A Suitable Dietary Level of Tylosin is Effective in Improving the Efficiency of Digestive Utilization of Environmental-Sensitive Nutrients in Growing Pigs

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Background

Dietary supplementation of tylosin is approved for swine feeding for disease treatment, disease prevention, and growth promotion in Canada. However, there is little information about the effect of dietary supplementation of tylosin on the efficiency of digestive and post-absorptive utilization of major environmental-sensitive nutrients, including dry matter, gross energy, nitrogen, calcium and phosphorus in pigs.

Objectives: This study was conducted to examine the effect of dietary supplementation of different levels of tylosin (11, 22, 44 and 110 ppm) on the efficiency of digestive and post-absorptive utilization and total manure, including feces and urine, excretion of N, Ca and P in growing pigs.

Methods and Procedures: A nutrient digestion and balance trial was conducted with 30 purebred Yorkshire pigs with an average body weight between 35 and 50 kg according to a randomized block design. The pigs were individually housed in stainless-steel metabolic crates under our controlled research environment. Corn and soybean meal-based diets were formulated, including the control group, and four tylosin diets with graded levels of tylosin at 11, 22, 44, and 110 ppm.

Results:

- Dietary supplementation of tylosin at 11 pm improved ($P < 0.05$) the efficiency of digestive utilization and reduced ($P < 0.05$) the fecal excretion of major environmentally sensitive nutrients, including dry matter, energy, nitrogen, calcium and phosphorus, by about 10 percentage units.
- Dietary supplementation of tylosin did not improve ($P > 0.05$) the efficiency of post-absorptive utilization of the aforementioned nutrients and did not decrease ($P > 0.05$) their urinary excretions.

Take Home Messages

- The effect of dietary supplementation of tylosin on the efficiency of nutrient utilization and total manure excretion of the nutrients is mainly mediated through affecting the digestive process and is affected by dietary levels of inclusion of tylosin in growing pigs.
- Dietary supplementation of tylosin at 11 pm resulted in the best efficiency of digestive utilization of nutrients under the research environment. However, an optimal level is likely to be higher under the practical swine production environment. Further research is warranted to evaluate the optimal dose for field situations.

Financial support by Elanco Animal Health, and OMAF-University of Guelph Animal and Resources Management and Environment Research Programs is appreciated.