

A Study on the Laying Performance of Cross (FAY × RIR) Chicken under Different Plans of Feeding

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Abstract: The study was conducted to determine the economical performance of cross chicken (RIR × FAY). For this purpose four different recipes/ration R₁, R₂, R₃ and R₄ were offered to the chicken. The laying and hatching performance of these birds were observed for two months of the conduct of experiment. The results indicated that the birds reared on commercial feed and concentrate pack based ration showed the best egg production, feed conversion ratio and hatch ability. The birds reared on rations based on cereal mixture and wheat bread/bran had comparatively poor performance. The birds maintained on wheat bread/bran that had comparatively better performance than raw cereals, which could be attributed to better digestibility of wheat bread/bran. The overall results indicated that cross chicken maintained on balanced nutrition had a direct influence on their productive and reproductive performance. It was also observed that the feeding of cross chicken on ration prepared through concentrate packs was most economical in rural areas.

Key words: Fayoumi, feed conversion ration, rhode island red

Introduction

The poultry population and production status of Punjab province for the year 1998-99 issued by the Government of Punjab reveals that 9.4 millions, layers 145.37 million broilers and 1.53 million breeding stock in commercial sector and 13.38 million rural poultry has been maintained during year.

These flocks produced 2830 million farms eggs and 1890 million desi eggs. More over 149,000 poultry meat was contributed by broilers and curd layers. While 55000 metric tons meat was produced by rural poultry. It is obvious from the status that rural poultry has significant share of 27 % in meat and 40% in eggs production (Bhatti, 1991-92). Mostly rural poultry are being reared or traditional feeding system and have very poor growth rate as well as low production of eggs. It hardly attains 1.15 kg body weight at 20 weeks of age and by the time of killing at 72 weeks only attains 1.75 kg body weight. The sexual maturity is also delayed while they lay only 60 eggs. Weighing 42 g approximately (Yaqoob *et al.*, 1965). Keeping in view the Govt. of Punjab has been

planning to develop rural poultry on scientific lines through introduction of better productive birds, disease control programme and nutritional coverage Fayoumi (FAY) and Rhode Island Red (RIR) have been selected to serve the objective on the account of comparative better adaptability in rural areas.

Both breed and their crosses lay more eggs when kept in proper management and nutritional environment (Bhatti and Sahota, 1996). In rural areas various feed ingredients e.g. Maize, Wheat, rice broken, rice polishing, rape seed cakes etc. are commonly available. These ingredients when properly formulated or supplemented with deficiencies can help in growth of rural poultry on economical scale.

Keeping in view this experiment was designed to study the productive performance of FAY × RIR (cross) chickens on different plan of feeding. It can help rural people to get maximum output from such birds within their available feed resources.

Materials and Methods

The study was conducted on 276 (FAY × RIR)

Table 1: Composition of experimental ration (%age)

Ingredients/ Particulars	Groups (%)			
	A	B	C	D
Maize	27	20	25	-
Rice broken	25	20	25	-
Wheat	5	30	25	-
Rice polish	7	-	-	-
Cotton seed cake	-	-	25	5
Cotton seed meal	3.5	-	-	-
Corn gluten meal 60%	2.5	-	-	-
Rape seed cake	-	-	12	12
Rape seed meal	5	-	-	-
Guar meal	1	-	-	-
Soybean meal	5	-	-	-
Fish meal	5	-	-	-
Wheat bread	-	-	-	50
Wheat brow	-	-	-	25
Concentrate packs	-	30	-	-
Vitamins and Minerals	14	-	-	-
Green vegetation	-	-	Adlibitum	Adlibitum
Crude protein (%)	16	16	16	16
Crude fat (%)	4	4	4	4
Crude fiber (%)	3	3	3	3
Net energy (Kcal/Kg)	2750	2750	2750	2750
COST PER KG (Rs)	10.00	8.70	6.00	6.00

chicken, which included 36 males and 240 females having almost the same age i.e. from day old. All the birds were divided into four groups A, B, C and D. Each group was further subdivided into three replicates and each replicate was composed of 20 females and 3 males.

Four different experimental rations, R₁, R₂, R₃ and R₄ were prepared at poultry feed milling and mixing plant nutritional section Poultry Research Institute Rawalpindi, 1999. R₁ was based on commercial feed formulation while ration R₂, R₃ and R₄ were based on different feed ingredients locally available in rural areas. Each ration R₁, R₂, R₃ and R₄ was allowed to respective group. and was offered to the scale of ration issued by the Directorate Poultry Institute Rawalpindi.

Data was collected for; no of eggs produced, feed consumption, feed conversion ratio, hatching performance, economics, from 30 September to 24 November 1999.

It was subjected to statistical analysis using analysis of variance, techniques of Snedecor and Cochran (1967). The comparison of mean differences was made by multiple range tests (LSD) following the method of Steel and Torrie (1981).

Results

The productive and reproductive performance of cross chicken (FAY×RIR) was observed in forms of weekly egg production, weekly feed consumption, weekly feed conversion ratio, weekly hatch ability and economics of the production of eggs.

