

Effect of AGal-Pro® BL on the performance and apparent metabolizable energy of broiler chickens: a meta-analysis



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Introduction

AGal-Pro® BL is a unique α -galactosidase based multicarbohydrase, which has been proven to increase the valorization of broiler feed formulations in multiple independent randomized controlled trials, conducted worldwide. The objective of this study was to complete a meta-analysis to extrapolate pertinent qualitative and quantitative data, which could be used to determine the impact of AGal-Pro® BL on the performance and nutrient digestibility of broilers.

Materials & Methods

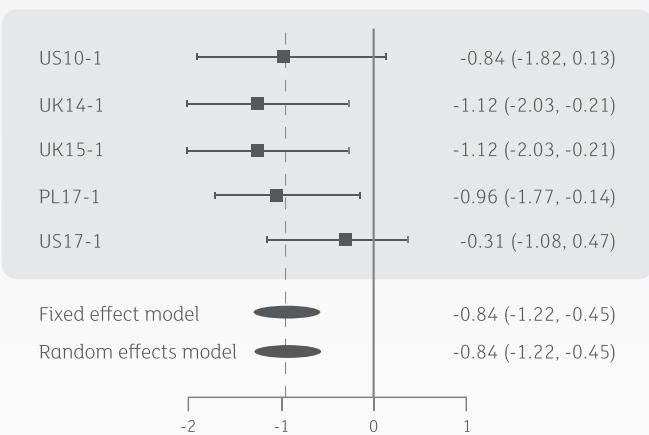
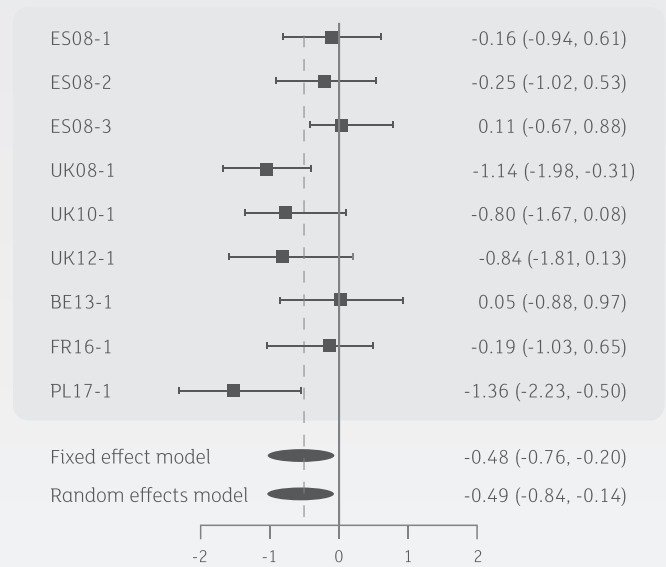
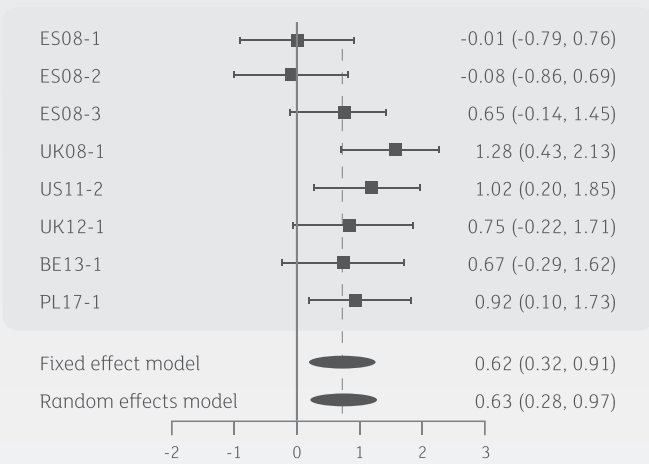
Following a systematic review, 121 studies were identified. These were filtered based on those involving the performance and digestibility assessment of AGal-Pro® BL on broiler chickens, of which there were 15 studies identified and included in this evaluation (Fig. 1.). The *metafor* package in *RStudio* was used to conduct the meta-analysis. Mean difference was Hedge's effect size estimate calculated by subtracting the mean body weight (BW) and feed conversion ratio (FCR) at 42 days, as well as the apparent metabolizable energy (AME_n), respectively to the control group. The pooled standard error of the mean (SEM) represented the sampling error. Corrective actions were undertaken to ensure compliance regarding publication bias and heterogeneity of the combined dataset, assessed by the Egger test and the Cochran Q test, separately.

Fig. 1. Schematic representation of the systematic review of studies, their quantification and the number of broilers and replicates selected for meta-analysis.



Results

Significant effects of AGal-Pro® BL supplementation were illustrated by increases in BW of up to 2.4% (p=0.0004), concomitant with improvements in FCR of -4.2pt (p=0.0059). The meta-analysis highlighted significant increment in dietary AME_n, quantified as additional 58 kcal/kg feed (p=0.0001).



Conclusions

This meta-analysis was completed using 15 independent randomized controlled trials, conducted worldwide. It confirms with greater statistical significance that AGal-Pro® BL, α-galactosidase based enzyme formulation is an effective strategy in improving the performance and apparent metabolizable energy of broiler chickens.

To date, the AGal-Pro® range of enzymes has been used in the commercial feed of almost 8 billion birds globally, improving their nutrient digestibility and as a result lowering their overall feed cost.

Fig. 2. Forest plot showing mean difference effect and confidence interval of Agal-Pro® BL supplementation effect on body weight (BW), feed conversion ratio (FCR) to 42 days, and nitrogen-corrected apparent metabolizable energy (AME_n) in broilers