

Livestock Science

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The effects of lactose inclusion and seaweed extract on performance, nutrient digestibility and microbial populations in newly weaned piglets.

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Abstract

A 2 × 2 factorial experiment was conducted to investigate the interactions between 2 different lactose levels (150 g/kg vs 250 g/kg) and the addition of seaweed extract (2.8 g/kg, containing laminarin and fucoidan) derived from *Laminaria* spp. on growth performance, nutrient digestibility and faecal microbial population in the weanling pig. Two hundred and forty piglets were selected after weaning (24 days of age, 7.6 kg (s.d 0.9 kg) live weight) and blocked on the basis of live weight and within each block assigned to one of four dietary treatments. Piglets offered diets supplemented with seaweed extract had a higher average daily gain (ADG) (0.322 vs 0.281 kg, s.e. ± 0.009) ($P < 0.01$) and gain to feed ratio (0.669 vs 0.611 kg/kg, s.e. ± 0.019) ($P < 0.05$) during the entire experimental period (days 0–25) compared with piglets offered un-supplemented seaweed extract diets. Piglets offered high lactose diets had a higher ADG (0.319 vs 0.283 kg, s.e. ± 0.009) ($P < 0.05$) and average daily feed intake between days 0 and 25 (0.480 vs 0.447 kg, s.e. ± 0.011) ($P < 0.05$) compared with piglets offered the low lactose diets. The inclusion of seaweed extract increased ($P < 0.001$) the apparent digestibility of nitrogen (N Dig) and gross energy (GE Dig) and decreased ($P < 0.05$) faecal *E. coli* populations compared with un-supplemented seaweed extract diets. Piglets offered the high lactose diets had increased GE dig ($P < 0.001$), N dig ($P < 0.05$) and decreased ($P < 0.05$) faecal *E. coli* populations compared with piglets offered low lactose diets. In conclusion, the inclusion of either a high dietary concentration of lactose or a laminarin–fucoidan extract increased daily gain and gain to feed ratio of post weaned piglets through an increase in nutrient digestibility and decreased *E. coli* populations in the gut. Copyright © 2010 Elsevier B.V. All rights reserved.

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