

Effect of azolla (*Azolla pinnata*) supplementation on performance of gramapriya chickens in rural semi intensive system

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Rural poultry farming in India has transformed into a Techno commercial Industry from status of backyard farming since two decades. Nowadays farmers in TamilNadu tend to go for intensive farming for desi chickens. Rural Backyard Desi chicken farming is low productive mainly due to sub optimal management, lack of supplementary feed, low performance of scavenging attributable to poor feed resource base, and further amount of scavengable feed resource also varies with type of birds due to their forage behaviour, stage of growth and other extrinsic factors such as seasonal variables, levels of predation, health and physiological status of scavenging birds.

Gramapriya is a layer type chicken variety with better adaptability, immunocompetency, better survivability and laying more number of tinted eggs (150 -160 eggs/yr) than native chickens. The performance of these birds can further be enhanced with minimum supplementary feeding of Azolla, wastegrains, mulberry leaves, drumstick leaves and germinated seeds etc.

Azolla (*Azolla pinnata*) is easily cultivable, productive, nutritive and is the most promising aquatic algal feed (Becerra *et al.*, 1995). Azolla is the most economic, easily digestible and efficient feed supplement for livestock and poultry which is rich in protein, essential amino acids, vitamins, growth promoters and minerals etc. (Paoletti *et al.*, 1987). Nutrient constitution of azolla is almost identical to that of commercial poultry feed mainly high in protein content. Hence, feeding of azolla to poultry not only improves the health status, weight gain but also increases the productivity in layers, (Kamalasananapillai *et al.*, 2002; Alcantara and Querubin, 1985).

An experiment on effect of Azolla supplementation was conducted in a semi-intensive desi chicken farm size of 500 Gramapriya chicks at Kancheepuram

district of Tamilnadu state. Two months old Gramapriya chicks were selected randomly and divided into 4 groups of 25 chicks each in two replicates.

Home-made feed comprising of bajra (40%), ragi (20%), maize (10%), rice (10%), rice bran (14%), ground nut cake (4%), mineral mixture (2%), etc., was prepared and fed as per the recommended feeding regimen for different age groups of birds respectively to sustain the production in semi-intensive system of rearing. The home-made feed preparation costs around ₹ 1 /bird/day.

Hence an attempt was made to reduce feed cost and also to improve the performance of birds in semi-intensive system by supplementing fresh azolla for the treatment groups along with the regular feed via T₁ (Azolla supplement @ 6.5%/bird/day), T₂ (Azolla supplement @ 13%/bird/day), and T₃ (Azolla supplement @ 19.5%/bird/day), whereas control group was fed only with home-made feed and the birds were let free for 4 hours of foraging /day. As a result of azolla supplementation the cost of feed for the treatment groups drastically reduced to ₹ 0.5 /bird/day.

Data collected for the body weight gain, livability, Feed Conversion Ratio (FCR) and also other traits such as age at first laying, weight of eggs etc., were tabulated and statistically analyzed as per Snedecor and Cochran (1994).

The mean body weight gain of groups T₂ and T₃ at 12 weeks of age (1.47 ± 0.1 & 1.49 ± 0.1) and at 16 weeks of age (2.35 ± 0.12 & 2.29 ± 0.18) recorded were significantly higher ($P < 0.01$) than control group (Table 1 and Fig. 1) and hence better FCR observed. Similar finding was also reported by Kamalasananapillai *et al.*, (2002) that birds fed with azolla along with regular feed, grew faster, showed increase in their body weight gain. Basak *et al.*, (2002) also opined that supplementing Azolla in the broiler chicken feed had shown better feed conversion ratio. The percent livability recorded at 28th week of age of T₂ and T₃

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Table 1 Effect of azolla supplementation on the performance of gramapriya chickens

Age	Mean $\pm$ SD of Body weight (Kgs)			
	Control	T ₁	T ₂	T ₃
8 weeks	0.42 $\pm$ 0.2	0.41 $\pm$ 0.1	0.43 $\pm$ 0.03	0.44 $\pm$ 0.3
12 weeks	1.2 $\pm$ 0.1	1.23 $\pm$ 0.09	1.47 $\pm$ 0.1*	1.49 $\pm$ 0.1*
16 weeks	1.49 $\pm$ 0.09	1.5 $\pm$ 0.2	2.35 $\pm$ 0.12*	2.29 $\pm$ 0.18*
Livability (%)				
28 weeks	96	96	100*	100*
Mean $\pm$ SD of Egg weight (gms)				
28 weeks	41 $\pm$ 0.8	43 $\pm$ 0.7*	50 $\pm$ 0.9*	51 $\pm$ 0.8*

* Highly significant (P<0.01)

