Effect of Superliv on Feed Consumption, Feed Conversion Efficiency and Body Weight Gain in Commercial Broiler

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ABSTRACT

This study was carried on the effect of superliv feeding on commercial broiler. Superliv is an herbal product and useful growth promoter for the broiler due to its lever tonic. The experiment was conducted at the poultry farm of C. S. A. Univ. of Agri. & Tech., Kanpur. The experiment was carried out on 60 days old broiler chicks were divided randomly into four groups of 15 chicks in each group. The birds of group G_1 were served as control while group G_2, G_3 and G_4 were received 0.1, 0.2 and 0.3 per cent of Superliv, respectively. Feeding trials were conducted for 5 weeks. First three-week broiler was fed broiler starter and letter was fed broiler finisher ration. The weekly body weight (gms) per broiler chicks up to fifth week of age is weighed as 1036.66 $\pm$83.20, 1075.33$\pm$54.49, 1130.00 $\pm$67.11 and 11.43.33 $\pm$ 46.54, respectively, body weight gain (gms) during I, II, III, IV, and V week of age were 992.58, 1028.11, 1089.25 and 1106.05 respectively, Weekly feed consumption (gms) per broiler chicks up to Vth week of age were 2314.58, 2326.78, 2329.40 and 2365.92 respectively, feed conversion efficiency up to Vth week of age were 2.15, 2.12, 2.05 and 2.03 respectively, higher profit per broiler chicks was found Rs.11.14, 12.49, 14.63 and 14.89 respectively, and benefit cost ratio was found 0.71, 0.72, 0.74 and 0.76 in group G_1, G_2, G_3, and G_4, respectively. Thus, it can be concluded that the superliv feed supplement at 0.3 per cent level or group G_4 was beneficiary in broiler chick ration. It can help on the increase of growth rate, body weight gain, F.C.R. and benefit cost ratio.

Key words: *Benefit Cost Ratio; Body weight; Broiler; F.C.R.; Feed consumption; Conversion efficiency;*

Poultry production in India has made a spectacular progress over the last 4-5 decades evolving from a backyard venture to a full-fledged commercial agro-business. The broiler farming is a fast developing enterprise. The feed cost is about 60-75 per cent of the total cost of poultry enterprises. The productivity potential of poultry in India has not been fully exploited due to deficit feed resources and unutilization of available improved technologies for getting high productivity from the poultry at economical rate. Hence, it is essential to further enhance the feeding value of available feed resources. So, it is necessary to improve the efficiency of feed utilization and minimize the cost of feed per kilogram live weight gain. The trend in broiler production using certain feed additives to obtain maximum feed efficiency in shortage possible time. Feed supplement, containing important vitamins, minerals and other feed constituent might be useful. These supplements improve performance by enhancing growth rate, feed efficiency, immunity against various, disease and disorders. It will not only reduce the cost of production but also will in enhance the over all productivity of the birds. Various feed supplements are available in the market like shatabari, livol, Liv 52, and Heptomilk fort etc.

These herbs have hepato-stimulant, hepato-protective, immunomodulatory and antioxidant activities *Manu and Kuttan (2009); Michels et al. (2011).* Out of these, Superliv an herbal proprietary product is a useful growth promoter for the broiler due to its lever tonic properties. Superliv liquid contain herbs viz. *Andrographis paniculata, Azadirachta indica, Boerhaavia diffusa, Eclipta alba* and many other possessing hepatoprotective, immunomodulatory, immunostimulatory activities *Devaraj et al. (2010).*

Therefore, this study has been undertaken to find out the effect of feeding superliv on feed consumption, feed conversion efficiency and body weight gain in the commercial broiler.

METHODOLOGY

The experiment was conducted at the poultry farm of Chandra Shekhar Azad University of Agriculture & Technology, Kanpur. The experiment was carried out on 60 chicks of day old broiler chicks in deep litter house system. Chicks were selected from the stock available at the poultry farm of University. These chicks were vaccinated against Ranikhet disease with Respiratory Diseases (F1) vaccine. During the whole experimental period standard feeding watering and other managerial schedules were followed. The above selected chicks were weighted individually and divided randomly into four groups of 15 chicks in each group; G_2, G_3 and G_4 and group G_1 was served as control. Feeding trials were conducted for 5 week. Following feeding regimes were followed during experimental period. Group I Broiler feed (Control), Groups II Broiler feed +0.1%/day super Liv, Group III Broiler feed + 0.2%/day super Liv, Group IV Broiler feed + 0.3% / day super Liv. The feed consumption, feed conversion efficiency and body weight gain were analyzed by using standard procedure. The experimental group's broiler chicks were kept one following ration. Similarly, the amount of Superliv feed supplement is given through ration. The prepared ration and weighed amount of feed was given in morning and evening. First three-week broiler was fed broiler starter and letter was fed broiler finisher ration. The detail of nutrients composition is given (Table 1).

