

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.