

1B-102: *Peri-weaning polyamine supplementation: Effects on piglet performance pre- and post-weaning*

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Aims and Objectives The results of Project 2D-124 in the previous Pork CRC demonstrated that polyamine supplementation prior to weaning can significantly improve piglet liveweight gain pre-weaning, and increased intestinal absorptive area at weaning. The current project involved two experiments that had three primary aims.

- To determine whether peri-weaning polyamine supplementation promoted piglet growth and survival pre- and post-weaning.
- To determine when, relative to weaning, polyamine supplementation has the greatest effect on piglet performance.
- To investigate the effectiveness of a commercial application of polyamines

Key Findings

The first experiment investigated the effect of orally dosing piglets with polyamines prior to and/or after weaning on growth rate to day 36 post-weaning. The results failed to demonstrate any beneficial effects of polyamine supplementation on piglet performance.

The second study involved suckling piglets that had been identified “at risk” and were considered developmentally impaired. Specifically these piglets were gilt progeny suckling first lactation sows during summer. This second study investigated the effect of providing polyamines in bowls to piglets prior to and/or after weaning on their growth performance pre and post-weaning. The results of this second study revealed that piglets receiving polyamines were heavier at weaning (6.59 ± 0.04 versus 6.48 ± 0.04 kg), 7 days post-weaning (7.27 ± 0.05 versus 7.11 ± 0.05 kg) and day 36 post weaning (20.1 ± 0.19 versus 19.5 ± 0.19 kg). Furthermore, there was a significant effect of treatment (Polyamine versus control) on liveweight gain during the 7 days prior to weaning (1.46 ± 0.04 versus 1.32 ± 0.04 kg), and on liveweight gain from weaning to day 36 post-weaning (13.6 ± 0.2 versus 12.9 ± 0.2 kg).

Application to Industry

The results of the second experiment in this project, together with previous observations suggest that polyamine supplementation during the last week of lactation can be beneficial for ‘at risk’ or vulnerable piglets. The most obvious application to industry is to develop strategies to increase the polyamine intake of compromised piglets at and around weaning. The easiest method may be to provide these “at risk” piglets and litters with polyamine delivered in additional drinking bowls towards the end of lactation in the farrowing pen and then during the period immediately after weaning. The benefits of this type of strategy should be demonstrated in larger field studies to identify where the response to polyamine is beneficial and economic.

In the longer term, dietary supplementation of the sow to increase polyamine levels in the colostrum and milk should also be explored to determine whether this mode of supplementation may be beneficial for intestinal and immune development, and subsequent growth and survival of “at risk” piglets.