The results indicated that the average eggs produced per weeks of chicks belonging to group A, B, C and D was 110, 101, 35 and 60 eggs (Table 2). There was a significantly (P<0.01) low production in group C and D as compared with group A and B. The comparative eggs production of group C and D was also significantly different. The production of group D

Table No 2: Laying performance of cross (fAY × RIR) chicken under different plans of feedings

Parameters	(FAY × RIR) Groups			
	A	B	C	D
Eggs production	110	101	35	60
Feed consumption kg/wk	18.13	17.62	16.94	17.58
Feed conversion rate	1.972	2.107	8.704	3.735
Hatch ability %age	83.639	80.345	27.784	50.282
Feeding of birds (cost in Rs)	1.65	1.52	2.90	1.76

Table 2a: (FAY× RIR) Eggs production

S.O.V	d.f.	S.S	M.S	F.cal	
Treatment	3	11252.9167	3750.9722	63.5758*	
Error	8	472.000	59.0000		
Total	11	11724.9167			
L.S.D = 14.462		C	D	B	A
		35	60	101	110

Table 2b: (FAY× RIR) Feed consumption

S.O.V	d.f.	S.S	M.S	F.cal	
Treatment	3	2.1358	0.7119	1.0708*	
Error	8	5.3181	0.6648		
Total	11	7.4537			
L.S.D = 1.33		B	A	D	C
		1.52	1.65	1.76	2.90

Table 2c: (FAY× RIR) Feed conversion ratio

S.O.V	d.f.	S.S	M.S	F.cal	
Treatment	3	89.4842	29.8281	43.5884*	
Error	8	5.4745	0.6843		
Total	11	94.9587			
L.S.D = 1.557		A	B	C	D
		1.972	2.107	3.735	8.704

Table 2d: (FAY× RIR) Hatch ability % age

S.O.V	d.f.	S.S	M.S	F.cal	
Treatment	3	6311.8965	2103.9655	63.5758*	
Error	8	56.0968	7.0121		
Total	11	6367.9932			
L.S.D = 4.986		C	D	B	A
		27.784	50.282	80.345	83.639

*Significance ----- Shows insignificance in groups

was significantly (P<0.01) better than group C. Group C had minimum egg production followed by D, B and A. The average feed consumption

per week of the birds belonging to group A, B, C and D fed upon ration R₁, R₂, R₃ and R₄ was 18.13, 17.62, 16.94 and 17.58 kg respectively

(Table 2). Group A, had the maximum feed consumption of 18.13 kg, while group C had minimum feed consumption of 16.94 kg. The statistical analysis of the data revealed that there was a non-significant difference in feed consumption of the birds belonging to different groups. The feed conversion ratio was calculated on the basis of kg of feed consumed per dozen of eggs, by different groups (1.97, 2.11, 8.70 and 3.74). The best FCR (feed consumption rate) was shown by group A, followed by group B, D and C. The statistical analysis of data revealed that the significantly ($P < 0.01$) better FCR was observed in group A and B while group C and D showed the similar trends as observed in eggs production of birds. The reproductive performance of the birds observed on terms of the hatch ability was 83.64, 80.35, 27.78 and 50.28 % in group A, B, C and D. The best hatch ability was observed in group A, followed B, D and group C had the minimum hatch ability.

The comparative economics of feeding of birds belonging to different group A, B, C and D revealed the cost of rupees 1.65, 1.52, 2.90 and 1.76 on the production of one egg. The maximum cost incurred in group C while minimum cost was observed in group B based on concentrate pack.

Discussion

The results of experiment revealed that maximum egg production was observed in group A followed by group B, D and C. Group A and B had the efficient egg production which could be attributed to the balanced nutrient composition of the respective ration based on commercial feed and concentrate packed. The egg production was decreased in group C and D and it reflects improper supply of nutrients in group C and D. The comparative performance of group C and D was also of great concern.

The birds reared on wheat bread, wheat bran showed comparatively better egg production than those fed on a mixture of cereals including maize, wheat and rice broken. It could be due to better digestibility in wheat bread than raw cereals. The physical factors i.e. grinding, soaking and heating might have resulted

improving the digestibility of wheat bread + wheat bran.

The average feed consumption per week of the birds belonging to different groups A, B, C and D showed no difference on account of feeding rations of different nature. This is also evident from the fact that the birds regulate their feed consumption just to meet their energy requirements which was almost same in different rations.

The feed conversion ratio showed that the best FCR was observed in group A, where 1.79 kg poultry feed was consumed by birds for the production of one dozen eggs. Group C had the poor FCR of 8.70 the comparative performance indicated that group A and B at the best FCR which could be attributed to the balanced plan of nutrition through feeding of birds.

On commercial feed and concentrate packs. The birds fed on cereals mixture and wheat bread + wheat bran showed a significant variation on FCR, which could be due to the same factor explained as above. Almost similar trend was observed during reproductive performance, evaluation in term of hatch ability was observed in group A and B. These results were almost in the same pattern as was observed in egg production and feed conversion ratio.

The overall results revealed that the effective plan of nutrition not only improved the egg production and FCR but also hatch ability. It showed that there was direct influence of nutrition on the productive and reproductive performance of cross chicken. These results agrees with the findings of Din *et al.* (1994-95); Arshad *et al.* (1995-96) who observed better performance of chicken on the supply of good nutrition. Results also conformed the findings of Bhatti and Sahota (1993-94) who observed better performance of RIR × FAY chicken as compared with other crosses.

The comparative economics showed that the feeding of cross chicken (FAY × RIR) on ration prepared through concentrate packs was found to be economical as was reported by Din *et al.* (1994-95).

It was also noted that there was a significant

difference between the performance of group C and D. Group D had comparatively better performance in term of production and reproduction. It showed that the use of wheat bread + wheat bran rather than raw cereals had comparatively better availability due to high digestibility there is one thing more to note that the existing rural poultry which is being kept on traditional feeding system has very low production and can be improved 3 to 4 times and this is a message for rural people to follow the effective plan of nutrition in terms of concentrate pack. So that they may achieve maximum out put oblique benefit out of their birds.

The findings of this study reflected poor performance of cross/rural chicken on traditional feeding system. Their productive and reproductive performance can be significantly and economically improved by the use of locally available food resources in rural area by using concentrate packs.

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