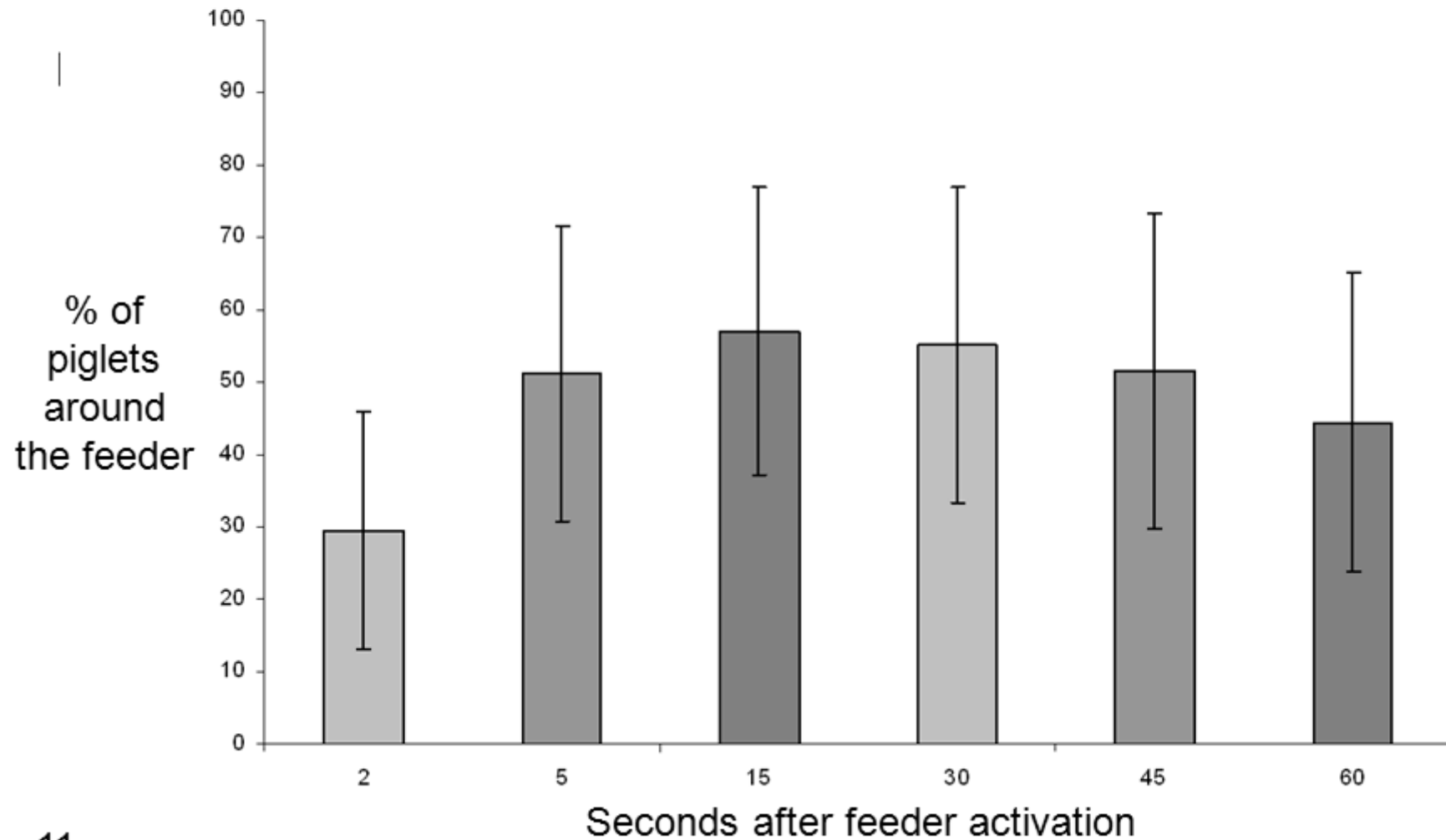
Results

Training – Reaction 15 sec. after feeder activation

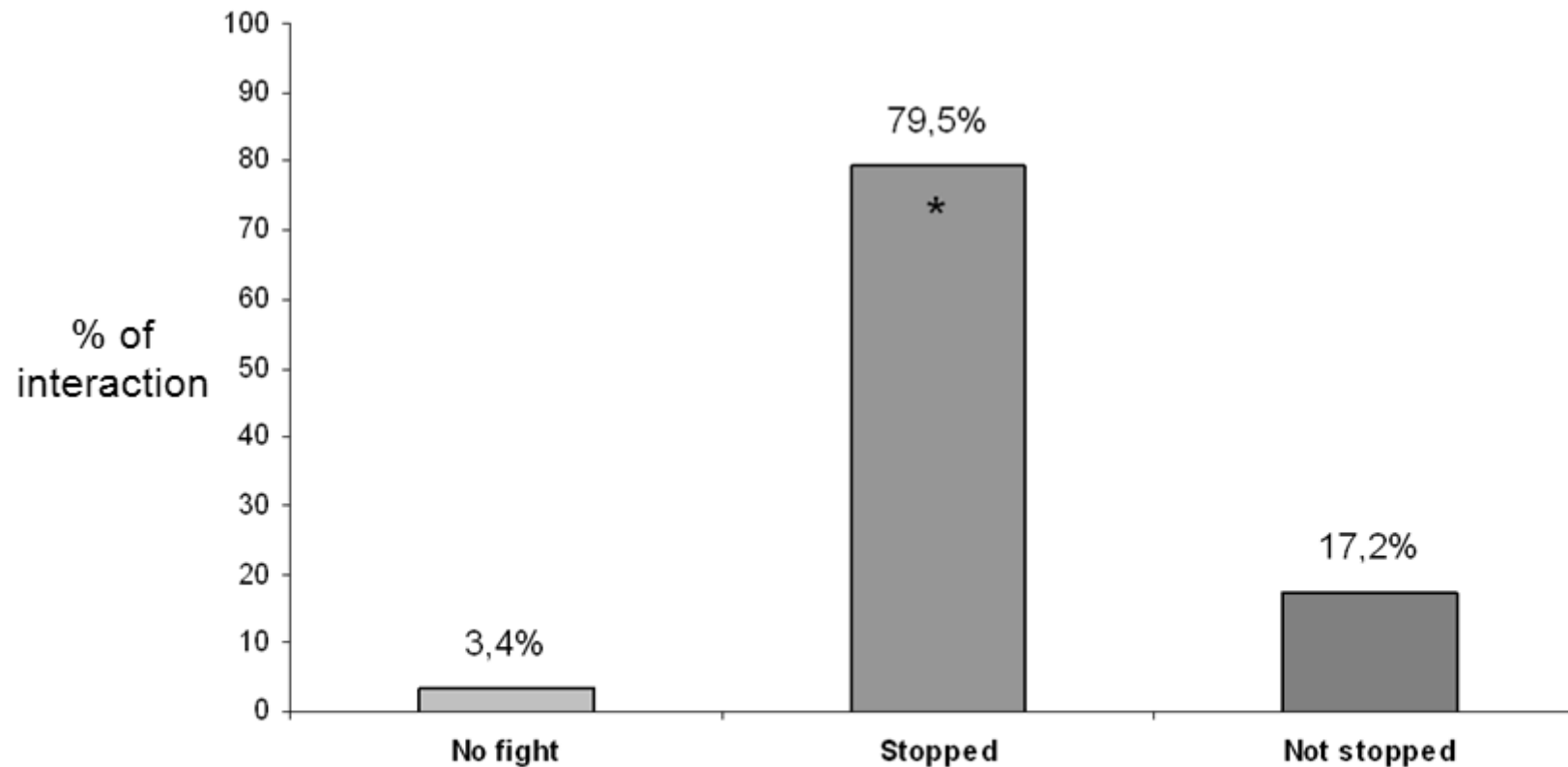


