

**Estimating amino acid availability from digestibility coefficients:  
application to poultry diets**

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**Background** - Determining the available amino content of feed ingredients is difficult. However, availability can be estimated from amino acid digestibility coefficients. A number of reports have demonstrated that bird performance is superior when fed diets based on digestible amino acid values during the starter phase.

**Objective and Design** - In this study broiler chicken performance was measured throughout the production cycle from hatch to processing in birds fed either a diet that was formulated using total amino acid values (Diet 1) and compared to a diet formulated using ingredients of known amino acid digestibility (Diet 2) and a diet formulated by a large integrated broiler company (Diet 3). Diets were formulated for starter, grower and finisher phases using the same batch of ingredients for which digestibility values had been determined. Each diet was fed to 6 pens of six male broilers (Cobb); starter from days 1 to 14, grower from days 14 to 28 and finisher from days 28 to 42. Feed consumption and body weight were recorded weekly. On day 42, breast meat weight and abdominal fat weight were measured as estimates of carcass yield.

**Outcome** - Bodyweight ( $P<0.001$ ), feed intake ( $P<0.001$ ) and feed conversion ( $P<0.005$ ) were significantly improved when diets were formulated on a digestible amino acid basis. Diets 2 and 3 also significantly increased ( $P<0.001$ ) carcass yield.

**Conclusion** - Formulation of broiler diets using digestible amino acid values and fed from hatch to processing can significantly improve bird performance and carcass yield.