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# 2C-109: *Reducing sucker mortality through a novel in feed acid during late gestation and lactation*

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## Aims and Objectives

The aim of this project was to facilitate the development and assessment of a new in feed additive containing high levels of ß1-4 mannobiose in combination with a mix of synergistic organic acids. The new product (Fysal Fit4 Plus) was assessed for its ability to modify faecal microbial populations in the sow as well as its ability to reduce pre-weaning mortality.

## Key Findings

A total of 688 primiparous sows (Large White x Landrace) were allocated to one of four dietary treatments at 14 weeks of gestation: A: Control (no acidifiers); B: 6 kg/t Fysal (blend of short chain fatty acids); C: 4 kg/t Fysal Fit4 (blend of short and medium chain fatty acids plus low dose ß1-4 mannobiose); D: 4 kg/t Fysal Fit4 Plus (blend of short and medium chain fatty acids plus a high dose ß1-4 mannobiose). The treatment acids were included in the gestation diet from 14 weeks of gestation and then the lactation diet post farrowing. Measures of litter growth performance and mortality were obtained along with measurements of sow feed intake during lactation. Faecal samples were obtained from a subset of sows at 9 weeks of gestation, 15 weeks of gestation and again during the second week of lactation for microbiological enumeration for *Clostridium perfringens,* Coliforms*, E. coli, Lactobacillus* species and *Enterobacteriaceae*.

Pre-weaning mortality in litters from the control sows was 16.9 % compared to 16.2 %, 18.7 % and 15.7% for the Fysal, Fysal Fit 4 and Fysal Fit4 Plus treatment groups ($x^2$= 5.50, P=0.14). Piglet growth rates and litter weaning weights were similar amongst treatments, whilst sow feed intake was modestly improved when sows were offered the Fysal Fit4 Plus diets. Microbial analysis of the faecal samples collected at mid-lactation showed distinct reductions in *E. coli* counts when sows had been offered the acidified gestation and lactation diets, with the counts numerically lowest in the Fysal Fit4 Plus treatment group. The outcomes from this study confirm that the inclusion of Fysal Fit4 plus in late gestation and lactation diets can reduce key faecal microbial populations in the sow. Numerical improvements in pre-weaning mortality were observed, however further investigation with a larger number of mixed parity sows would be warranted to confirm and quantify any benefits to producers.

## Application to Industry

The outcomes from this investigation suggest that the dietary inclusion of Fysal Fit4 Plus during late gestation and throughout lactation can reduce the population of gram negative bacteria. The results from this initial screening study show promise and warrant further investigation on a larger population of mixed parity, commercially housed sows.