

TECHNICAL BULLETIN

No. 17,2021

Refining and Validation of BAU-Bro Chickens

Poultry farming is playing a major role in providing cheap animal protein to the human diet in Bangladesh. However, the industry heavily depends on imported strains, feed, vaccines and medicines. Every year the country imports grandparents/parents at a cost of hard earned foreign currency equaling Tk. 120 crore. Moreover, imported strains are not suitable for the hot and humid environment in Bangladesh and often introduce undesirable factors like new diseases. In addition, the imported strains require elaborate and environmentally controlled housing for optimum production that involves costly investments, e.g., controlled-environment poultry house with a capacity of 10,000 parents requires 3,32,000 kilowatt electricity per year creating a huge pressure on the national power grid.



BAU-Bro White

The Department of Poultry Science, BAU had earlier developed broiler sire and dam lines from locally available genetic resources and released two broiler strains, BAU-Bro White and BAU-Bro Color which gained high acceptance with poultry farmers. These local strains need to be refined and validated for commercial production, and in view of this, a marker assisted selection study was undertaken for refinement which involved molecular characterization of the sire and dam lines of the BAU-Bro strains with microsatellite markers and refinement of their growth and reproductive traits through marker assisted selection. Also, a field study was conducted to popularize the broiler parents with hatchery men and the BAU-Bro chicks with farmers.



The selection study involved pure lines from generation 6 (G6) to G8, and phenotypic data for growth and reproductive traits of pure lines, sire and dam lines (parents) and the resulting BAU-Bro chickens were collected for refinement. The evolved sire and dam lines from pure lines were selected for observation of growth, egg production and egg size. Experiments on molecular characterization and best linear unbiased prediction (BLUP) of breeding value were carried out. Field performances of the BAU-Bro strains were tested in field trials in different agro-ecological zones of Bangladesh.



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BAU-Bro Color

Results and Outputs

- ❖ Microsatellite DNA analysis of the parental lines of BAU-Bro chickens indicated that MLW birds are more homozygous (86.67%) than other lines of chickens, while MLC birds are more heterozygous (33.33%)
- ❖ In male lines, the body weight was the highest in MLW2 and MLW, while in female lines it was the highest in FLC (Br) and While the weight gains per day at selection age were 25.99, 25.52 and 14.09g in male lines, respectively, and the dressing meat yields on equal weight basis were almost similar, 68-72 % in male lines and 68-70 % in female lines
- ❖ The livability during brooding period was 92-100%, while during growing period it was 78-90% except in FLW2 and MLW2, and in the laying period it was 91-100% in the genotypes
- ❖ The evolved BAU-Bro Color (FLC) parents gave the highest number of eggs, 65.49 ± 1.58 followed by BAU-Bro White (FLW2) i.e. (65.09 ± 1.14) eggs up to 35 weeks of laying.

The performance of BAU-Bro White and BAU-Bro Color at farmer's level during refinement process

Bird type	Parameter	Year		Change (2017-2015)
		2015	2017	
BAU -Bro White	Body weight (g)	1338	1494±40.0	156
	Age at marketing (days)	36	37.50± 2.21	2
	FCR	1.84	1.69±0.05	-0.15
	Mortality (%)	6.52	2.56±0.49	-3.96
BAU -Bro Color	Body weight (g)	942	1094±20.0	152
	Age at marketing (days)	41	43.06±1.40	2
	FCR	1.96	1.89±0.03	-0.07
	Mortality (%)	6.86	1.39±0.30	-5.47

- ❖ The overall growth performance of BAU-Bro White at 38 days of age was 1494g, whereas the BAU-Bro Color at 43 days of age was 1094g. Similarly, FCR and profit were also affected by management but not mortality. The BAU-Bro Color chicken is more resistant to prevailing environment than the BAU-Bro White. The overall profit at the farmers' level was Tk. 6.29 per kg live weight with BAU-Bro white while it was Tk. 19.55 for BAU-Bro Color.

Expected Impacts

- Broiler pure lines and parents were developed from available germplasms among which the two new broiler strains, BAU-Bro White and BAU-Bro Color, adapt better to environmental conditions of Bangladesh
- The developed parental lines were characterized through microsatellite DNA markers and refined further through selection
- Imported parents and grandparents may be replaced gradually through commercialization of the developed BAU-Bro parents which can save foreign currency every year
- Mass production of BAU-Bro chicken will help the country become self-sufficient in broiler grandparents, parents and broiler chicks with less disease hazards for the poultry industry.

Recommendations

Field trials with BAU-Bro White and BAU-Bro Color parents (4,427 nos.) indicated the possibility of profitable BAU-Bro parents farming in rural conditions. Large scale commercialization of the developed BAU-Bro chickens should be initiated.

This technical bulletin has been prepared on the basis of technical information available from a completed CGP project of KGF, the details of which are given below:

Project Code and Title: TF 17-ARI/15. Refining and validation of BAU-Bro chickens

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Project Duration: March, 2015 to June, 2018

Published by:

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