Indian J. Anim. Prod. Mgmt. Vol. 30(1-2) 105-108 (2014)

EFFECT OF WATER RESTRICTION ON BROILERS PERFORMANCE SUPPLEMENTED WITH AN ANTI-STRESS PREPARATION

NIBASH D. BARMA[1] AND M. F. SIDDIQUI[2]
Department of Livestock Production Management
College of Veterinary & Animal Sciences
MAFSU, Parbhani – 431 402, Maharashtra, India

Received : 26.05.2014 ***Accepted : 25.06.2014***

ABSTRACT

The present study was carried out to evaluate the effect of water restriction on broilers performance, supplemented with anti-stress preparation. A total of 500 *Ven-Cobb* broiler chicks were divided into five equal groups, with two replicates, of 50 birds each and were subjected to uniform feeding and managemental practices. Broilers in control group (T_0) received *ad-lib* water, while broilers in T_1 and T_2 groups were subjected to two and four hours water restriction respectively. The broilers of T_3 and T_4 groups received anti-stress i.e. vitamin C, vitamin E and selenium (Vit.C + Vit.E + Se) preparation @ 2 gm per kg of feed subjected to two and four hours water restriction respectively. No significant difference was observed in growth performance of broilers among different treatment groups. The broilers receiving anti-stress preparation in the diet performed relatively better.

Keywords : Broilers, water restriction, anti-stress preparation, growth performance.

The natural calamities (floods, draught, earth quakes, extreme winter and summer etc) are not very uncommon in India and these affect the production level in poultry leading to the economic losses. During such calamities there may be shortfall of drinking water leading to stress in broiler chickens. A bird can survive several weeks without feed, but only a few short days without water. During its lifetime, five pound (2.3 kg) broiler will consume about 18 pounds (8.2 kg) of water compared to approximately 10 pounds of feed [2]. The daily water consumption of broiler was estimated by multiplying the age of the bird in days by 0.2 ounces [4]. Keeping these in view, the present study has been carried out to asses the production level of broiler chicks with 2 to 4 hours restriction of water supplemented with anti-stress preparation.

MATERIALS AND METHODS

The experiment has been carried out on 500 *Ven-Cobb* broiler chicks for 42 days. On arrival, the chicks were weighed and randomly divided in T_0, T_1, T_2, T_3 and T_4 groups with two replications. Each replication consisted of 50 chicks and was

[1]Assistant Professor, Department of LPM, College of Veterinary Sciences & A.H, R.K Nagar, Agartala – 799 008, Tripura, India.

[2]Professor & Head, Department of Livestock Production Management, College of Veterinary and Animal Sciences, MAFSU, Parbhani – 431 402 (M.S) India.

provided with standard floor space i.e. 0.5 sq. ft per bird upto 3rd weeks of age and 1 sq. ft per bird from 4th to 6th weeks of age. The brooding was carried out until 2 weeks of age in the respective pen of each treatment group using electric brooders and gas brooders during electric load shedding as source of heat and light. The standard managemental practices were followed for all the groups viz; uniform feeding, floor space, routine farm operations like vaccination for Ranikhet disease (RD) on day seven, for Infectious bursal disease (IBD) on day 16 and again RD booster on day 28.

The iso-caloric and iso-proteinous levels of feeding practices were followed for all the groups throughout the experimental period. The birds in T_0 were offered ad-lib fresh and clean water throughout the day without anti-stress preparation. In T_1 and T_2 restriction of water was done for 2 hours and 4 hours respectively, in the morning. And, in T_3 and T_4 restrictions of water was done for 2 hours and 4 hours in the morning and were supplemented with anti-stress (Vit.C + Vit.E + Selenium) @ 2 gm per kg of feed, respectively. The left over water was collected and measured separately on the next day early morning to arrive at the actual daily water consumption. Water evaporated from the caged drinkers was calculated for the actual water consumed. The birds were weighed at the end of each week for recording weight gain at different weeks and the final weight gain. The feed conversion ratio was calculated by dividing the total feed consumption by total weight gain. All the data recorded in the experiment were analyzed by Completely Randomized Design [5].

