



TECHNICAL REPORT

by Groupe Cérés and Nutrition Athéna



CONTROL OF POST-WEANING DIARRHEA BY LIMITING SUBSTRATES FOR COLONIZATION OF E. COLI BACTERIA

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E. Coli bacteria are part of the normal intestinal flora and are not harmful for piglets when colonization is controlled. The proliferation of harmful bacteria can be caused by periods of stress, such as weaning. Changes in the environment and in the feed (sow milk to complete feed) characterize this period and facilitate the proliferation of harmful bacteria (e.g. *E. Coli*) in the large intestine, causing the phenomenon of post weaning diarrhea.

TRIALS

A way to limit the proliferation of harmful bacteria in the large intestine would be to limit the undigested nutrients (energy and proteins) that reach the large intestine where they serve as substrates (source of the proliferation) to bacteria. Another strategy would be to add indigestible fibres to the bacteria in the rations. The bacteria will then spend its energy trying to remove substrates from these fibres without success and they would die rather than proliferate. In addition, these two strategies would reduce feed costs. Tests have been done both at Groupe Cérés Inc. (Quebec) and *Hylife Ltd.* (Manitoba) to validate these concepts.

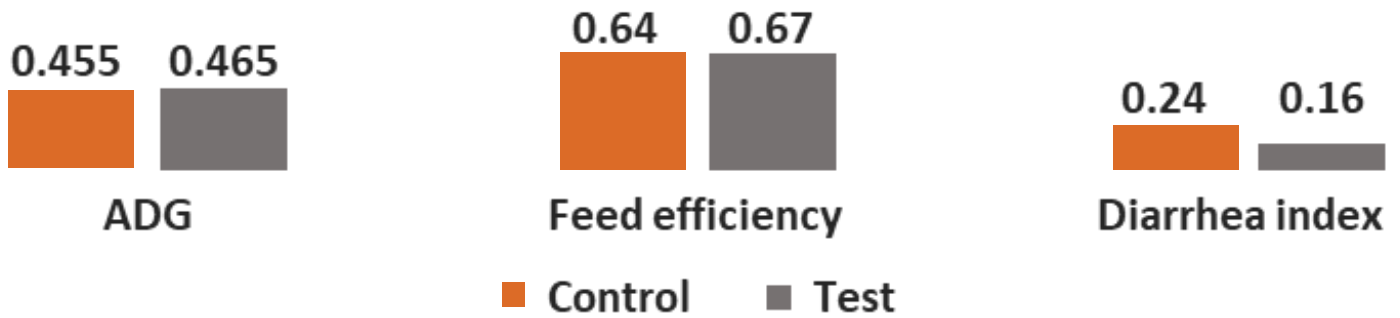
RESULTS

Our studies revealed that this new program, even if it contains less energy and protein, allows to increase the average daily gain by 0.01 kg/day, which is equivalent to an advantage of 0.48 kg/piglet after 48 days in the nursery. However, piglets consume a larger amount of feed, which causes a loss of 0.03 feed efficiency point. This loss of efficiency, however, is almost entirely offset by the fact that the cost of feed is lower with this program. Even with a challenge of diarrhea that can be quantified as low in studies, the new program still managed to reduce the incidence of diarrhea by one third in piglets.

April 2018



Effect of the new feed program on nursery performance



ECONOMIC ADVANTAGE

The advantage of 0.48 kg at the end of the nursery equals a gain of 0.72 kg at the end of finishing since the conservative way of converting the end-of-nursery weight into end-of-finishing weight is to multiply it by 1.5. Assuming a carcass index of 111, a carcass yield of 0.8 and a pork price at \$1.50/kg, this additional gain represents a benefit of \$0.96/pig. With this increase, however, we must subtract \$0.35/pig for additional feed costs (loss in conversion). The new feed plan therefore provides a positive margin of \$0.60/pig.

CONCLUSION

The new nursery feed plan offered at SMI strengthens control of post-weaning diarrhea by limiting unnecessary nutrients (substrates for E. Coli bacteria) and by offering indigestible fibres for bacteria, in addition to providing an economic benefit of \$0.60/pig. We believe that this program can offer even more benefits with more important diarrhea challenges.

NURSERY FEED PROGRAM

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BY NUTRITION ATHENA

- Elaboration based on our research and development trials
- Best cost of gain in the market
- Control of enteric problems

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