

## Site of digestibility of protein and phosphorus by growing pigs fed diets without or with microbial phytase

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An experiment was conducted to determine the site of digestibility of CP and P by growing pigs. Six growing barrows (initial BW: 39.5 kg  $\pm$  1.3 kg) were randomly allotted to one of two dietary treatments in a two-period switch back design. Pigs on Treatment 1 were fed a corn-soybean meal based control diet (18% CP, 0.37% P) while pigs on Treatment 2 were fed the same diet supplemented with 500 FYT of microbial phytase (Rhonozyme, DSM Nutritional Products, Inc.). No inorganic P was included in the diets. Each pig was equipped with two T-cannulas – one in the proximal duodenum and one in the distal ileum. Each feeding period lasted 14 d. Fecal samples were collected on d-10, ileal samples on d-11 and d-12, and duodenal samples on d-13 and d-14. The apparent duodenal (ADD), apparent ileal (AID), and apparent total tract (ATTD) digestibility coefficients of DM, CP, and P were calculated. The digestibility of DM and CP increased as feed moved down the GI-tract with the ATTD being higher ( $P < 0.001$ ) than the AID which was higher ( $P < 0.001$ ) than the ADD. The ATTD, AID, and ADD for DM were 91.2 vs. 76.8 vs. 0.4% and 90.9 vs. 75.7 vs. 1.3% for the control and phytase diets, respectively. The corresponding numbers for the digestibility of CP were 90.2 vs. 80.7 vs. 13.2% and 89.2 vs. 80.1 vs. 9.8% for the control and phytase diets, respectively. There were no differences between the two diets at any of the sites. The TTTD and the AID of P in the control diet (45.0 and 39.3%, respectively) were not different, but higher ( $P < 0.001$ ) than the ADD (20.9%). For the phytase diet, the ATTD and the AID (60.0 and 56.1%, respectively) also were not different, but higher ( $P < 0.001$ ) than the ADD (23.0%). Both the AID and the ATTD in the phytase diet were higher ( $P < 0.004$ ) than the AID and the ATTD in the control diet. It is concluded that diets without and with microbial phytase have a low digestibility of DM, CP, and P prior to the duodenum while the majority of absorption takes place in the small intestine. There is also a significant disappearance of DM and CP in the large intestine, but that is not the case for P.