Digestibility of calcium in feed ingredients and requirements of digestible calcium for weanling pigs

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Efforts to reduce P excretion from pigs have increased during the last few decades and it has been recognized that interactions among dietary P, Ca, phytate, and microbial phytase exist. However, limited research has been reported on Ca digestibility, but to optimize the use of both Ca and P, digestibility values of Ca are needed. Due to endogenous losses of Ca, values for standardized total tract digestibility (STTD) of Ca in different Ca supplements and feed ingredients have been determined, and these values may be used to formulate mixed diets. Phytate may bind intrinsic Ca in feed ingredients of plant origin as well as extrinsic Ca ingredients of animal origin or Ca supplement, but not all forms of Ca in Ca supplements are bound to phytate. Therefore, the effect of phytase on the STTD of Ca may vary depending on the amount of Ca bound to phytate and in some cases microbial phytase will result in increased STTD of Ca from animal proteins or calcium supplements. Dietary fiber may increase the STTD of Ca, but particle size and soybean oil do not influence the STTD of Ca. Requirements for digestible Ca by growing pigs has not yet been determined, but with the availability of values for the STTD of Ca in most commonly used feed ingredients, the basis for determining such values has been prepared. In conclusion, data for the STTD of Ca and the effects of microbial phytase in many feed ingredients has been determined and future research will be directed at determining the requirements for digestible Ca by different groups of pigs.