

Optimizing amino acid balance in broiler diets



Country of GP owner: Italy

BroilerNet Challenge: Environmental sustainability reducing ammonia emissions

This Good Practice is based on the implementation of the Ideal Protein concept as an innovative nutritional strategy in broiler production. This approach goes beyond the traditional formulation of diets based on high crude protein levels, focusing instead on providing a precise profile of digestible amino acids tailored to the animals' actual physiological requirements. In doing so, it allows for a reduction in dietary protein excess and a significant improvement in nitrogen utilization efficiency.

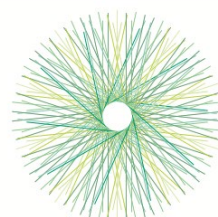
In conventional diets, amino acids supplied in excess of the animals' requirements are metabolized and excreted as nitrogen, contributing to ammonia emissions, air pollution, and water eutrophication. The Ideal Protein concept addresses these issues by shifting the focus from total protein quantity to the quality and balance of the amino acid profile, typically expressed relative to digestible lysine.

Targeted supplementation with key synthetic amino acids, such as methionine, threonine, valine, arginine, and isoleucine, makes it possible to reduce the overall protein content of diets without compromising productive performance. In addition to environmental benefits, this Good Practice contributes to improved gut health by reducing the risk of dysbiosis and promoting better litter quality. Drier litter results in a lower incidence of footpad dermatitis and other contact lesions, with positive effects on animal welfare and working conditions within poultry houses.

Production results confirm the effectiveness of this approach, with a standardized improvement in feed conversion ratio (FCR) of approximately 1% and an increase in final body weight of about 1%. From an economic perspective, the additional cost associated with the use of synthetic amino acids is limited and variable depending on market conditions, but it is more than offset by feed cost savings (approximately –€0.001 per kg of live weight).

Overall, the Ideal Protein concept represents an effective solution to enhance productivity, environmental sustainability, and animal welfare in broiler production.

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