Efficacy of a microbial feed additive – GalliPro® - in a corn/soybean meal based broiler diet

H. ROSTAGNO*, L. ALBINO*, N. CARVALHO* & B. LUND*,
Federal University of Viçosa, CEP 36570 – Viçosa, Minas Gerais, Brazil
Chr. Hansen A/S, 10-12 Bøge Alle, 2970 Hørsholm, Denmark*
*Corresponding author: bentet.lund@dk.chr-hansen.com

A feeding trial was conducted at the Universidade Federal de Viçosa, Brazil in order to evaluate the performance improvement effect of a novel probiotic feed additive comprising a Bacillus subtilis strain (DSMZ 17299) as the active ingredient in a diet for broilers based on corn/soybean meal. The experiment was carried out with male Ross 308 chickens from day old until 42 days of age using a starter and a grower/finisher diet. The treatment groups were a negative control, GalliPro® (8x10⁵ CFU B. subtilis/g feed) and a positive control with Avilamycin. Birds were distributed in a complete randomized design including treatments with 10 replicates and 22 birds per experimental unit. Zootechnical parameters were measured: weight gain, feed intake, feed conversion ratio and mortality. The data was subjected to statistical analysis of variance and mean values of the treatment groups were compared by the Newman Keul’s Test for significance at 5% level. Final weight gain of broilers fed the probiotic was significantly improved as compared to the negative control group, end weight 2614 g and 2519 g, respectively. The probiotic showed a trend for improved feed conversion ratio compared to negative control - from 1.752 to 1.740 g/g - and considerably decreased mortality – from 5.0% to 2.3%. The Productive Efficiency Index PEI was 327 for the negative control, 350 for the GalliPro group and 340 for the positive control group. It can be concluded that the broilers fed GalliPro® performed similar to those fed a traditional antibiotic growth promoter.

Keywords: Probiotic; microbial; feed additive; broiler chicken

Introduction

Probiotics are live microbial feed supplements that beneficially affect the host animal by improving its intestinal microbial balance (Fuller, 1989). Probiotics are potential alternatives to antibiotic growth promoters that are no longer legal to use in the European Union.

A feeding trial was conducted in 2005 in Brazil in order to evaluate the performance improvement effect of a novel probiotic feed additive, GalliPro®, comprising a thermo-tolerant probiotic Bacillus subtilis strain (DSMZ 17299) as the active ingredient offered in a diet based on corn/soybean meal. In former experiments in Europe using wheat-based diets GalliPro has shown to be an effective performance enhancer (Lund et al. 2005, McLean et al. 2005, Molnár et al. 2005) when added in the dose range 8 x 10⁵ CFU/g to 1.6 x 10⁶ CFU/g feed. Significant improvements were seen in well performing broiler flocks.
**Materials and methods**

The experiment was carried out at the Poultry Sector, Departamento de Zootecnia, Universidade Federal de Viçosa, Brazil with male Ross 308 chickens from day old until 42 days of age. Average initial weight was 42.7 g. Stocking density was about 10 birds/m².

The nutritional composition of the diets used was calculated according to the recommendations of Rostagno et al. (2005): a starter diet from 1-20 days of age with 54% corn, 39% soybean meal, 3.1% soybean oil and 12.56 MJ/kg ME and a grower/finisher diet from 21-42 days of age with 59% corn, 32% soybean meal, 4.9% soybean oil and 12.98 MJ/kg ME. The treatment groups were a negative control, GalliPro® (8x10^5 CFU/g) and a positive control added Avilamycin (7 ppm in starter/5 ppm in grower). Starter and grower diets contained the coccidiostat Salinomycin (66 ppm).

Birds were distributed in a complete randomized design including treatments with 10 replicates and 22 birds per experimental unit. The broilers were weighted individually and classified into weight ranges. Each experimental unit received the same amount of broilers from each weight range.

The data was subjected to statistical analysis of variance and mean values and the treatment groups were compared by the Newman Keul’s Test for significance at 5% level.

**Results and discussion**

Results are shown in Table 1.

<table>
<thead>
<tr>
<th>Treatments</th>
<th>Weight gain</th>
<th>FCR</th>
<th>Mortality</th>
<th>PEI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>g/g</td>
<td>g/g</td>
<td>%</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>2519</td>
<td>1.752</td>
<td>5.0</td>
<td>327</td>
</tr>
<tr>
<td>GalliPro®</td>
<td>2614</td>
<td>1.740</td>
<td>-0.68</td>
<td>350</td>
</tr>
<tr>
<td>Avilamycin</td>
<td>2627</td>
<td>1.732</td>
<td>-1.14</td>
<td>340</td>
</tr>
</tbody>
</table>

Final weight gain of broilers fed with the probiotic at a dosage of 8x10^5 CFU/g feed was significantly improved as compared to the negative control group. The probiotic showed a trend for improved feed conversion ratio as compared to negative control and a considerable decreased mortality. As expected GalliPro was compatible with the most commonly used ionophore coccidiostat Salinomycin. The Productive Efficiency Index (PEI) was 327 for the negative control, 350 for the GalliPro group and 340 for the positive control group. In conclusion broilers fed GalliPro® performed similar to those fed a traditional antibiotic growth promoter.

**References:**


