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Performance of weanling piglets offered low, medium or high lactose diets supplemented with a seaweed extract from *Laminaria* spp.

Gahan D.A¹, M.B. Lynch¹, J.J. Callan¹, J.T. O'Sullivan² and J.V. O'Doherty¹. 2009, 3: 24-31.

¹UCD School of Agriculture, Food Science and Veterinary Medicine, Lyons Research Farm, Newcastle, Co. Dublin, Ireland.

²Bioatlantis Ltd, Tom Crean Business Centre, Kerry Technology Park, Tralee, County Kerry, Ireland.

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Abstract

An experiment (3 × 4 factorial arrangement) was conducted to investigate the interaction between different levels of lactose (60 v. 150 v. 250 g/kg) and seaweed extract (0 v. 1 v. 2 v. 4 g/kg) containing both laminarin and fucoidan derived from *Laminaria* spp. on growth performance and nutrient digestibility of weanling pigs. In all, 384 piglets (24 days of age, 7.5 kg (s.d. 1 kg) live weight) were blocked on the basis of live weight and were assigned to one of 12 dietary treatments (eight replicates per treatment). Piglets were offered diets containing either low (60 g/kg), medium (150 g/kg) or high (250 g/kg) lactose levels with one of the following levels of seaweed extract additive: (1) 0 g/kg, (2) 1 g/kg, (3) 2 g/kg or (4) 4 g/kg seaweed extract. The pigs were offered the diets *ad libitum* for 21 days post weaning. There was a significant lactose × seaweed extract interaction ($P < 0.05$) in average daily gain (ADG) during the experimental period (days 0 to 21). At the low and medium levels of lactose, there was an increase in ADG as the level of seaweed extract increased to 2 g/kg ($P < 0.05$). However, at the high level of lactose there was no further response in ADG as the level of seaweed extract increased above 1 g/kg. There was a significant lactose × seaweed extract interaction during the experimental period (days 0 to 21) ($P < 0.05$) on the food conversion ratio (FCR). At the low level of lactose, there was a significant improvement in FCR as the levels of seaweed extract increased to 4 g/kg ($P < 0.01$). At the medium level of lactose, there was a significant improvement in FCR as seaweed extract increased to 2 g/kg. However, there was no significant effect of seaweed extract on FCR at the high levels of lactose ($P > 0.05$). There was a linear increase in average daily feed intake (ADFI) during the experimental period (days 0 to 21) ($P < 0.05$) as levels of seaweed extract increased. There was a linear increase in ash digestibility ($P < 0.01$) during the experimental period (days 0 to 21) as the level of lactose increased. There was a quadratic decrease ($P < 0.01$) in nitrogen (N) and neutral detergent fibre digestibility as the levels of lactose increased. In conclusion, pigs responded differently to the inclusion levels of seaweed extract at each level of lactose supplementation. The inclusion of a laminarin–fucoidan extract in piglet diets may alleviate the use for high-lactose diets (>60 g/kg) and would also alleviate some of the common problems that occur post weaning. Copyright © The Animal Consortium 2009.

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