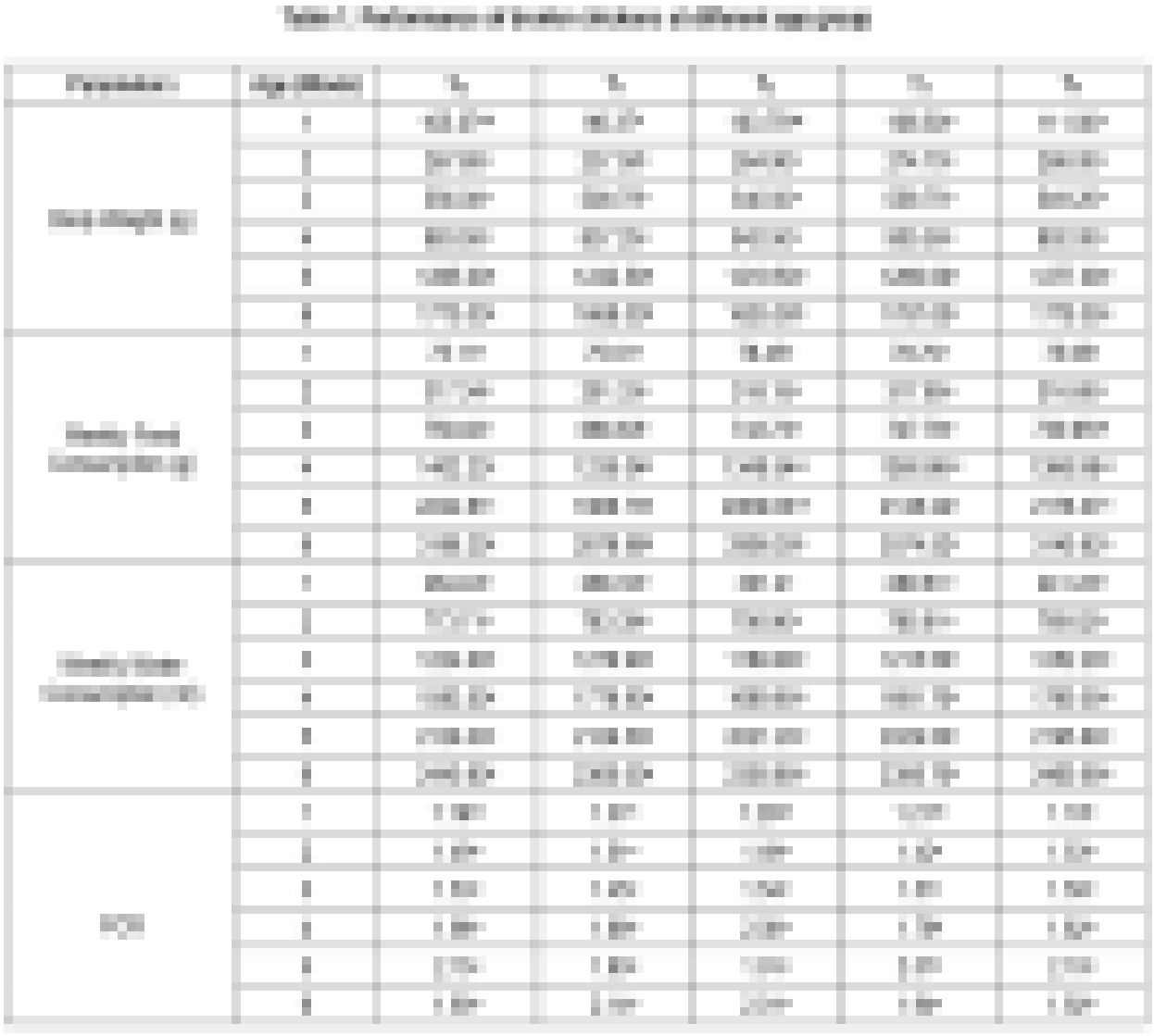
RESULTS AND DISCUSSION

The means weekly body weights of birds in T_0, T_1, T_2, T_3 and T_4 at different age are depicted in table 1. Significant ($P < 0.05$) difference was observed in 1st, 2nd, 3rd and 6th week of age groups between the control and the treatment groups for weekly body weight gain as revealed by the analysis of variance. The weekly body weights for T_3 group were higher than other groups. Lowest body weight being observed in the T_2 group. These findings suggest that the use of anti-stress preparation in birds during the period of restricted water supply help to combat the stress to some extent for improving performance of the broilers. These findings were in close agreement with [1, 6, 7].

Table 1 depicts that feed consumption was lower in T_1 and T_2 groups compare to other treatment groups. It clearly indicates that the supplementation of anti-stress preparation in the two hours and four hours restriction of water was helpful in combating the stress. However, analysis of variance did not reveal any significant differences amongst the treatment groups.

The weekly water consumption at different age group are presented in table 1. The mean weekly water consumption at different weeks of age was non-significant between the treatment groups. On statistical analysis, no significant difference in water consumption was found between the treatment groups. However, the water consumption in control and T_4 treatments groups was relatively higher than the other treatment groups.

The average weekly feed conversion ratios (FCR) at different age group are showed in table 1. Similar to the water consumption, no significant difference in the FCR was observed between the treatment groups. However, numerically at 1st and 4th week it differed amongst the treatment groups. But at 2nd, 3rd, 5th and 6th week the treatment groups did not differ from each other. The most efficient groups were T_0 followed by T_4 and T_3. These results indicate that use of anti-stress preparation has helped to overcome the stress factor. These findings are in accordance with[3].