Table 1. Nutrient Composition of Broiler Chicks ration

Nutrient Constituents	Starter (%)	Finisher (%)
Moisture	10	10
Protein	22	19
Fat	5	5
Fiber	4	4
Sand/Silica Maximum	3	3
M.E. maximum	2900K. Cal	3000K. Cal

The observation recorded were to statistical analysis by adopting by using completely randomized design analysis of variance according to the procedure described by Snedecor & Cochran (1994) *Critical difference (C.D.) with in the treatment were calculated in order compare the treatment at 5 per cent level of significance only.*

RESULTS AND DISCUSSION

Weekly body weight of different groups: Growth rate of all groups of chicks were measured at weekly interval (Table 2). The mean body weights during different period in different group were 44.06 ± 1.86, 44.20 ±2.07, 44.73 ± 2.21 and 44.93 ± 1.70 gm. In day old chicks, 65.13 ± 5.13, 66.26 ± 3.67, 70.40± 5.57 and 71.6± 3.89 gm in first week, 128.00±7.27, 133.33±6.72, 142.66±6.98 and 142.66±5.30gms In second week, 302.00±16.27, 321.33±24.74, 336.33±29.05 and 347.00±32.95 gms third weeks, 652.33±36.55, 676.66±43.33, 697.66±26.05 and 712.00±34.71 gm in fourth weeks, 1036.66+83.20, 1075.33+54.49, 1130.00+67.71 and 1143.33+46.54 gm in fifth weeks in G_1, G_2, G_3 and G_4 group, respectively. Results were in accordance with *Bhattacharyya et al. (2015)* and *Natsir et al. (2013),* who reported increase in poultry body weight after herbal supplementation.

Table 2. Growth rate gms in broiler chicks of different group at the different week of age

Week	G_1	G_2	G_3	G_4
0	44.06±1.86	44.20±2.07	44.73±2.21	44.93±1.70
1	65.13±5.13	66.26±3.67	70.40±5.57	71.06±3.89
2	128.00±7.27	133.33±6.72	141.66±6.98	142.66±5.30
3	302.00±16.27	321.33±24.74	336.33±29.05	347.00±32.95
4	652.33±36.55	676.66±43.22	697.66±26.05	712.00±34.71
5	1036.66±83.20	1075.33±54.49	1130.00±67.71	1143.33±46.54

Table 3. Effect of superliv on body weight gain (gm) in broiler chicks of different group at different week of age

Week	G_1	G_2	G_3	G_4
1	21.06±5.75	22.06±3.89	25.66±4.53	26.13±3.66
2	62.86±8.28	67.06±8.23	71.26±9.81	71.60±5.92
3	174.00±19.36	188.00±27.36	195.00±26.71	203.66±22.75
4	350.33±38.52	352.33±40.11	370.33±61.11	373.33±34.66
5	384.33±64.30	398.66±52.18	427.00±66.89	431.33±64.30
Total	992.58	1028.11	1089.25	1106.05

Weekly body weight gains of different groups: Body weight gain of all groups of chicks was measured at weekly interval (Table 3). The average body weight gain of broiler chicks during different periods in different groups were found that 21.06 ± 5.75, 22.06± 3.89, 25.66± 4.53 and 26.13± 3.36 g in first week, 62.86+8.28, 67.06+8.23, 71.26+9.81 and 71.60+5.92 gms in second

week, 174.00+19.36, 188.00+27.36, 195.00+26.71 and 203.66+2275 g in third week, 350.33±38.52, 352.33±40.11, 370.33±61.11 and 373.33±34.66 gms in forth week, 384.33+64.30, 398.66+52.18, 427.00+66.89 and 431.33+64.30 gms. In fifth week, in G_1, G_2, G_3 and G_4 group, respectively.

During present investigation the higher growth rate and body weight gain were observed in fifth week of age in group G_4. Higher growth rate and weight gain of broilers in all treatment groups as compared to control group. The increases in growth rate and body weight gain may be due to fed superliv feed supplement were increased their liver function. The body weight gain in Superliv liquid supplemented birds may be attributed to the growth promoting activity of its constituent herbs viz. *Andrographis paniculata, Azadirachta indica,*and *Phyllanthus niruri.* Above findings were close to *Mathivanan et al. (2006); Durrani et al. (2008); Jagadeeswaran et al. (2014).*

Table 4. Effect of super liv on feed consumption in per broiler chicks of different group at different week of age

Week	G_1(gms)	G_2(gms)	G_3(gms)	G_4(gms)
1	34.60	40.80	48.30	48.70
2	133.40	136.70	138.90	140.00
3	393.00	404.20	411.70	413.20
4	761.80	801.90	803.68	827.70
5	933.80	936.52	949.90	983.28
Total	2256.60	2320.12	2352.48	2412.88

