



Probiotic *Bacillus licheniformis* DSM28710 in fattening turkey diets improves technical performance

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Introduction

The efficacy of a specific probiotic strain of *Bacillus licheniformis* (DSM 28710) was evaluated for use in fattening turkeys, with the goal of improving technical performance parameters.



Experimental set-up

The trial was carried out at the Centro di Ricerche per La Zootecnia e L'ambiente (CERZOO, Italy), using 336 one-day old male BUT big 6 turkeys (average 62.5 g body weight at the start) for a trial duration of 84 days in total. Animals were divided at random over 18 pens per treatment (8 to 10 animals per pen) and vaccinated against Newcastle disease at day 21. There were two treatment groups: a control, fed a commercial basal diet (corn/soybean meal based) and a probiotic *Bacillus licheniformis* group, fed the control's diet supplemented with 0.5 kg B-Act[®]/mton of feed (1.6×10^{12} CFU *Bacillus licheniformis* DSM 28710/mton of feed). B-Act[®] is a single-strain probiotic formulation, produced and commercialised by Huvepharma[®]. Body weights and average daily feed intake (ADFI) were measured, to calculate average daily gain (ADG) and feed conversion ratio (FCR). All data was statistically analysed using SAS's General Linear Model procedure (GLM; SAS, 2002-2010, release 9.3). ANOVA (Analysis of Variance) provided the main statistical test, with student's "t" and Tukey tests used to compare the means of each group. The level of significance to indicate statistical differences stated in the ANOVA model was $P \leq 0.05$.

Results

Body weights at the end of the trial differed significantly, with animals supplemented with *B. licheniformis* DSM 28710 achieving 408.1 grams more than animals in the control group (6487.4 g vs. 6079.3 g, $P < 0.05$). Average daily gain (ADG) was significantly higher for the probiotic group as well, both in the period of day 56 to 84 as well as over the whole trail (D56-84: 116.9 g vs. 106 g, D0-84: 76.5 g vs. 71.6 g, $P < 0.05$). At the same time, average daily feed intake did not increase significantly for either group (D0-84: 191.8 g vs. 182.5 g, $P > 0.05$), resulting in a final numerically improved FCR for the *B. licheniformis* DSM 28710 group (D0-84: 2.51 vs. 2.56, $P > 0.05$; Table 1).

Table 1. Foot pad lesions

	Control	B-Act [®]	P-value
BW (g)	6079.3	6487.4	<0.05
ADG (g)	71.6	76.5	<0.05
DFI (g)	182.5	191.8	>0.05
FCR	2.56	2.51	>0.05

Conclusions

Supplementing fattening turkeys with 0.5 kg B-Act[®]/mton of feed had a significant positive effect on final body weight and average daily gain, whilst FCR improved numerically. As such it can be concluded feed was used more efficiently when the animals were supplemented with the probiotic, positively impacting final technical performance.

