

CONSTRUINDO SABERES, FORMANDO PESSOAS E TRANSFORMANDO A PRODUÇÃO ANIMAL

LYSINE REQUERIMENTS FOR PIGS WITH 56 KG BASED ON GENETIC POTENTIAL

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A nitrogen balance (NB) trial was conducted to determine the model parameters for nitrogen maintenance requirement (NMR, mg/BW_{kg}^{0.75}/day), maximum nitrogen retention theoretical (NR_{maxT}, mg/BW_{kg}^{0.75}/day), and efficiency of lysine utilization (bc⁻¹) and reevaluated the digestible lysine requirements for growing pigs. 24 castrated males pigs (337 PIC x Camborough), with average of 55.93 kg ± 3.12 were allotted in metabolic cages in a complete randomized design in six protein levels of protein with four replicates, two periods and one animal per cage. Treatments consisted of six isoenergetic diets with protein levels ranging from 6.22 to 27% and digestible lysine ranging from 0.365 to 1.585% that were obtained by dilution technique maintaining the ideal ration of amino acids. Lys was set as the first limiting dietary amino acid. With NB, were obtained the values of nitrogen intake (NI, mg/BW_{kg}^{0.75}/day), excretion (NEX, mg/BW_{kg}^{0.75}/day), deposition (ND, ND=NI-NEX) and retention (NR, NR=ND+NMR). The NMR was represented by the relationship between NI and NEX, considering the NMR as intercept of the exponential function on the axis Y (NEX) for NI equal to zero. The NMR determined was used to calculate of NR_{maxT} as the threshold value of function between NI and daily ND, using the principle of Levenberg-Marquardt algorithm. The NMR value was 204.31 mg/BW_{kg}^{0.75}/day. As NR_{maxT} was 1871.76 mg/BW_{kg}^{0.75}/day. Taking the 88.9% (average animals performance of this work) of ND_{maxT} (maximum ND theoretical) and the average efficiency of lysine utilization, the lysine intake estimates was 27.82 g/day and optimal concentration of digestible lysine was 1.21% corresponding to 2300 g/day feed intake. Using the model is possible estimate requirements for different practical performance data.

Keywords: amino acids, nitrogen balance, swine

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