

Effect of Level and Source of Nitrogen and Minerals on Water Utilization Patterns in Growing Pigs

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Concerns relating to the use of water resources by the livestock industry, combined with the rising cost of storing, hauling and spreading manure have resulted in greater interest in defining more precisely the drinking water consumption of pigs. In particular, little information is available on the impact of diet composition on *ad libitum* water intake. The objective of this experiment was to investigate the response of water utilisation patterns in 30-kg pigs to diets differing in source and level of nitrogen and minerals.

A total of 54 crossbred barrows (3 replicates of 18 pigs each) were given a control diet for 8 days; thereafter, each pig was assigned one of six experimental diets for the following 8 days. The 18.5% crude protein control diet was based on soybean and canola meals; the protein level was adjusted to give low- (14.5% CP) and high- (22.5% CP) protein diets for comparison. Another diet at 18.5% CP was based on meat and bone meal as its protein source, while the fifth diet was similar to the control but with a mineral level equal to that of the animal protein-based diet. The sixth diet was similar to the control but with elevated calcium (1.25% vs. 0.71%), phosphorus (1.00% vs. 0.60%) and salt (0.75% vs. 0.40%) to attain a very high mineral level. Water intake, urine output and water retention were measured twice daily during the last three days of the control period and again during the last three days of the experimental period. Similarly, blood samples were taken on the last two days of each period to examine levels of hormones associated with water intake and retention. Treatments had no effect on water utilisation patterns and did not affect plasma angiotensin II concentration.

Implications

Dietary treatment had no impact on water consumption patterns or angiotensin II level in the blood.