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Editors: Josef J. Gross, Rupert M. Bruckmaier
Veterinary Physiology, Vetsuisse Faculty
University of Bern
Bremgartenstrasse 109a
3012 Bern, Switzerland

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Colostrum intake of piglets in relation to birth order

J. Hornstra^{1,2}, I. Puts², E. M. A. M. Bruininx¹, B. Kemp², and N. M. Soede²

¹De Heus Animal Nutrition, The Netherlands; ²Adaptation Physiology Group, Wageningen University & Research, The Netherlands

jackeline.hornstra@wur.nl

Introduction

Colostrum production of sows is estimated by assessing weight gain of piglets over a 24-hour period after start of parturition (Theil, 2017). During this timeframe, the composition of colostrum undergoes gradual changes (Quesnel & Farmer, 2019). In this study, we aim to estimate colostrum intake of piglets within this 24-hour period by repeatedly measuring the weights of the first, middle, and last-born piglets.

Materials and Methods

Twenty-eight sows (TN70, parity 2-5) and their litters were used. The body weight of the first, middle, and last-born piglets were assessed at birth and 8, 12, 16, 20 and 24 hours after the birth of the first piglet. Colostrum intake (eCI) was estimated per piglet based on piglet weight gain (pWG) in the time period 0-12, 12-24 and 0-24 hours, according to Krogh et al. (2015). pWG and eCI were analyzed using a linear mixed model (R v4.2.1), with birth order and time period and their interactions as fixed effects, and sow as a random factor.

Results

During the first 24 hours, average and SEM of pWG and eCI per litter were 78 ± 7 and 396 ± 12 g/piglet. Sow colostrum production (Σ eCI) averaged 7.2 ± 0.2 kg and farrowing duration averaged 298 ± 29 minutes. pWG and eCI were higher for the first piglet during the period 0-12 and 0-24, compared to the middle and last-born piglet. eCI was higher for middle-born piglet in the period 0-12 hours, compared to the last-born piglet (<0.001). During the 12-24 hours period pWG and eCI were similar for all piglets.

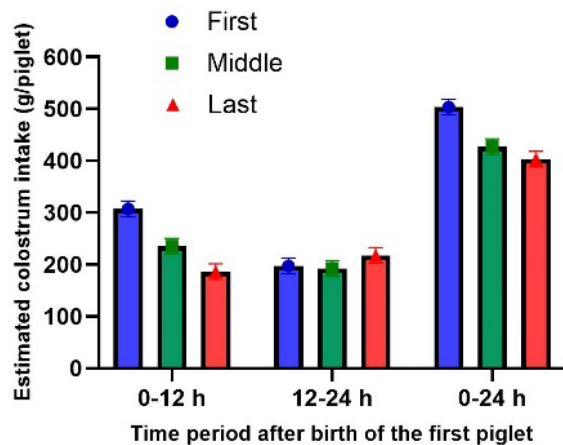


Figure 1. Estimated colostrum intake of piglets by birth order and time period.

Conclusions

Piglets contribute differently to the estimated colostrum production of sows, partly related to the time of birth. The first-born piglets have a higher colostrum intake during the first 12 hour period after start of parturition, a period with higher colostrum quality. This indicates that first-born piglets may have an advantage in terms of immunity and robustness later in life.

References

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