



## Modification of piglet behavior and welfare by dietary antibiotic alternatives

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**Sow behaviour towards humans – an important trait in loose farrowing systems**J. Neu<sup>1</sup>, N. Göres<sup>1</sup>, J. Kecman<sup>2</sup>, H. Swalve<sup>2</sup>, B. Voß<sup>3</sup> and N. Kemper<sup>1</sup>

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Due to animal welfare, free-movement-pens for lactating sows gain importance. However, the sows' protective instinct during the lactation period can represent a serious risk for humans handling the animals. Therefore, the aim of the study was to develop tests to characterise sows' behaviour towards humans as a first step for the potential consideration of these traits in breeding goals. The study was carried out on a farm (BHZP GmbH) with purebred landrace sows (db.01), kept in single housing free-movement pens. The period of data collection ranged from 10/2016 -12/2017. Three tests were conducted. Nervousness and fear of novel objects were evaluated with the 'Towel Test' (TT, 531 sows, 1642 observations) by throwing a towel in the direction of the sow's head during a resting period and scoring her reaction in a score from 1 to 4. Aggression towards human interaction was evaluated by the 'Dummy Arm Test' (DAT, 525 sows, 824 observations) with a plastic hand imitation, located near the sow's head while a piglet was animated to squeak, scoring the sows behaviour from 1 to 4. Moreover, a routine situation was simulated with the 'Trough Cleaning Test' (TC, 530 sows, 1602 observations), scoring the reaction of the sow from 1 to 3. TT and TC were carried out approximately on days 4 and 10 post partum with closed and open pens, respectively. All data was analysed using SAS and ASReml 3.0. In DAT, 90.42% of the sows showed a calm reaction (score 1 and 2) towards humans, while only 2.2% bit the dummy arm (score 4). In TT and TC, the sows kept calm, too (percent of calm scores between 62.4 and 75.1). The number of attacking sows was quite low but not zero (ranged from 4.1 to 6.0% in TC and TT). First variance components analyses showed heritabilities of 0.12 (DAT), 0.17 (TT), and 0.17 (TC). These results suggest that a measurable response of sows towards humans exist and a further use of these traits in breeding programs is possible.

**Session 08****Theatre 9****Modification of piglet behaviour and welfare by dietary antibiotic alternatives**S.Y.P. Parois<sup>1</sup>, J.S. Johnson<sup>2</sup>, B.T. Richert<sup>3</sup>, S.D. Eicher<sup>2</sup> and J.N. Marchant-Forde<sup>2</sup>

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Society is demanding a decrease in prophylactic use of antibiotics in animal production. This could impact animal welfare unless alternatives can be found that confer similar benefits without risk of AMR. The objectives of these studies were to determine whether two alternatives – a probiotic and an amino acid supplement – would impact piglet behaviour and welfare post-weaning. In Experiment 1, 240 weaned piglets were assigned to 3 diets for a 2-wk period post-transport: A – an antibiotic diet including Chlortetracycline + Tiamulin, NA – a control diet, and GLN – a diet including L-glutamine. After the 2-week period, all piglets were fed the same control diet. At weaning, piglets were transported for 12 hours. Tear staining and skin lesions were recorded pre- and post-transport. Novel object tests were done in groups in the pigs' home pen 4 times post-weaning. In Experiment 2, 36 female piglets were assigned to 2 supplement treatments from 24-h to 28 d of age: SYN – a synbiotic containing *Lactobacillus*, fructo-oligosaccharide and  $\beta$ -glucan in chocolate milk, and CTL – chocolate milk only. Piglets were subject to episodic-like (Object Recognition), working (Barrier Solving) and long-term (T-maze) memory tests. In Expt 1, NA pigs had larger tear stains than A and GLN pigs. NA pigs had more skin lesions post-mixing than A and GLN pigs. In the first novel object test, A pigs avoided the object more than NA pigs. In later tests, NA pigs spent less time exploring the object and took longer to interact with the object than GLN and A pigs. In Expt 2, in the object recognition test, SYN piglets interacted more quickly with the novel object. In the barrier solving test, SYN piglets had shorter distances to finish the test. In the T-maze test, SYN piglets were quicker to learn the task. Overall, the results demonstrate that short-term feeding strategy can have both short- and long-term effects on behaviour and welfare. Supplementation with L-glutamine appears to confer similar benefits to dietary antibiotics and the synbiotic supplement improved piglet cognitive performance.