

Differences in total tract and ileal digestibility coefficients of calcium and phosphorus in growing pigs fed low phytate corn, normal corn, soybean meal, and corn soybean meal based diets

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The primary objective of this experiment was to determine the apparent ileal digestibility coefficients (AID) and the apparent total tract digestibility coefficients (ATTD) of calcium (Ca) and phosphorus (P) in low phytate corn (LPC), normal corn (NC), soybean meal (SBM), and corn-soybean meal-based diets by growing pigs. The second objective was to determine if there were differences between the AID and the ATTD for Ca and P. Eight diets were formulated and fed to nine growing barrows. Three diets contained LPC, NC, and SBM as the sole source of Ca and P. Three similar diets contained supplemental inorganic Ca (iCa) and P (iP) to bring the contents up to the requirements of the animals (i.e. 0.5% Ca and 0.2% digestible P). Two diets containing LPC-SBM and NC-SBM were also supplemented with iCa and iP to reach the requirements of the animals. Each diet was fed to the pigs for nine days with ileal digesta being collected from 0800 to 2000 on d 8 and d 9. Fecal samples were collected on d 7 and d 8. The AID and the ATTD (70 and 69%, respectively) of Ca in LPC were higher ($P < 0.05$) than in NC (47 and 50%) and SBM (51 and 47%). The addition of iCa did not affect ($P > 0.05$) the AID or the ATTD of Ca for any of the three feed ingredients. No differences ($P > 0.05$) in the AID of Ca were found between the LPC-SBM

and NC-SBM diets. The AID and the ATTD of P in the LPC diet were higher ($P < 0.05$) than that of the NC and SBM diets (57 and 55% vs. 28 and 29% and 37 and 38%). When iP was added to NC and SBM, the AID and the ATTD of P increased ($P < 0.05$). However, the addition of iP did not ($P > 0.05$) improve the AID or the ATTD of P in LPC. For both Ca and P, there were no differences ($P > 0.15$) between the AID and the ATTD. In conclusion, LPC has a higher Ca and P digestibility than NC and SBM. There appears to be no net absorption or excretion of Ca and P in the large intestine of growing pigs fed corn or soybean meal based diets.