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EFFECT OF CAGE VERSUS FLOOR REARING ON FEED CONSUMPTION GROWTH RATE AND FEED EFFICIENCY OF BROILER CHICKS

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An experiment was conducted to determine the effect of densities and housing system on performance of broiler chicks aged up to 8 weeks. One hundred & twenty-day old (Arbor Acres) chicks were used in the experiment. The broilers were randomly divided into 12 groups of 10 chicks each. Three groups were randomly allotted 0.75, 1.0 square foot per bird of the floor space both in the battery brooder and on the litter. The highest weight gain and the maximum feed consumption were observed in floor-kept broilers, given 1.0 square foot per bird while the feed efficiency were the highest with birds kept on floor on 0.75 square foot space per bird. The highest dressing percentage was observed in cage birds with 1.0 square foot space. Five per cent cases of leg weakness were observed in cages whereas no such case was recorded in floor kept birds.

INTRODUCTION

In Pakistan the trend of poultry rearing has now shifted from range to total confinement to obtain greater production of meat and eggs with the consumption of less feed. Intensive poultry farming has proved more beneficial than the extensive one. There is a difference of opinion among the poultry farmers about rearing of broilers in cages and on floor. The allotment of sufficient rearing space per bird is one of the most important factor. Very little space is not usually recommended for broilers because it induces extra stress over the birds and more space is also not recommended because they waste their energy while running in search of feed and water and consequently, there is a lesser growth rate. Now-a-days the rearing of broilers is shifted from cages to floor due to some demerits of cage rearing and the high cost of material used. Cage rearing, though it involves more breast blisters, and increases leg deformaties, is beneficial because of lesser chances of disease. Also the management becomes a little easier. Under the tropical conditions

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this may not be true, and realizing this necessity a research project was conducted to study the comparative performance of broilers in cage and on litter as influenced by the population density.

MATERIALS AND METHODS

The experiment was initiated during the month of November, on Arbor Acres Broiler chicks at the Poultry Experiment Station, University of Agriculture, Lyallpur. One hundred and twenty day old chicks were reared upto 8 weeks of age. All the chicks were initially weighed and wing banded individually for identification and were randomly divided into 12 groups of ten chicks each. Each group was considered as one experimental unit. Three groups were randomly allotted 0.75, 1.0 square foot of floor space both in battery brooders as well as on the litter. All the chicks were vaccinated intra-ocularly against Newcastle disease at day old, and Lever's Commercial Starter mash as well as finisher was fed to the broiler chicks during the experimental period. The feed consumption of all the groups were measured at weekly intervals and *mortality records* were maintained. At the end of the experiment, 3 chicks were randomly picked from each unit and were slaughtered in order to note the dressing percentage. The records about breast blisters and leg weaknesses were also made. The data thus collected were subjected to statistical analysis using completely randomized design. The group means were compared using randomized group comparison method and student T. Test (Snedecor, 1965).

RESULTS AND DISCUSSION

Gain in Body Weight: Average body weights gained by the birds kept separately on floor and in cages with 0.75 square foot space per bird were 768.65 and 926.65 grammes, respectively. While the gain in body weight for those getting 1.0 square foot space per bird in the two systems were 773.43 and 731.75 grammes, respectively (Table 1). This shows that the weight gained in birds kept on floor with 1 square foot space per bird was the highest than those kept in cages with 0.75 square foot space per bird and had the lowest gain in weight. The birds kept on floor and in cages tended to grow faster with one square foot per bird space as compared to those provided a space of 0.75 square foot. The birds on the floor performed better than those kept in cages. The apparent differences in gain in body weight on various densities, and systems of housing were, however, found to be non-significant. The results of the present study are in line with those reported by Brooks *et al.* (1957), Deaton *et al.* (1967) who did not observe any significant difference in weight gain in the groups maintained under different densities.

Feed Consumption. The average feed consumption per bird maintained separately on floor and cages with a space of 0.75 square foot per bird was 2022.50 and 2018.67 grammes, respectively, while for those given 1 square foot space per bird was 2063.83 and 2040.07 grammes (Table 1). The data showed that the groups given a space of 1 square foot per bird consumed more feed, while those given 0.75 square foot per bird consumed lesser amount of feed irrespective of housing system. However, when the data was statistically analysed the differences in feed consumption were found to be non-significant.

Feed Efficiency. The feed efficiency was calculated on the basis of the amount of feed consumed to produce one pound of live weight. Feed efficiency was worked out to see the economic impact of the broiler production as affected by cage versus floor with 0.75 and 1 square foot space per bird. Average feed efficiency values for the birds kept on floor and in cages with 0.75 square foot of space per bird, were 2.63 and 2.78, respectively. While feed efficiency values in those given 1.0 square foot per bird were 2.68 and 2.83 respectively (Table 1). Although apparent differences in feed efficiency were small yet feed was better utilized by birds receiving 0.75 square foot space both on floor and in cages. The highest feed efficiency value was recorded in birds kept on floor and 0.75 square foot space per bird. However, the results were statistically non-significant. The results are in line with those of Siegel and Coles (1958), Hansen and Becker (1959) who observed non-significant effect of density on feed conversion ratio.

Table 1. *Performance of Broiler Chicks kept in cages and on Floor with two densities at 8 weeks of age.*

Description	Cage kept	Square foot	Floor kept	Square foot
	0.75	1.0	0.75	1.0
No. of birds	30	29	30	30
Total weight gain/ chick (gm)	726.65	734.02	768.60	773.43
Total feed consumed/ chick (gm)	2018.67	2074.64	2022.50	2063.83
Feed efficiency (feed/gain)	2.78	2.83	2.63	2.68
Dressing percentage	66.79	69.33	66.43	68.23

Mortality, Leg Weaknesses and Breast Blisters. The mortality percentage during the experimental period of 8 weeks for cage kept birds was 1.67 per cent as only one bird died in this group. The cause of death could not be assigned to any specific reason. No mortality was noticed in birds kept on floor. Reece *et al.* (1971) recorded higher mortality in cages than on floor under summer conditions.

During the experiment the breast blisters and leg weaknesses were noticed in cage reared birds. The percentage of both the breast blister and leg weakness was 5 per cent in cage kept birds. The floor reared birds, however, did not exhibit either breast blister or leg weakness. These results are in agreement with those of Reece *et al.* (1971).

Dressing Percentage. The dressing percentage was calculated on the basis of dressed weight and live weight. The dressing percentage of caged birds with 1.0 and 0.75 square foot space was 69.33 and 66.79, respectively whereas for floor kept birds with 1.0 and 0.75 square foot space the dressing percentage was 68.33 and 66.43 respectively (Table 1). The findings of the present study corraborate with the results of Iogjus *et al.* (1968) who observed a better dressing percentage in the birds kept in cage as compared to those reared on floor. When the data was statistically analysed the differences in dressing percentage were found to be non-significant.

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