Nutritional evaluation of weevil-resistant transgenic peas with chickens
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Background - Peas (Pisum sativum) are an important source of dietary protein for humans and animals due to its high protein content and excellent amino acid profile. The pea weevil (Bruchus pisorum) causes substantial economic loss in pea production especially in Australia. The common bean (Phaseolus vulgaris) α-amylase inhibitor has been transferred to peas and the transgenic variety was protected from pea weevil attack under field conditions.

Objective - To determine the effect of expression of common bean α-amylase inhibitor transgene on the nutritive value of peas for poultry.

Design - A series of studies in broiler chickens were conducted to determine the apparent metabolisable energy, starch and protein digestibility and the ileal digestibility of amino acids in the non-transgenic and transgenic peas. Five week old broiler chickens were used in conventional and ileal digestibility assays.

Outcomes - Protein and amino acid digestibilities were not affected but AME values and starch digestion were significantly (P<0.001) reduced in the transgenic peas.

Conclusion - Expression of the common bean α-amylase inhibitor in peas significantly reduces starch digestion and AME values in chickens.