

# Diet nutrient digestibility and growth performance of weaned pigs fed chickpea

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Using alternative feedstuffs to replace soybean meal (SBM) and cereal grains in swine diets is economically important for pork producers. Chickpea may serve as an alternative source of protein and energy; however, little information is available regarding its dietary inclusion for weaned pigs. The effects of increasing dietary inclusion of chickpea by substituting SBM and wheat grain on nutrient digestibility and growth performance of young pigs were evaluated. Three hundred pigs (initial body weight 9.6 kg) weaned at 20 ± 1 days of age and housed in pens with 4 pigs were involved. Pigs were fed a SBM diet or diets with 7.5, 15, 22.5, or 30% Kabuli chickpea in substitution for up to 20% SBM and 10% wheat grain for 3 weeks starting 2 weeks post-weaning. The chickpea sample contained 23.9% crude protein (CP), 4.7% acid detergent fibre (ADF), 5.2 mg/g trypsin inhibitor activity, and 0.4% tannin on dry matter (DM) basis. Diets were formulated to provide 2.34 Mcal net energy (NE)/kg and 5.1 g standard ileal digestible (SID) Lys/Mcal NE and were steam-pelleted. Increasing dietary inclusion of chickpea quadratically increased ( $P<0.001$ ) diet apparent total tract digestibility (ATTD) of DM and gross energy (GE) by up to 2.5%-units, quadratically increased ( $P<0.001$ ) digestible energy (DE) and predicted NE value by up to 0.13 and 0.21 Mcal/kg, respectively, but quadratically reduced ( $P<0.001$ ) ATTD of CP by 4.6%-units. Overall (d 1–21), increasing dietary chickpea quadratically increased ( $P<0.05$ ) average daily feed intake (ADFI), quadratically increased then decreased ( $P<0.001$ ) average daily gain (ADG), and quadratically decreased ( $P<0.001$ ) feed efficiency (G:F) and final body weight (BW). Pigs fed 15% chickpea had increased ADFI by 66 g/d and ADG by 55 g/d, but similar G:F and increased final BW compared with pigs fed diet with 0% chickpea. In conclusion, increasing inclusion of up to 30% chickpea in diets for weaned pigs reduced growth performance. Dietary inclusion of 15% chickpea increased feed intake and growth performance of weaned pigs and sustained feed efficiency.

**Implications:** Dietary inclusion of 15% chickpea in substitution of 10% soybean meal and 5% wheat grain can serve as an alternative protein and energy source in diets for weaned pigs provided diets are formulated based on NE and SID Lys.