Results

Training – Group result for 8 training days

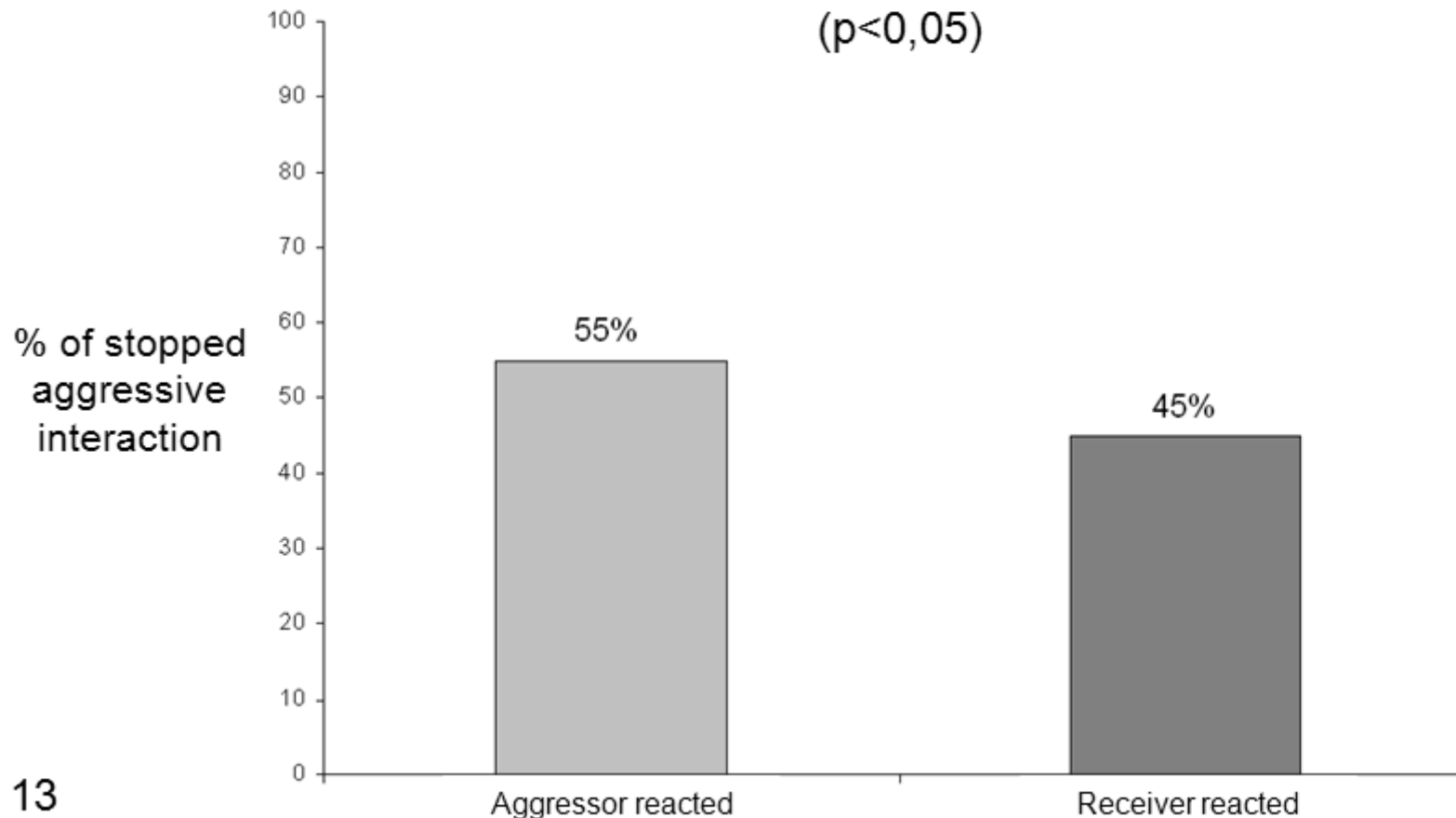


Kind of reaction (no fight, stopped and not stopped aggressive interaction) in relation to the total percentage of interactions from a total of 268 interactions with statistical significance ($p < 0,05$)



