

# Livestock Science

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## **The effects of maternal dietary supplementation with seaweed extract and fish oil on the humoral immune response and performance of suckling piglets.**

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## Abstract

A 2 × 2 factorial experiment (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 on colostrum composition, colostrum immunoglobulin concentrations, humoral immunity and growth of the suckling piglets. The SWE contained laminarin and fucoidan while the FO contained 40% eicosapentaenoic acid (EPA) and 25% docosahexaenoic acid (DHA). In the piglets suckling the SWE supplemented sows, the concentrations of serum immunoglobulin (Ig) G were higher on days 5 ( $P < 0.01$ ) and 12 ( $P < 0.05$ ) of lactation and serum IgA was enhanced on day 5 ( $P < 0.05$ ) compared to non SWE supplemented sows. In contrast, fish oil supplementation resulted in a suppressive effect on serum IgA concentrations on day 5 ( $P < 0.05$ ). The SWE supplemented sows had a higher colostrum IgG ( $P < 0.01$ ) and milk protein concentration on day 12 ( $P < 0.05$ ). Fish oil had no effect on either colostrum or milk composition. Average piglet weaning weight was not influenced by dietary treatment. In conclusion, the supplementation of the sow diet with SWE positively influenced humoral immune response in suckling piglets and may alleviate any disease challenge presenting to the piglet during the pre-weaning period, although no improvement in growth rate was observed under the current experimental conditions. Copyright © 2010 Elsevier B.V. All rights reserved.

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