

Accepted Manuscript

Physiological and behavioural response of sows fed with different levels of dietary fiber during gestation

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PII: S1558-7878(18)30173-4

DOI: [10.1016/j.jveb.2018.08.006](https://doi.org/10.1016/j.jveb.2018.08.006)

Reference: JVEB 1178

To appear in: *Journal of Veterinary Behavior*

Received Date: 3 July 2018

Accepted Date: 22 August 2018

Please cite this article as: Oelke, C.A., Bernardi, M.L., Nunes, P.R., Weber, N.C., Veit, F.C., Leal Ribeiro, A.M., Physiological and behavioural response of sows fed with different levels of dietary fiber during gestation, *Journal of Veterinary Behavior* (2018), doi: 10.1016/j.jveb.2018.08.006.

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ABSTRACT

Efficiency is not the only goal in animal production. Now-a-days consumers are very concerned about animal welfare and can decide their preferences based on this aspect. The present study evaluated the effect of variation in the amount of total dietary fiber (TDF) in sow diets, provided from 74 to 102 days of gestation, on the physiological and behavioural responses of the sows. Thirty-three sows were used in a randomized experimental design. The amounts of TDF in three treatment diets were 15.6, 22.3, and 28.2%. To increase the amount of dietary fiber, rice grain and soybean meal were partially substituted for defatted rice bran and soybean hulls. The daily consumption of nutrients and energy was similar for all diets the entire period of gestation, differing only in the volume of ration consumed, which was 2.10, 2.21, and 2.40 kg day⁻¹ (days 74 to 90) and 2.47, 2.65, and 2.85 kg day⁻¹ (days 91 to 102) for the 15.6, 22.3, and 28.2% TDF diets, respectively. During gestation, the increase in TDF influenced the behavioral responses of the sows, resulting in a significant differences in total stereotypies, trough licking and floor snout rubbing. Those behaviors indicates a reduction in stress, and an improvement in animal welfare. The respiratory rates and rectal temperature were affected only by the different times of observation during the day. In conclusion, increasing the amount of TDF leads to a decrease in stereotyped behaviors, primarily after feeding, indicating that this type of diet may be used as a strategy to improve sows welfare.

Keywords: non-starch; polysaccharides; stereotypies; rectal temperature; respiratory rates

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