JAS 2015 93:1052-1060

合适的标准回肠可消化色氨酸和赖氨酸比可改善饲喂低蛋白日粮育肥母猪生长性能，并调控激素以及肌肉氨基酸转运体

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本试验研究了不同标准回肠可消化色氨酸和赖氨酸比对饲喂低蛋白日粮（9.6%）并补充晶体氨基酸对育肥后期猪生长性能和屠宰性能的影响。选用90头育肥母猪（89.1±5.1kg）进行35天的试验。玉米小麦基础日粮中添加晶体色氨酸（0、0.1、0.2、0.4、0.6g/kg），使日粮中SID色氨酸:赖氨酸达到0.12、0.15、0.18、0.21、0.24。每种日粮6个圈，每圈3头小母猪。试验结束时，每圈选取1头小母猪，共计30头母猪屠宰后评价酮体性状和肉质（体重121kg）。SID色氨酸:赖氨酸增加可以提高日增重（线性和二次效应，P＜0.05），同时改善G:F（线性和二次效应，P＜0.05）。血浆尿素氮含量随比值的增加而降低（线性和二次效应，P＜0.05）。处理对背最长肌大理石纹评分和L\*light有二次效应（P＜0.05）。SID色氨酸:赖氨酸的增加还会提高血浆中生长激素的含量（二次效应，P＜0.05），同时提高血浆中IGF-1的水平（线性和二次效应，P＜0.05）。最大化日增重和G:F，最小化血浆尿素氮水平的合适的SID色氨酸:赖氨酸值在折线模型下分别为0.16、0.17和0.16，在二次方程模型下分别为0.20、0.20、0.20。色氨酸可影响饲喂低蛋白日粮的育肥后期小母猪的血浆生长激素、IGF-1，以及背最长肌SNAT2氨基酸转运载体的蛋白质丰度。

The appropriate standardized ileal digestible tryptophan to lysine ratio improves pig performance and regulates hormones and muscular amino acid transporters in late finishing gilts fed low-protein diets

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This study investigated the effects of various standardized ileal digestible (SID) Trp to Lys ratios on the performance and carcass characteristics of late finishing gilts receiving low-CP (9.6%) diets supplemented with crystalline AA. Ninety gilts (89.1 ± 5.1 kg) were used in a dose–response study conducted for 35 d. Crystalline Trp (0, 0.1, 0.2, 0.4, or 0.6 g/kg) was added to a corn–wheat bran basal diet providing SID Trp to Lys ratios of 0.12, 0.15, 0.18, 0.21, or 0.24. Each diet was fed to 6 pens of pigs with 3 gilts per pen. At the end of the experiment, 30 gilts (1 pig per pen) were slaughtered to evaluate carcass traits and meat quality (BW = 121 kg). Increasing the SID Trp to Lys ratio increased ADG (linear and quadratic effect, P < 0.05) and also improved G:F (linear and quadratic effect, P < 0.05). Serum urea nitrogen (SUN) decreased as the SID Trp to Lys ratio increased (linear and quadratic effects, P < 0.05). A quadratic effect of L\* light and marbling in the longissimus dorsi was observed as the dietary SID Trp to Lys ratio increased (P < 0.05). Increasing the SID Trp to Lys ratio increased the level of serum GH (quadratic effect, P < 0.05) and also increased the level of serum IGF-1 (linear and quadratic effect, P < 0.05). Increasing the SID Trp to Lys ratio increased the protein abundance of the muscular AA transporter of sodium-coupled neutral amino acid transporter 2 (SNAT2) in the longissimus dorsi muscle (linear and quadratic effect, P < 0.05). The optimum SID Trp to Lys ratios to maximize ADG and G:F as well as to minimize SUN levels were 0.16, 0.17, and 0.16 using a linear-breakpoint model and 0.20, 0.20, and 0.20 using a quadratic model. Tryptophan could influence serum GH and IGF-1 secretion and protein abundance of the muscular AA transporter of SNAT2 in the longissimus dorsi muscle in late finishing gilts fed low-protein diets.