Feed consumption : The mean value for feed consumption during different periods in different groups were 34.60, 40.80, 48.30 and 48.70 in first week, 133.40, 136.70, 138.90 and 140.00 in second week, 393.00, 404.20, 411.70 and 413.20 in third week, 803.68, 761.80, 801.90 and 827.70 in fourth week, 949.90, 983.28, 933.80 and 936.52 in fifth week and total feed consumption up to fifth week of age were 2314.58, 2326.78, 2334.60 and 2366.12 gms in group G_1, G_2, G_3 and G_4, respectively. The total feed consumption during this experiment was found slightly differed among all groups. However, in groups G_4 slightly higher was noticed followed by group G_3, G_2, and G_1, respectively (Table 4). Superliv liquid constituent herbs viz. *Andrographis paniculata, Boerhaavia diffusa, Picrorrhiza kurroa* are reported to improve the feed utilization. *Chithambaran and Devid (2014); Alexander et al. (2008). Kumar et al. (2003)* similar result were also observed for increased feed consumption, better F.C.R. and more body weight.

Table 5. Effect of superliv on feed conversion efficiency in per broiler chicks of different groups at different week of age

Week	G_1	G_2	G_3	G_4
1	1.64	1.84	1.88	1.86
2	2.12	2.03	1.94	1.95
3	2.25	2.15	2.11	2.02
4	2.29	2.16	2.16	2.21
5	2.47	2.46	2.18	2.17
Av.	2.15	2.12	2.05	2.04

Table 6. Effect of Superliv on benefit cost ratio in broiler chicks

Parameters	G_1	G_2	G_3	G_4
Number of broiler at started	15	15	15	15
Number of broiler chicks at marketing	15	15	15	15
Average weight of one broiler chicks up to Vth week (gms)	1036.66	1075.33	1130.00	1143.33
Total weight of broiler chicks up to Vth week (Kg)	15.54	16.12	16.95	17.14
Average feed consumption of one broiler chick up to Vth weeks (gm)	2314.58	2326.78	2334.60	2335.92
Total feed consumption of 15 broiler chicks up to Vth week(Kg)	34.71	34.90	35.01	35.03
Expenditure				
Chick cost @ Rs. 14.65/chick	219.75	219.75	219.75	219.75
Feed cost @ Rs. 9.00/kg.	312.39	314.10	315.09	315.34
Cost of super liv @ Rs. 120/kg	-	4.18	8.38	12.77
Total cost	532.14	538.03	543.22	547.86
Income				
By sale broiler chick @ Rs. 45/kg	699.30	725.40	762.75	771.30
Net Profit	167.16	187.36	219.53	223.44
Net Profit/broiler chick/kg in Rs.	11.14	12.49	14.63	14.89
Net Profit/broiler chick/kg in Rs.	10.74	11.61	12.94	13.02
Benefit feed cost ratio	0.71	0.72	0.74	0.76

Feed conversion efficiency: The average Feed conversion efficiency of broiler chicks during different periods in different groups were found that 1.64, 1.84, 1.88 and 1.86 in first week, 2.12, 2.03,1.94 and 1.95 in second week, 2.25,2.15,2.11and 2.02 in third week, 2.29, 2.16, 2.16 and 2.21 in fourth week, 2.47, 2.46, 2.18 and 2.17 in fifth week, and total feed conversion up to fifth week of age were 2.15, 2.12, 2.05 and 2.04 in group G_1, G_2, G_3 and G_4, respectively (Table 5). The higher conversion efficiency was noticed in group G_4 followed by G_3, G_2 and G_1, respectively. Similar results were obtained by *Singh et al. (2009)* and *Sonkusale et al. (2011)* in case of Superliv liquid. *Samarasinghe and Went (2002)* and *Kumar et al. (2005)* noted significant improvement in feed efficiency of the birds when the diet was supplemented with turmeric in broilers. *Anwar et al. (2004); Lohakare et al. (2004); Sahin et al. (2004)* reported significant improvement in feed efficiency in the birds when purified diet was supplemented with amla/ascorbic acid in stress.

Benefit cost-ratio: The profit of per broiler chicks was found Rs. 11.14, 12.49, 14.63 and 14.89 and benefit cost ratio were 0.71, 0.72, 0.74 and 0.76 in groups G_1, G_2, G_3 and G_4, respectively. However, the maximum profit was observed in group G_4 followed by G_3, G_2 in comparison to control (Table 6). This indicates that the addition of superliv feed supplement in broiler ration is profitable in broiler production. *Bhattacharyya et al. (2015)* observed that the net profit over control group in Superliv liquid supplemented group was Rs. 13.46.

CONCLUSION

The findings of the study are concluded that the Superliv feed supplement at (group 4) 0.3 per cent level was beneficial with broiler chick ration. It can help to increase the growth rate, body weight gain, feed consumption and Feed conversion efficiency. Thus superliv feed supplement in broiler ration increase benefit cost ratio maximum with 0.3 per cent as compare to other rate of concentration.

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