

Méta-analyse de l'utilisation digestive et métabolique du P chez le porc en croissance: effet de l'apport alimentaire de phosphore, de calcium et de phytase

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Meta-analysis of phosphorus digestive and metabolic utilization by growing pigs: effect of dietary phosphorus, calcium and exogenous phytase

Optimizing phosphorus (P) utilization efficiency is a key element for the sustainability of pig production. Given the large number of P digestibility data in growing pigs, a meta-analysis was conducted using 74 publications to quantify the effect of the main factors modulating digestive and metabolic P utilization, such as P forms, calcium (Ca) and phytase. The results showed that digestible P (g/kg) increases linearly with dietary P with digestibility of 21, 73 and 80 % for phytate P (PP) and non-phytate P from plant and mineral origin, respectively. The effect of microbial phytase on digestible P is two-times that of plant and depends on PP. Digestible P decreases with increasing Ca and decreasing body weight of pig. For the metabolic utilization of P, average daily gain (ADG, g/d) and retained P (g/kg) increase curvilinearly with dietary P. The impact of dietary Ca depends on dietary P; the negative impact of increasing Ca on ADG is increased in low-P diet. Besides, high Ca concentration decreased retained P in low-P diet while it increased it in high-P diet. This interaction reflects the relationship between P and Ca in bone compared to soft tissue. The impact of microbial phytase on ADG decreases with increasing dietary P and its impact on retained P also depends on dietary Ca. This meta-analysis provided a better understanding of digestive and metabolic P utilization in pigs, which is a prerequisite to formulating diets geared to high economic and environmental performances.