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Suma N
Department of Animal Nutrition, Veterinary College, KVAFSU, Bengaluru, Karnataka, India

BSV Reddy
Department of Animal Nutrition, Veterinary College, KVAFSU, Bengaluru, Karnataka, India

Suresh BN
Department of LFC, Veterinary College, KVAFSU, Bengaluru, Karnataka, India

Corresponding Author:
Suma N
Department of Animal Nutrition, Veterinary College, KVAFSU, Bengaluru, Karnataka, India

Influence of varied levels of nutrients in diet of swarnadhara growers on survivability rate

Suma N, BSV Reddy and Suresh BN

Abstract
To check the response of high and low energy as well as high and low protein levels in diet on survivability per cent of 354 swarnadhara female parent stock during grower (12 - 20 weeks age) period was planned by dividing them in to 32 replications of 12 birds each. Four grower diets with High Energy and High Protein-HEHP – T_1, High Energy and Low Protein–HELP – T_2, Low Energy and High Protein–LEHP – T_3; Low energy and Low Protein-LELP– T_4 were prepared. The levels of energy and protein being 2500 and 2400 kcal ME / kg; 16 and 15% CP. Each experimental diet was fed to 8 replicate groups. The trial was conducted under deep litter system by providing uniform managemental conditions. The results showed that the livability per cent of grower birds for all treatments was statistically (p<0.05) different with values ranging from as 96.88% (T_4) to 100% (T_1, T_3); while no dietary cause could be attributable for such results. Hence the studies concluded that varied levels of energy / protein have no adverse effect on livability of birds.

Keywords: Deep litter system, grower, livability, swarnadhara

Introduction
Chicken are most numerous and popular among the domesticated poultry species received importance in country's planning and research trials. As a result, India's poultry industry of is not only vibrant and self-reliant but also one of the best sector.
Demand in chicken consumption is increasing day by day and has resulted in increased production. Hence, production of poultry at present is the fastest growing sector of our agriculture with a quantum jump both in respect of productivity and poultry population. Meat and egg type poultry showed faster growth especially in developing countries and in countries where export potential is good (Natarajan, 2016) [6]. While world broiler meat production showed increase from 41 million tons in 1993 to 99 million tons by 2012 (FAO, 2013) [2] and Asia accounted for one third of the increase.
To meet up the gap between demand and supply, many superior strains of high genetic potential have been evolved and raised to suit to village conditions to step up rural economy. One among such genetic stocks, developed recently by KVAFSU, Bidar for promoting rural poultry production is Swarnadhara.
Nutrition plays very important role in health and productivity of poultry birds. Metabolizable energy is the energy available to the bird for transformation in the body (Reddy, 2019) [8]. Standardization of energy and protein levels in the parent stock of swarnadhara females will pave way to multiply chicks which are suitable for village conditions. Therefore, a trial was planned to optimize the nutrient levels in the breeder's diet and in turn to check its survivability rate.

Methodology
Study was planned in swarnadhara female parent stock growers (12 - 20 weeks age of 354 birds) maintained at Poultry farm, Veterinary college, Hebbal, Bengaluru.
Four experimental diets (T_1 to T_4) were prepared to relate energy nutrient level with protein nutrient level for swarnadhara growers. Dietary description of experimental grower diets is given in Table 1.
The ingredients used to formulate diets for grower trial include deoiled rice bran, yellow maize, sunflower extractions, soybean meal, minerals (salt, dicalcium phosphate, shell grit, mineral mixture / trace minerals) and also included additives.

Results and Discussion

Energy chosen in grower (Table 1) is slightly lower than the value as recommended by ICAR, 2013. Similarly, protein lies at lower side in grower trial.

Protein in the two test diets (T_2 and T_4) chosen for the grower study (Table 1) was close to the value as recommended by Reddy and Rajendiran (2002) [9]. However, T_1 and T_3 diets were selected with slightly high protein values to check the counter effect, if exist. Energy values in terms of ME were much lower than the values shown by Reddy and Rajendiran (2002) [9].

Mortality / Livability

Good health status of all the birds of different treatment groups in study was under constant observation. As and when the birds died, mortality in respective groups was recorded and birds died were necropsied to identify the cause.

Percentage livability pattern of birds under treatments for whole experimental period of growers is represented in Table 2 and also graphically shown in Fig. 1.

Livability per cent of birds under different treatments was statistically different ($p \leq 0.05$) ranging from 96.88% (T_4) to 100% (T_1 and T_3). But, the above mentioned results indicate that protein lowered diets (T_2 and T_4) did affect the value of livability per cent (98.96 and 96.88%) while in contrast, protein dense diets (T_1 and T_3) showed 100% livability. Postmortem reports clearly indicated that the mortality observed during the trial was not due to any dietary effects.

Results agree with the trials (Beena, 2017 and Joseph *et al*., 2017) [1, 4] found out the effect of reducing crude protein in diet with supplementation of amino acids which limits in diet to compensate the deficiency due to protein reduction in Swarnadhara chicks (0 - 6 weeks). They reported that, non-significant differences in survivability rate among different treatments.

Similar study conducted to know the effect of lysine present in flaxseed based diet finally concluded that 10% flaxseed can be used in broiler diet without any adverse effect along with 125% of the BIS recommended lysine for broiler growth, efficiency, serum biochemical, carcass traits and diet had no effects on mortality pattern of birds (Mir *et al*., 2018) [5].

Table 1: Description of Swarnadhara grower diets

Diet		ME (kcal/kg)	CP (%)
No.	Nutrient value		
T_1	High Energy and High Protein	2500	16
T_2	High Energy and Low Protein	2500	15
T_3	Low Energy and High Protein	2400	16
T_4	Low Energy and Low Protein	2400	15

Table 2: Percentage of Livability of Swarnadhara birds during grower period

Diet		Livability % *		
No.	Description			
T_1	High Energy and High Protein	100.00	±	0.00^{a}
T_2	High Energy and Low Protein	98.96	±	1.04^{ab}
T_3	Low Energy and High Protein	100.00	±	0.00^{a}
T_4	Low Energy and Low Protein	96.88	±	1.52^{b}

* Means with at least one common superscript in column are statistically similar ($p \geq 0.05$)

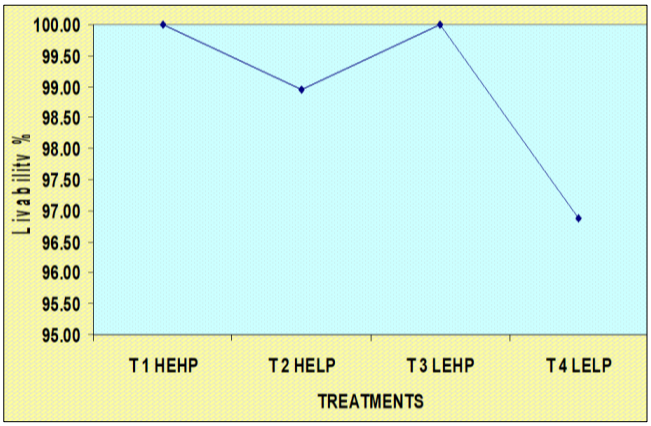

Fig 1: Percentage of livability of birds during experiment

Conclusion

Results from the present study concluded that, varied levels of energy / protein in grower stage had no adverse effect on livability of birds.

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