
CHAPTER 7

SUMMARY

Effect of feeding management on the production performance and physiological response of broilers during summer was investigated in this project. Timers and light sensors were fabricated and attached with the feeding and lighting systems to make them auto operational during the experimentation. A water measuring system was also developed to record the water intake of the experimental birds. Three hundred day old chicks were purchased from a commercial hatchery and reared in a group for one week (adaptation period). After the adaptation period, all the birds were weighed individually and one hundred eighty chicks of middleweight range were selected to be used as experimental birds. The chicks were randomly divided into eighteen experimental units (replicates) having ten chicks each. These replicates were allotted to six treatment groups (A, B, C, D, E, and F), i.e. 3 replicates/treatment. Three feeding methods i.e., continuous feeding (CF, 24 hours feeding), intermittent feeding (IF, 1 hour feed and 3 hours off) and feed withdrawal (FW, no feed from 9:00 am. to 5:00 pm.) were used for the study. Under each feeding system birds were fed a ration either without supplemented fat or with 3% supplemented fat. Weekly body weight gain and weekly feed consumption was recorded to calculate feed conversion ratio. Data on rectal temperature, respiration rate and water consumption were maintained during the experimental period. Incidence of leg abnormalities and mortality was also recorded. At the end of the experiment, two birds/replicate were picked randomly for slaughter to record the data regarding dressing percentage and relative weights of giblets. Blood samples from the birds were taken for the estimation of haemtochemical profile, hormones, enzymes and

antibody titre. Meat samples from the breast and thigh muscles were procured for the proximate analysis. The data thus collected were analyzed by analysis of variance technique using Completely Randomized Design with 3×2 factorial arrangement of treatments. The differences in the means of the treatments were compared by Duncan's Multiple Range test.

Temperature inside the experimental room ranges from 28.82–34.99°C, whereas, the relative humidity ranged from 62.32–82.54% during the experimental period. Body temperature and respiration rate of the birds were significantly influenced by the feeding method used. Intermittent feeding and feed withdrawal system significantly reduced these parameters during the afternoon and evening time with only exception that feed withdrawal system failed to reduce the body temperature during evening time.

Birds kept under intermittent feeding system showed significantly lower weight gain, feed consumption, water consumption and better feed utilization than those of continuous fed birds. Whereas, the birds kept under feed withdrawal system showed no difference regarding feed utilization than those kept under continuous feeding system.

Addition of fat in ration significantly reduced the body temperature, weight gain, feed intake and water consumption of the experimental birds than those fed ration without fat supplementation. However, fat supplemented ration did not show any difference regarding water consumption of the birds than those provided ration without fat supplementation, when they were kept under intermittent feeding system. Intermittent feeding system and feed withdrawal system significantly reduced the leg abnormalities (hock burn) of the birds.

Abdominal fat in the birds kept under feed withdrawal system was more than those of continuous fed birds. Whereas, relative weight of the organs studied did not show any difference due to the feeding systems or fat supplementation in the ration. The only exception was relative pancreas weight that was higher in the birds under feed withdrawal system. Feeding systems exhibited no influence on

the intestinal length whereas, addition of fat in the ration significantly reduced the intestinal length of the experimental birds.

Intermittently fed birds showed significantly reduced plasma glucose and urea than those of continuous fed birds. Albumen concentration in the plasma of birds was not influenced by fat supplementation in their ration, when they were kept under intermittent feeding system. Packed cell volume and monocytes increased in the birds maintained under feed restriction systems in comparison with those fed continuously.

Feeding systems significantly influenced the mineral retention in the plasma and meat of the birds. Overall mineral retention was better in intermittently fed birds. Higher values of antibody titers against Newcastle and Infectious Bursal Disease vaccines were found in the birds kept under intermittent feeding system than those kept under feed withdrawal and continuous feeding system. Birds kept under feed withdrawal system also showed slightly higher antibody titers than those of fed continuously.

No mortality was observed in the birds kept under intermittent feeding system whereas 1.66% mortality was found in the birds kept under feed withdrawal system and 8.30% mortality was found in the birds kept under continuous feeding system. Mortality was 2.22% in the birds fed fat supplemented ration and 4.44% in the birds fed ration without supplementation of fat.

Birds fed under intermittent feeding system fetched more profit than those kept under feed withdrawal system and continuous feeding system. Whereas, birds kept under feed withdrawal system showed more profit than those fed continuously. Addition of fat in the ration reduced the profit in the birds than those fed ration without supplementation of fat.

CONCLUSION

1. Intermittent feeding facilitated the thermoregulation process by lowering the body temperature and respiration rate of the birds.
2. Birds kept under intermittent feeding system consumed less feed but showed better feed utilization.
3. Intermittent feeding maintained optimum levels of glucose and urea in the blood.
4. Overall mineral retention was better in the birds kept under intermittent feeding system.
5. Intermittently fed birds showed more immune response against viral diseases.
6. No mortality was found in the intermittently fed birds due to heat stress.
7. Regarding the economics of production, intermittently fed birds showed more profit per kg live weight as compared to other feeding methods.
8. Addition of fat was found to be uneconomical due to its additional cost.

RECOMMENDATION

- In making final assessment of the study it can be suggested that during summer intermittent feeding coupled with the ration without supplementation of fat may be used for efficient broiler production performance and high profit margin.
- Further research regarding intermittent feeding in hot and humid climatic conditions is needed to be addressed during summer by applying different frequencies of feed restriction.