

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

CRUDE PROTEIN LEVELS AFFECT THE NITROGEN BALANCE OF STARTING PIGS UNDER HEAT STRESS

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The reduction of dietary crude protein (CP) may affect the amino acids (AA) utilization by pigs, maintained in temperatures above of the thermo neutral zone. This study was to evaluate the nitrogen (N) balance of starting pigs, under heat stress, feeding diets with different CP levels. The experiment was carried out at Santa Catarina State University – UDESC, and approved by Ethics Committee of UDESC (protocol number 01.81.14). Fifteen pigs, averaging 22.8±1.6 kg, were individually allotted in metabolism cages, in a completely randomized design with three treatments (15.5%, 18.3% and 21% of CP) and five replicates. Pigs were raising in a semi-climatized facilities, with automatic convection heater system 3.600 watts (start at 28°C and stop at 29°C), to simulate a hot stress condition. Temperature and relative humidity were 29.1°C and 75.5%, respectively, which is above of the indicated thermo neutral temperature (22 – 23°C). The experimental period was 7 days for adaptation and 7 days for feces and urine collection. Feed intake (FI) was recorded and used for N intake (NI) calculation. After feeding, water was provided *ad libitum*. Nitrogen intake (NI), fecal N (FN) and N excreted in the urine (NU) were obtained by the multiplication of its respective N value *versus* FI, feces and urine amount. Then, the retained N (RN= NI – FN – UN), net protein utilization (NPU= RN/NI, and biologic value of dietetic protein (BVDP= RN/(absorbed N – FN) were calculated. The absorbed N (AN) was calculated by difference between NI and FN and the total excreted (TEN) was calculated by the sum of NU and FN. All data were submitted to a Student Newman Keuls Test. Fecal N and RN were not affected by treatments; however, the NU and TEN were different (P<0.01), in which were observed 2.70, 3.79 and 7.84 g d⁻¹ and 7.27, 9.46 and 13.15 g d⁻¹, for 15.5, 18.3 and 21% of CP, respectively. Pigs feeding diets with 21% of CP absorbed more N (27.80 g d⁻¹) compared to the 15.5 (21.02 g d⁻¹) and 18.3% (22.88 g d⁻¹). The NPU and BVDP were improved by the 15.5 (71.55%; 87.09%) and 18.3% (66.99%; 83.45%) of CP, which shows that increasing CP in the diets leads to an increase in the AA excretion and possibly an increase in AA catabolism, instead be used for protein synthesis. We conclude that pigs feeding diets with 15.5 of CP were more efficient to use the dietary protein.

Keywords: amino acids, protein utilization, swine.

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