Influence of Feeding Probiotics on Growth Performance of Nandanam Broiler 2 Chicken


Abstract--- An experiment was conducted for a period of eight weeks to study the influence of feeding probiotics (Basillus subtilis) on growth performance of Nandanam 2 colour broiler chicken. Day old chicks (n=450) were distributed into 3 groups of 150 each. A common basal diet was formulated for starting and finishing periods. Three dietary treatments were T1: basal diet without probiotics, T2: basal diet with 500 g of probiotics per ton of feed and T3: basal diet with probiotics1000g of probiotics per ton of feed. Each of three treatment diets was provided to the birds from 0 to 8 weeks of age with ad libitum mash feed and water. The chicks were reared in deep litter system as per the recommended floor space. Weekly body weight, feed intake, feed conversion ratio and mortality was recorded. The average hatch weights (g) were 37.25 ± 0.18, 37.39 ± 0.25 and 37.40 ± 0.23 respectively in T1, T2 and T3. Average 2nd and 4th week body weights (g) were 98.58 ±1.61, 93.14± 1.32, 94.23 ±1.45, 254.82 ± 4.12, 255.59 ± 3.18 and 260.72 ± 3.91 in T1, T2 and T3 respectively. Body weights (g) at 8th week were 921.00 ± 9.99, 869.48 and 853.53 ± 9.503 in T1, T2 and T3 respectively. The feed consumption were 2.27, 2.17 and 1.99 kg per kg live weight production in T1, T2 and T3. The feed efficiency was found to be 2.49 ± 0.03, 2.52 ± 0.02 and 2.35 ± 0.02 in T1, T2 and T3. Livability up to eighth week was found to be 86.56 ± 1.29, 85.08 ± 1.05 and 87.89 ± 0.84 per cent in T1, T2 and T3 respectively. Cost of production was Rs. 52.21, 50.56 and 46.30 respectively in T1, T2 and T3. The results indicated that the supplementation of Bacillus subtilis in feed showed no improvement in body weight and livability but the supplementation of probiotics at the level of 1000g per ton of feed significantly (P<0.01) improved the feed efficiency than the control. It was concluded that better feed efficiency and cost of production can be expected in probiotics supplemented birds.

Keyword--- Broiler, Probiotics, Feed Efficiency, Livability, Cost of Production

I. INTRODUCTION

POULTRY production during last few decades has received great impetus in India. Feed amounts to one of major input in broiler production with approximately two third of input costs. Probiotics have beneficial effect on broiler performance, improvement in feed conversion, reduction in mortality and reduction of serum cholesterol (Gil et al., 2005). The concept of using live microbial preparation i.e. probiotics as an alternative to antibiotic growth promoters in poultry production has become an area of great interest. The use of probiotics is gaining momentum because of their beneficial effects on growth rate and feed efficiency and of prevention of intestinal infections (Fuller, 1982) in poultry. In this present study, an attempt has been made to evaluate the performance of Nandanam broiler 2 Chickens fed with diets with supplementation of probiotics.

II. MATERIALS AND METHODS

Total of 450 day old Nandanam broiler 2 chicks were used for experiment and reared under deep litter system at IPPM, Chennai-50. The chicks were randomly distributed into three dietary treatments viz. T1 (control, basal diet only), T2 (probiotics 500g/ton of feed) and T3 (probiotics1000g ton of feed). Each treatment contained 2 replicates with 75 birds. The birds were reared in deep litter system in well ventilated house. The floor was thoroughly cleaned and dried before spreading the dry rice husk used as the bedding K. Sangilimadan, Instructional Livestock Farm Complex, VC & Rl, Tirunelveli- 627 358. E-mail: sangilimadank@gmail.com
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materials. Electric bulbs were placed in each pen at the rate of one watt per chick for first 3 weeks of age then it will be reduced. All the birds were vaccinated against Ranikhet disease (F1- strain) at 5 to 7 days by intra ocular or intra nasal, Lasota at 14th days of age by drinking water.

The birds were offered weighed quantity of the broiler feed from 0-8 weeks of age. For the first three days of brooding, feed was provided on the news paper spread on floor and thereafter, linear chick feeders were used. Feed residues were collected and weighed at weekly interval. During the finishing stage large linear feeders were used. Fresh and clean drinking water was made available throughout the day. The record of feed offered and residual amount left was maintained for each replicate to calculate the feed intake up to 8 weeks. Body weight of the birds was also recorded. Feed intake to weight gain ratio was calculated to determine feed efficiency and livability were recorded. The data were analyzed and subjected by using (Snedecor and Cochran, 1994) method.

