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Production Performance of Two Broiler Strains as Affected by Season under Rural Environment of Bangladesh

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Abstract: Production performance of two broiler strains (Starbro and Hubbard) was investigated in three different season of the year under rural environment in Bangladesh. Both strains were reared separately from day old chick to 31 days of age during (October 2001 to September 2002) winter, summer and rainy season. Each season was treated as treatment with 2 batches, each of 50 birds as replicates within the treatment. Live weight gain was highest in winter, lowest in rainy and intermediate in summer and data showed significant differences among the treatment ($P< 0.01$). In rainy season growth rate was lower in Starbro strains and has a significant difference ($P< 0.01$) but intermediate in Hubbard with low significant difference ($P< 0.05$). It concluded that both strains performed well and satisfactorily in rural environment. However, Hubbard seems to be superior to Starbro and Hubbard could be grown profitably and uniformly under rural environment in Bangladesh.

Key words: Performance, Season, Rural, Broiler, Strain, Rainy, Winter, Summer

Introduction

Chicken meat production from broiler is one of the essential components of livestock in Bangladesh. Seasons of a year are highly prejudiced to successful commercial broiler production in Bangladesh. Elite commercial broiler producers receive this factor into deliberation. It is publicized that local indigenous chicken performed inadequately with high mortality percentage. Now a day a number of commercial strains are accessible in Bangladesh. It is not well known how they are adapted under the climatic circumstances of Bangladesh. Broiler meat is an excellent source of protein. The rearing of broiler chicken has been introduced in this country just a decade back from now. People from different corners are practicing overconfidently to make the broiler business as a profitable enterprise. The present broiler business in Bangladesh is reaching impetus in this respect. The economic traits, such as growth and feed utilization have yet to be studied on the two strains under rural condition as because of the climatic factors have thoughtful effect on the production performance of broilers. No information is being exist on the relative performance of broiler strains under rural atmosphere with this idea in mind, the experiment was conducted with the subsequent objectives of this study was to compare the performance of broiler strain in rural atmosphere and analyse marketing and profitability rate of broiler in different season of a year and also to determine the best one in rural environment.

Materials and Method

The experiment was conducted separately in two rural poultry farm namely Farhad Poultry Complex and Professor Poultry Ltd. adjacent to urban area of Jamalpur town, Bangladesh during October 2001 to September 2002 to determine the seasonal effect of production performance of Starbro and Hubbard strain. The birds were reared in open sided houses of above two farms from day old to 31 days of 3 season providing identical care and management including feeding diets of similar composition ready feed (Nurish Poultry feed). Nutrients in the diets were adjusted by the proprietor of feed mill in accordance with the BDS 233 Anonymous (1988) feeding standards.

Experimental procedure: Day old chick were collected during three season of the year; Winter (December), Summer (April), Rainy (August) from Aftab Bahumukhi Poultry Ltd. The seasons were considered as a treatment with two batches of birds. A total of 800 day old chicks of two strains were equally divided and randomly assigned to four replications in each treatment. The number of birds in replication was fifty.

Management procedure: The birds were fed ration containing same MJME energy and CP kg^{-1} of feed. During the rearing periods the broiler were exposed to continuous light and provided 1350 cm^2 floor space per

bird. Rice husk were used as a litter materials for all batches. Average temperature and humidity recorded for each batch with the help of thermometer and hygrometer. Feed intake, growth rate total rearing periods, feed efficiency and mortality was recorded for each batch. Day old chicks were brooded up to 12 days providing adequate light and ready starter feed manufactured by Nurish Poultry Ltd. Feed and water supplied ad libitum to the birds throughout the experimental period. Cost of production was determined by considering expenses on chicks, feeds, labour, vaccine, litter and miscellaneous cost.

Statistical analysis: Data on production traits were statistically analysed in a Completely Randomized Design (Steel and Torrie, 1984) considering each set of batch as an experimental unit within each treatment (Season). MSTAT statistical packaged programme was used for analysis of variance. Significant difference ($P<0.05$) between treatment means was separated by least significant difference (LSD).

Results and Discussion

Comparative performance of Starbro and Hubbard strain in three season of the year are presented in Table 1 and 2. It has been revealed that Hubbard strain consumed on an average 2140 gm, 2640 gm and 2350 gm feed during winter, summer and rainy respectively up to marketing weight. Feed efficiency was less in summer (1.41) than rainy (1.49) and winter (1.50) and has a significant differences ($P<0.05$). Same result was observed by Sharma *et al.* (1995) in carcass traits of different broiler strain in different season. Starbro strain consumed less feed in every season than Hubbard but FCR is higher and has no significant effect. Live weight gain was highest in winter, lowest in rainy and intermediate in summer in Starbro strain an data showed significant difference among treatment ($P<0.01$). Significant influence of season on amino acid profile was previously reported. Bhuiyan *et al.* (2001) revealed same results in Starbro strain over other three strains. Hubbard strain has no significant difference in season. It is quite uniform in all seasons as like as the results of Omeje *et al.* (2001). In

