

Livestock Science

Copyright © 2010 Elsevier B.V. All rights reserved.

The effects of supplementing the diet of the sow with seaweed extracts and fish oil on aspects of gastrointestinal health and performance of the weaned piglet.

**Leonard S.G.^{1,2}, Sweeney T.¹, Pierce K.M.¹, Bahar B.¹, Lynch B.P.², O'Doherty J.V.¹.
2010, 134: 1-3, 135-138.**

¹School of Agriculture, Food Science and Veterinary Medicine, College of Life Sciences, University College Dublin, Ireland.

²Pig Production Department, Teagasc, Moorepark Research Centre, Co. Cork, Ireland.

<http://www.sciencedirect.com/science/article/pii/S1871141310003306>

DOI: 10.1016/j.livsci.2010.06.118

Abstract

A 2 × 2 factorial study ($n = 10$ sows/treatment) was performed to investigate the effects of maternal dietary supplementation with seaweed extract (SWE) (yes vs. no) and fish oil (FO) inclusion (0 vs. 100 g/day) from day 109 of gestation until weaning (24 days) on piglet performance and intestinal microflora, intestinal morphology and inflammatory gene expression in 9 day old weaned piglets. There was an interaction between SWE and FO on *E. coli* populations ($P < 0.05$) in the caecum and villous height to crypt depth ratio in the ileum ($P < 0.01$). Piglets from SWE supplemented sows had lower *E. coli* populations in the caecum and increased villous height to crypt depth ratio in the ileum compared to the basal diet ($P < 0.05$). However, there was no effect of SWE on *E. coli* populations and villous height to crypt depth ratio with FO inclusion. The mRNA expression of the pro-inflammatory cytokines (IL-1 α and IL-6) was increased in the colon of FO supplemented piglets ($P < 0.05$) and SWE supplementation induced an increase in ileal TNF- α expression ($P < 0.01$). Piglets from SWE supplemented sows had improved daily gains ($P < 0.05$) post weaning while FO increased daily gain ($P < 0.05$) and gain to feed ratio ($P < 0.01$) from days 7–14. In conclusion, these results demonstrate the influence of the maternal diet on aspects of piglet gut health and post-weaning performance. Copyright © 2010 Elsevier B.V. All rights reserved.

This paper is published by *Elsevier* and appears in the journal *Livestock Science*. Full text can be obtained using the link below:

<http://www.sciencedirect.com/science/article/pii/S1871141310003306>

DOI: 10.1016/j.livsci.2010.06.118