CONCLUSION

It can be concluded that the treatment groups with anti-stress supplementation showed superior performance in growth and FCR at par to that of the treatment groups without anti-stress supplementation, indicating that anti-stress preparation is beneficial to counter act the effect of water restriction for 2 and 4 hours respectively. Hence, the findings suggest that the use of ant-stress preparation may be helpful in broiler birds to overcome the adverse effects of unfavourable conditions.

REFERENCES

1. Ameer Shaikh, K.K. (2002). Effect of supplementation of Vit. E and Selenium on the performance and immune response in broilers. Compendium on Poultry Research (1968-2005):175-176.
2. Lacy M. (2002). Broiler management. In *Commercial Chicken Meat and Egg Production*, Bell DB, Weaver WD (eds). Kluwer Academic Pub. Norwell, MA; 829-868.
3. Osama, M. El-Husseiny, N.E. Gohar, A.M. Atta and I.M. Rasian (2004). The influence of vitamins E.A.C and selenium on the productive performance and immune response of Arbor Acres broilers chicks. Moor J. Agric. Res., 5(2).
4. Pesti, G. M., S. V. Amato and L. R. Minear, (1985). Water consumption of broiler chickens under commercial conditions. *Poultry Sci.* **64**:803-808.
5. Panse and Sukhatme (1967). Statistical methods for agricultural workers. Book 2nd edition: 381.
6. Singh, P.K. Tyagi, A.B. Mandal, A.V. Elangovan and R.P., Tyagi, P.K. (2005). Higher dietary vitamin E and selenium fed during different age periods: Influence on growth performance of broiler chicks. Proceedings of XXIII IPSACON, 2-4 Feb., Hyderabad.
7. Zeinali, A. Riasi, H. Kermanshahi, H. Farhangfar and H. Ziaie (2007). Effect of selenium or turmeric powder on growth performance of broiler chickens reared under heat stress condition. International Trop. Anim. Nutri. Conference, Vol. II, Session V, MG **26:**139-140.

★ ★ ★