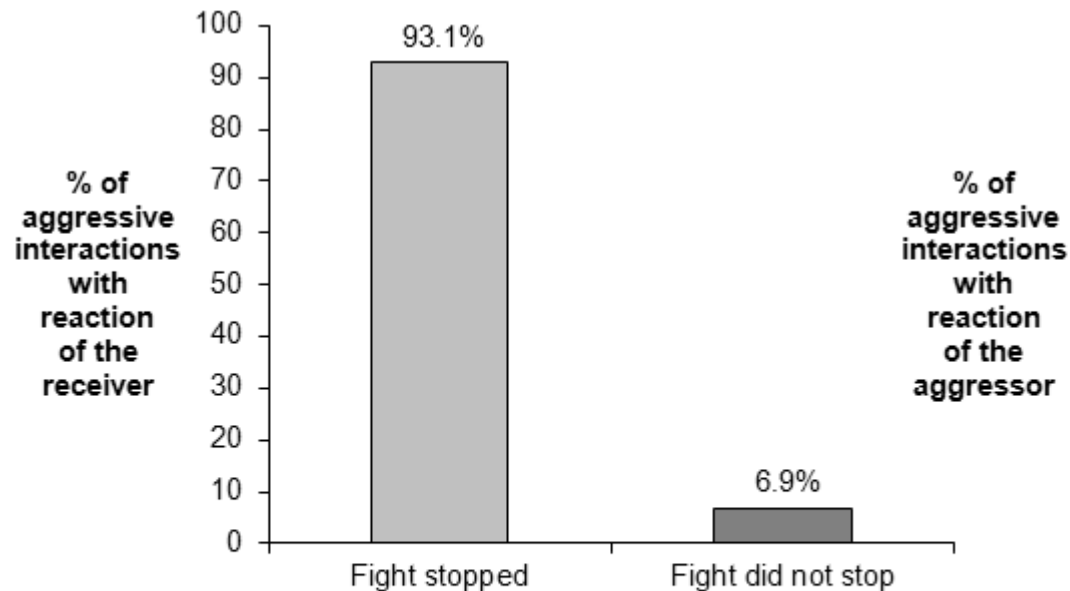
Reaction of the aggressor and the receiver in relation to the aggressive interactions which were stopped after the activation of the feeder from a total of 213 stopped aggressive interaction with statistical significance

($p < 0,05$)

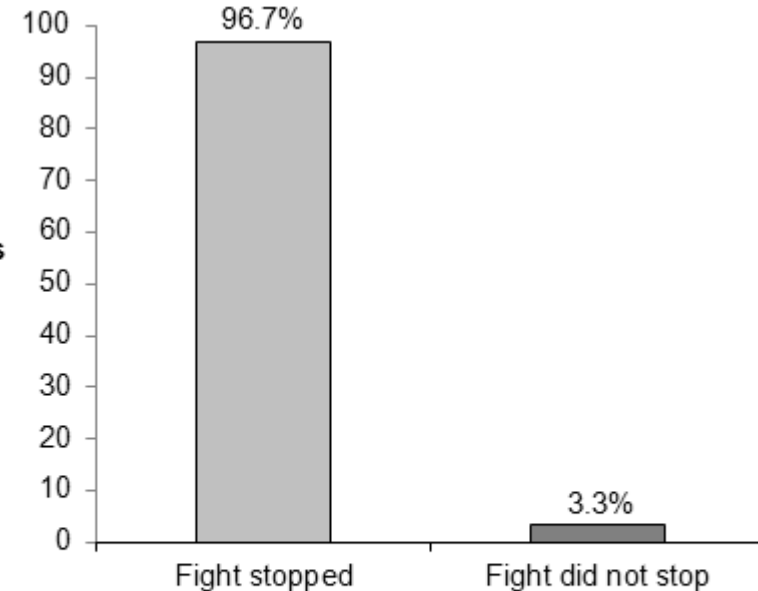


Reaction of the aggressor and the receiver in relation to the aggressive interactions which were stopped after the activation of the feeder from a total of 213 stopped aggressive interaction with statistical significance ($p < 0.05$)

Receiver reacted



Aggressor reacted





Conclusions

- Most of the piglets were able to learn the commands on an average of 8 days of training
- The number of piglets around the feeder increased within the training days
- Most of the aggressive interactions were broken when the feeder was activated

Our system is suitable as an enrichment tool for young piglets and it can be used for breaking aggressive interactions during Resident-Intruder confrontations

Thank you!