Table 1: Production performance of Starbro strain

	Season			
Variables	Winter	Summer	Rainy	Level of significant
Mortality percentage	0.72^{a}±0.98	14.05^{a}±4.51	1.34^{b}±4.30	*
Rearing period in days	30.00±0.20	32.00±0.40	31.00±1.80	NS
Total feed intake bird^{-1} (g)	26.00±326	25.78±141	21.24±413	NS
Daily feed intake bird^{-1} (g)	86.67^{a} ±3.41	80.56^{a}±6.14	68.52^{b}±3.50	*
Feed efficiency (FCR)	1.43±0.54	1.51±0.32	1.51±0.19	NS
Live weight gain per bird^{-1} (g)	18.18^{a}±121	17.07^{a}±20	14.09^{b}±207	**
Growth rate in g bird^{-1} day^{-1}	60.60^{a}±1.20	53.34^{b}±1.24	45.45^{c}±1.94	**
Sale bird^{-1} (Tk.)	99.99^{a}±5.40	95.59^{a}±5.56	70.45^{b}±3.94	*
Cost of production bird^{-1} (Tk.)	74.45^{a}±1.83	77.79^{a}±1.73	63.78^{b}±1.74	*
Profit bird^{-1} (Tk.)	25.54^{a}±3.73	17.80^{a}±3.64	6.66^{b}±4.33	*
Sale kg^{-1} live weight (Tk.)	55.00±1.21	56.00±1.01	50.00±1.41	NS
Cost kg^{-1} live weight (Tk.)	40.95±2.71	45.57±2.20	45.26±1.39	NS
Profit kg^{-1} live weight (Tk.)	1.94^{b}±1.63	10.43^{a}±3.63	4.73^{b}±2.49	*

Means having uncommon superscripts differ significantly *=P<0.05, **=P<0.01, NS= Non significant

Table 2: Production performance of Hubbard strain

	Season			
Variables	Winter	Summer	Rainy	Level of significant
Mortality percentage	1.82±1.99	1.27±2.11	1.75±2.03	NS
Rearing period in days	30.00±0.13	29.00±0.10	29.00±0.51	NS
Total feed intake bird^{-1} (g)	26.40±580	21.85±242	23.54±514	NS
Daily feed intake bird^{-1} (g)	88.00^{a}±3.32	75.35^{b}±2.03	81.17^{a}±6.51	*
Feed efficiency (FCR)	1.50^{a}±0.05	1.41^{b}±0.09	1.49^{a}±0.22	*
Live weight gain bird^{-1} (g)	17.60±142	15.50±26	15.80±197	NS
Growth rate in gm bird^{-1} day^{-1}	58.67^{a}±1.06	53.45^{b}±0.80	54.48^{b}±2.97	*
Sale bird^{-1} (Tk.)	96.80^{a}±6.71	86.80^{b}±2.13	79.00^{c}±4.59	*
Cost of production bird^{-1} (Tk.)	79.76±2.37	72.44±1.69	66.66±2.71	NS
Profit bird^{-1} (Tk.)	17.04±0.89	14.36±4.28	12.34±5.17	NS
Sale kg^{-1} live weight (Tk.)	55.00±0.38	56.00±0.36	50.00±1.20	NS
Cost kg^{-1} live weight (Tk.)	45.32±3.41	46.74±3.14	42.19±2.69	NS
Profit kg^{-1} live weight (Tk.)	9.86±2.70	9.26±4.05	7.81±3.71	NS

Means having uncommon superscripts differ significantly *=P<0.05, **=P<0.01, NS= Non significant

rainy season growth rate was lower in Starbro strains and has a significant difference ($P< 0.01$) but intermediate in Hubbard with low significant difference ($P< 0.05$). The growth rate was lower particularly this season due to prevalence of some diseases. It is observed that mortality of broiler were highest in rainy and summer due to high rate of humidity and temperature. Cost per bird was highest in summer and has a significant difference ($P<0.05$) in Starbro. On the other hand Hubbard has no significant differences for cost of production. A same result in profit per kg of live weight in Hubbard but lower profit observed in Starbro in rainy season and has a significant difference ($P<0.01$) over summer and winter season.

It may be concluded that both strains performed well and satisfactorily in rural environment. However, Hubbard seems to be superior to Starbro and Hubbard could be grown profitably and uniformly under rural environment in Bangladesh. It is observed that price of finished broiler is one of the major problems this areas. Government should take steps to control the price and establish a regulation for that. In some farmers faced disease problem, which influenced net profit. So, it is suggested that a modern diagnostic laboratory should be install in all district headquarter to diagnose disease quickly and to make necessary arrangement for proper treatment by improving all necessary medicine.

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