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INFLUENCE OF FEED RESTRICTION DURING BROODING ON THE SUBSEQUENT PERFORMANCE OF BROILER CHICKS

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To see the effect of feed restrictions during brooding period (first 10 days) on the subsequent performance of broiler chicks (42 days), 150 day-old chicks were purchased and divided into different groups. The results indicated that various methods of feed restriction had non-significant effect on weight gain and feed consumption except those on low energy ration which showed improved weight gain. Significant effect was found due to feed restriction on feed efficiency. Feed was better utilized by the birds fed low energy ration.

INTRODUCTION

The quality and quantity of feed consumed are said to have effect on the productive performance and economic feasibility of a poultry enterprise. Different feeding regimes have been used to obtain maximum benefit from the inputs. Among the different feeding regimes, the restricted feeding is one in which the quantity/quality of feed offered is controlled. It prevents the feed wastage and helps in the retention and absorption of the feed consumed by reducing the flow rate of ingesta.

Soller and Rappaport (1971) suggested that restriction of feeding could be improved without adversely affecting the production and growth rate of pullets.

Thus a project was planned to see the effect of different methods of feed restriction during brooding on the subsequent performance of broiler chicks.

MATERIALS AND METHODS

One hundred and fifty day-old Hubbard broiler chicks were purchased and randomly divided into 15 replicates of ten chicks each. They were randomly allotted to 5 treatments i.e. A, B, C, D and E. The chicks were kept on deep litter system using saw dust within individual pens. The chicks were protected against Newcastle disease through intraocular route at the age of 6th day and through drinking water at the age of 28 days. The feed restrictions were imposed from 2 hours postarrival of the chicks till the end of day 10. Thereafter, all the chicks were placed on the regular chick starter ration for 3 weeks and chick finisher ration for further 2 weeks.

Feed plans	Description
A (Control)	Feeding *ad libitum*
	The same feed given at the rate of 70% of the *ad libitum*
C	The same feed provided at 12 hour intervals by removing the feeders
D	*Ad libitum* feeding of a low protein and normal energy containing ration
E	*Ad libitum* feeding of a low energy and normal protein containing ration

The chicks were fed commercial broiler feed prepared by M/s Supreme Feeds, Faisalabad. The following observations were recorded during the study:

1. Initial body weight per chick
2. Weekly body weight per chick
3. Final body weight per chick
4. Weekly feed consumption per group
5. Mortality

The data thus collected were analysed statistically.

gain of broilers in group B, C, D and E was 96.4, 99.2, 100.2 and 108.0%, respectively, of the weight gain of birds in the control group A.

Feed consumption: The average total feed consumption per chick in group A, B, C, D and E was 3227.49, 3299.17, 3095.00, 3241.01 and 3283.3 g respectively (Table 1). The data showed that the chicks in group B consumed more feed as compared to those in groups A, C, D and E. The lowest feed consumption was found in chicks of group C. The feed consumed by the chicks in group B, C, D and E was 102.2, 95.8, 100.4, 101.4 and

Table 1. Average values on body weight, weight gain, feed consumption and feed efficiency in broiler chicks

Description	Groups				
	A	B	C	D	E
Number of birds	30	30	30	30	30
Experimental period (days)	42	42	42	42	42
Average initial weight/chick (g)	46.6	42.9	43.4	43.4	43.2
Average final weight/chick (g)	1178.2	1133.9	1166.9	1176.9	1266.1
Weight gain/chick (g)	1131.6 b	1091.0 b	1123.5 b	1133.7 b	1222.9 a
Average feed consumed/chick (g)	3227.49	3299.17	3095.00	3241.01	3283.3
Feed conversion ratio (feed/gain)	2.85 b	3.02 a	2.75 b	2.85 b	2.68 b
Average daily feed consumed/chick (g)	76.84	78.55	73.69	77.16	78.17

The same letters for means in a row show a non-significant difference.

RESULTS AND DISCUSSION

Weight gain: The average weight gains of broiler chicks under different feeding plans are shown in Table 1. The average weight gain of broilers in groups A, B, C, D and E were 1131.6, 1091.00, 1123.5, 1133.7 and 1222.9 g, respectively, at the end of the experimental period of 42 days. The weight

101.7%, respectively, of the feed consumed by chicks in group A. Statistical analysis showed non-significant difference in feed consumption among different groups. The results of this study indicated that various methods of feed restriction during first ten days of brooding had non-significant effect on weight gain and feed consumption except those on low energy ration. The present re-

sults are in accordance with the findings of Suprunov and Nelyubina (1987) who indicated that early feed restriction caused reduced body weight at 3 weeks age in pullets but subsequent performance in terms of egg production in pullets given 70% restriction was found to be the best. They further observed better compensatory utilization of feed during production phase. Marks and Brody (1984) also found that body weight rapidly decreased in feed restricted group and compensatory growth was also rapid. Mendes and Cury (1986) found that male chicks showed better but non-significant difference in feed intake when fed energy restricted feed.

The present study indicated that improvement occurred later in life of the chicks and was due to the fact that feed restriction in early life affected the metabolism and physiological activities of the chicks.

Feed efficiency: The average feed efficiency values were 2.85, 3.02, 2.75, 2.85 and 2.68 for groups A, B, C, D and E, respectively (Table 1).

The results revealed significant ($P<0.01$) effect due to treatments, weeks and their interactions. The comparison of means by Duncan's Multiple Range test showed that feed efficiency ratio in birds fed 70% of the *ad libitum* (group B) was significantly higher than the chicks on all other feeding regimes (2.02 vs 2.85, 2.75, 2.85 and 2.68). However, the feed was normal protein (group E). The chicks placed on 70% amount of the *ad libitum* feed did not perform well as to the feed efficiency ratio. The results are in line with the findings of Azahan (1984) and Mendes and Cury (1986). More gain in weight was probably due to more feed consumption and higher efficiency of feed utilization in case of low energy ration group.

Mortality: At the end of the experiment, only one chick died due to respiratory problem in control group. At the start of 2nd week one chick also died from group (fed 70% of *ad libitum)* due to an unknown reason. At the end of 4th week and at the start of 6th week, three chicks died due to respiratory distress in group D (low protein). Total number of birds that died in all groups during the experimental period was five.

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