Spray Dried Porcine Plasma Improves Weaner Pig Resilience to Enteric Challenge

Jos Houdijk1, Louis van Deun2 and Carine van Vuure2
1SAC, West Mains Road, Edinburgh, EH9 3JG, Scotland
2SONAC, Son and Breugel, Netherlands
Email: Jos.Houdijk@sac.ac.uk

Background

- Spray dried porcine plasma, a food grade slaughterhouse by product, is used as protein source in weaner pig diets in many countries.
- Several studies suggest spray dried porcine plasma may improve gut health.

Aim

To assess effects of spray-dried porcine plasma on weaner pig resilience and acute phase proteins during sub-clinical post weaning colibacillosis.

Materials and Methods

- Two rounds, each with 16 pens of 4 pigs (2 ♂ and 2 ♀), weaned at 9±0.1 kg and 28.7±0.5 day of age.
- Test diets (16.9 MJ DE; 16.7 g lysine):
  - Milk: Dry skimmed milk powder 5%
  - Plasma: Spray-dried porcine plasma 5%
- Challenge (feed mixture with phosphate buffered saline for 5 days from day 4 post weaning):
  - Sham: PBS only
  - ETEC: PBS with 10⁸ cfu ETEC per pig per day
- Experimental design:
  - 2 x 2 factorial (n=8 pens) for 14 days post weaning.
  - Standard diets for further 21 days.

Results 1: Resilience

- Plasma increased weaner pig feed intake and weight gain (P<0.001); the latter especially in presence of challenge (P=0.083; Figure 1) without significantly affecting feed conversion ratio (P>0.10).
- Plasma pigs continue to have higher intakes than milk pigs on standard diets (+5%; P=0.004) without significantly affecting feed conversion ratio (P>0.10).

Results 2: Acute Phase Proteins

- Plasma pigs had lower levels of serum haptoglobin and C-reactive protein (Figure 2) than milk pigs. Plasma pigs also had 50% lower serum amyloid A levels (P<0.05).
- Exposure to ETEC did not significantly affect serum acute phase protein levels.

Conclusions

- Spray dried porcine plasma increases weaner pig resilience and reduces inflammatory responses

Acknowledgements

Technical assistance: Dave Anderson, Sandra Terry, Kirsty Hughes, Frankie Atcock, Lorraine Henderson and Brian Murray
Funding: SONAC