

Title: Total and Digestible Tryptophan Contents of Feedstuffs for Poultry

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Summary

In consideration of the importance of essential amino acids in the diets of Australian poultry, this report reviews previous studies of the amino acid, tryptophan.

Reliable values of total and digestible tryptophan in feedstuffs are needed because tryptophan is often the third most limiting amino acid in poultry diets. Understanding the inclusion of tryptophan in poultry diets will also facilitate the strategic use of commercially available synthetic, feed-grade tryptophan in the Australian poultry industry.

Although numerous reports are available on amino acid digestibility in ingredients for poultry, these data seldom include values for tryptophan. This is mainly due to the changeable nature of this particular amino acid which has resulted in a variety of analytical difficulties across methodologies.

A chromatographic method was recently developed and validated by a 1998 study (Ravindran) for the determination of tryptophan content in food and feed proteins. Digestible amino acid contents of 93 samples of 25 Australian feedstuffs for poultry were surveyed, but digestible tryptophan values were not included in this database.

In the present study, the ingredient, diet and digesta samples from the above survey were analysed for tryptophan and digestibility coefficients were calculated. As a result, the content and apparent ileal digestibility coefficient of tryptophan in feedstuffs are presented in this report.

This information should be considered as an addendum to the earlier survey of digestible amino acids in Australian feedstuffs. Additional data presented herein, on eight feedstuffs, indicate that tryptophan digestibility for broilers and layers are similar.