III. RESULTS AND DISCUSSION

The data on growth performance of the birds were presented in the Table. The body weight at the end of 8th week among the treatments, control group (T1) was highly significant (P<0.01) compared to the probiotic supplemented group (T2) and (T3). In contrast, Singh et al., (2009) who have reported that the body weight gain of the birds fed probiotic supplemented diets for 0-6 weeks period was higher (P<0.05) than those fed with basal diet compared to present study. Vinayasree et al. (2011) who also reported that there was a significant (P<0.05) increase in the average body weight gain by probiotics compared to control. Kumar et al. (2010) conducted an experiment in which they fed probiotic at 1gm per 10 kg along with feed up to 42 days of age and reported that 6th week of age revealed highest mean body weight in probiotic fed group than control and in contrast result was observed in the present study. Sangilimadan et al. (2012) who have reported that there was a significant (P<0.01) increase in the average 8th week body weight by probiotics fed compared to control.

Feed efficiency was significantly (P<0.01) improved in the birds of probiotic treated when compared with those of control at 0-8 weeks period. The similar responses on feed efficiency was significantly (P<0.01) improved for the birds of probiotic treated compared with those control for 0-6 weeks period. (Singh, et al., 2009). Similar experimental results were also observed in Nandanam broiler 2 by Sangilimadan, et al. (2011). Similar experimental results were also observed in Nandanam broiler 3 by Sangilimadan et al. (2012). Percent livability up to 8th week of age is presented in Table1. The results of present study suggested that poor livability was found in T2 as compared to other groups. The present livability was slightly lower than that of Sangilimadan et al. (2012) Nandanam broiler 3 up to 8weeks. Cost of the production of the present study was better in supplementation of probiotics at the level of 1000g/ton of feed compared to other two treatments. This result was in contrast with supplementation of different strains of probiotics fed with commercial broilers (Tarun Mercedes, 2008).

IV. CONCLUSION

The results of the present study confirmed that supplementation of Bacillus subtilis in feed have on significant effect the performance of Nandanam broiler 2 chicken in terms of body weight and livability but the supplementation of probiotics at the level of 1000g per ton of feed significantly (P<0.01) improved the feed efficiency than the control. It was concluded that better feed efficiency and cost of production could be realized with Nandanam broiler 2 chickens by supplementing probiotic Bacillus subtilis in feed.

REFERENCES


Table: Effect of feeding Probiotic on Productive Performance of Nandanam Broiler2 Chicken

<table>
<thead>
<tr>
<th>Production parameters</th>
<th>Treatment I (Control)</th>
<th>Treatment II (Probiotic 500g/ton of feed)</th>
<th>Treatment III (Probiotic 1000g/ton of feed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hatch weight (g) NS</td>
<td>37.25 ± 0.18</td>
<td>37.39 ± 0.25</td>
<td>37.40 ± 0.23</td>
</tr>
<tr>
<td>2nd week weight (g)*</td>
<td>98.58 ± 1.61</td>
<td>93.14 ± 1.32</td>
<td>94.23 ± 1.45</td>
</tr>
<tr>
<td>4th week weight (g) NS</td>
<td>254.82 ± 4.12</td>
<td>255.59 ± 3.18</td>
<td>260.72 ± 3.91</td>
</tr>
<tr>
<td>8th week weight (g) **</td>
<td>921.00 ± 9.99</td>
<td>869.48 ± 8.89</td>
<td>853.53 ± 9.50</td>
</tr>
<tr>
<td>Feed consumption / kg production</td>
<td>2.27</td>
<td>2.17</td>
<td>1.99</td>
</tr>
<tr>
<td>Feed efficiency (FE)**</td>
<td>2.49 ± 0.03</td>
<td>2.52 ± 0.02</td>
<td>2.35 ± 0.03</td>
</tr>
<tr>
<td>Livability (%) NS</td>
<td>86.56 ± 1.29</td>
<td>85.08 ± 1.05</td>
<td>87.89 ± 0.84</td>
</tr>
<tr>
<td>Cost of production / kg</td>
<td>52.21</td>
<td>50.56</td>
<td>46.30</td>
</tr>
</tbody>
</table>

Means within each row not bearing at least one common superscript differ significantly.

NS- Not significant * Significant (P<0.05), ** Highly significant (P<0.01).