LYSINE REQUERIMENTS FOR PIGS WITH 25 KG BASED ON GENETIC POTENTIAL

Bruno Damaceno FARIA*[1], Gustavo de Amorim RODRIGUES[1], Leonardo Teófilo TOLEDO[1], Sandra Carolina Salguero CRUZ[1], Gabriel Cipriano ROCHA[1], Horacio Santiago ROSTAGNO[1], Melissa Izabel HANNAS[1]

*corresponding author: brunodfzoo@gmail.com
[1]Universidade Federal de Viçosa, Viçosa, Minas Gerais, Brasil

To reevaluate digestible lysine requirement of fast growing pigs a nitrogen balance (NB) trial were conducted to determine the model parameters for nitrogen maintenance requirement (NMR, $mg/BW_{kg}^{0.75}/day$), maximum nitrogen retention theoretical (NRmaxT, $mg/BW_{kg}^{0.75}/day$), and efficiency of lysine utilization (bc^{-1}). 24 castrated males pigs (337 PIC x Camborough), with average body weight of 25.2 kg were allotted in metabolic cages in a complete randomized design in six 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 $NR_{max}T$ as the threshold value of function between NI and daily ND, using the principle of Levenberg-Marquardt algorithm. The NMR value was 170.32 $mg/BW_{kg}^{0.75}/day$ and the $NR_{max}T$ was 3492.70 $mg/BW_{kg}^{0.75}/day$. Taking the 56.18% (average animals performance of this study) of $ND_{max}T$ (maximum ND theoretical) and the average efficiency of lysine utilization, the lysine intake estimates was 12.87 g/day and optimal concentration of digestible lysine estimated was 1.23% corresponding to 1050 g/day feed intake. Using the model is possible estimate requirements for different practical performance data.

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