

**Project Number & Title:**

**Project 1B-106: A novel sow-piglet separation technique in lactation to enhance piglet welfare and production after weaning**

**Project Leader:** Professor John Pluske.

**Project Participants:** Dr D. Turpin (PhD student), Dr P. Langendijk and Westpork P/L.

**Aims and Objectives:**

The current research project aimed to mimic the natural weaning process as much as possible under commercial indoor conditions by introducing intermittent weaning (IS) and also allowing piglets to socialize with non-littermates (CoM) during lactation, to determine whether IS and/or CoM can promote positive behavior and positively affect post-weaning performance.

**Key Findings:**

1. Piglets that received sow separation consumed more creep feed before weaning and had a better growth and a tendency for a higher feed intake 2 to 7 days after weaning.
2. The improvement in pig performance by IS did not seem to occur through increased familiarisation with creep feed, but rather through the prevention or attenuation of the weaning-associated stress response as evidenced by increased sleeping behaviour and reduced manipulative behaviour immediately after weaning as well as reduced post-weaning Hp levels and reduced plasma cortisol levels on the day of weaning.
3. Piglets that spent 8 hours daily with piglets from a different litter during the last week of lactation did not have a better performance than piglets that were not co-mingled.
4. Co-mingling does reduce aggression, but this did not seem to impact on selected measures of stress, inflammation or immune status.
5. A higher mannitol absorption was evident in CoM pigs 3 days after weaning and galactose absorption was reduced in IS pigs 3 days before weaning and tended to be reduced 3 days after weaning, likely reflecting a GIT adaptive response.

**Application to Industry:**

1. Intermittent suckling was the most effective pre-weaning intervention at improving performance in the first week after weaning, however the labour associated with moving the piglets away from the sows was significant and for IS to be considered commercially, more research needs to be conducted into farrowing pen design to allow easy separation of sows from their litter.
2. There was strong evidence from both experiments that co-mingling does reduce aggression. We achieved this by removing the barrier at the back of two farrowing crates allowing piglets to move between two sows and interact with piglets from another litter. This method was easy to implement and required minimal labour.
3. Results from the current project and 1B-104 demonstrate the potential of using *in vivo* sugar absorption tests to measure permeability and absorptive function markers in the serum. While markers of GIT function are not necessarily relevant to Industry, other research projects could consider the use of sugar absorption tests as welfare biomarkers, reducing the necessity for terminal experiments.