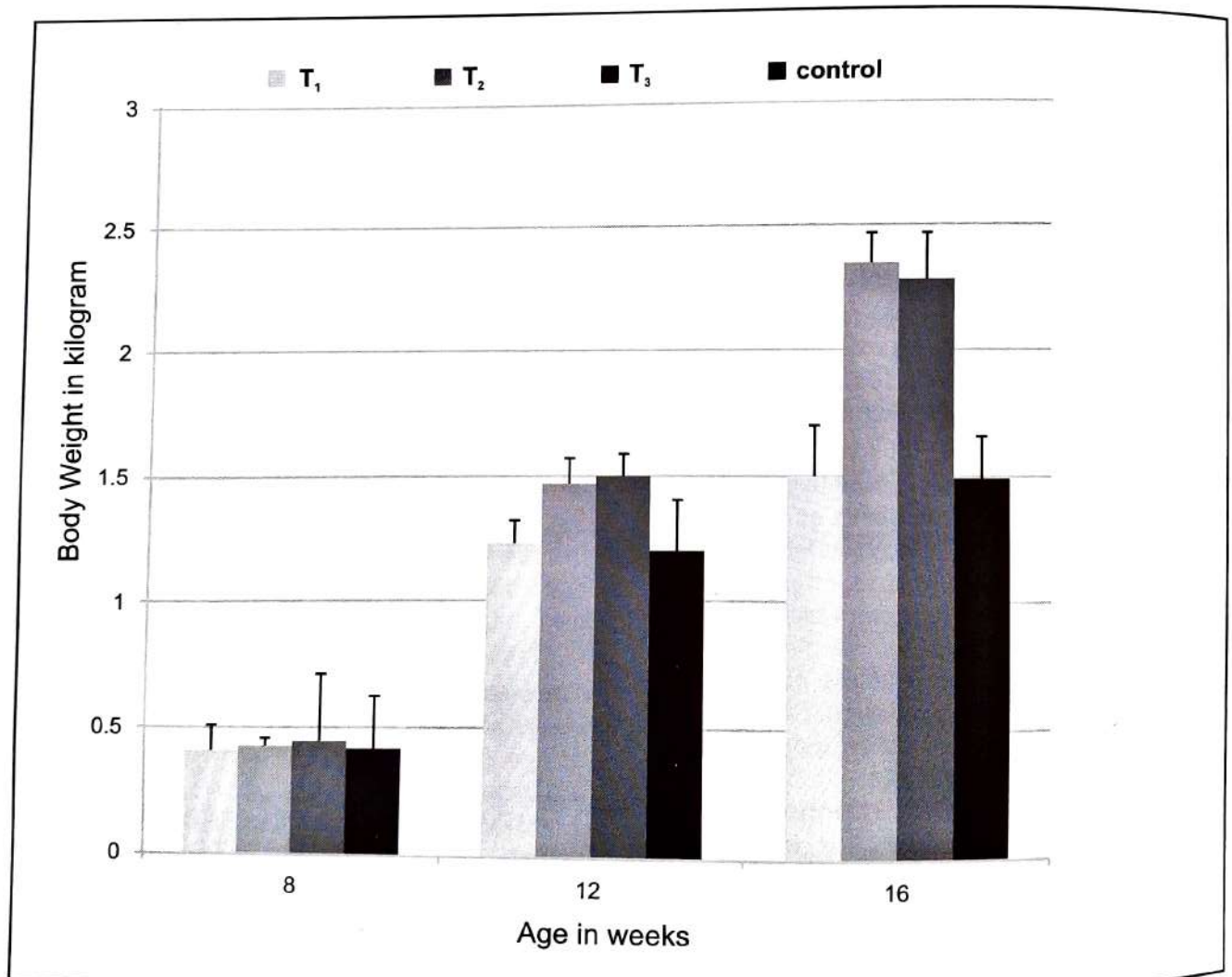


Fig. 1 : Effect of azolla supplement on body weight of gramapriya chickens

groups were also significantly higher ($P < 0.01$) compared to control (Table 1). Birds of all groups started its first laying at 160 ± 5 days. However, the mean egg weight (gm) at 28th week of age of all the treatment groups (43 ± 0.7 , 50 ± 0.9 and 51 ± 0.8) was significantly superior ($P < 0.01$) to that of control group (Table 1).

According to the results obtained from the study it clearly indicated that inclusion of azolla at the levels of 13% (20gm) and 19.5% (30 gm) in regular home-made feed contributed to the better performance which supported closer to the earlier findings of Alalade and Iyayi's (2006), and moreover economics of azolla supplementation for the treatment groups other than control has proven to reduce the feed cost at around ₹ 0.5/bird/day. Fresh Azolla could replace about 20% of commercial feed of chickens for better productivity, as already reported by Subudhi and Singh (1978).

This study clearly concludes that azolla can be used as an ideal feed supplement which could be included at the levels of 20-30 gms/day/bird. Appendage of fresh azolla in the regular feed had no deleterious effect on the palatability of chickens and was also cost effective (₹ 0.5-0.6/Kg of Azolla production). Hence supplementing azolla in the regular feed of Gramapriya birds not only improved the performance and was also a boon to reduce the feed cost for a profitable rural semi-intensive chicken farming.

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