Azolla: Nutritionally rich conventional feed for Backyard poultry farming

Abstract

The major cost of production in poultry farming is towards the feed cost. It shares around 80 per cent of total cost of production incurred during the poultry rearing. In order to reduce the cost of production, low cost feed formulation by using locally available feeds is the need of the hour. In this regard the present study was conducted to analyze the effect of feeding azolla ~~feeding~~ on the performance of backyard poultry farming. For this, one week old 30 chicks of Swarnadharawere selected for each group and 3 such groups were made. The first group(T1-control) was fed with the only recommended Desi starter feed(commercial feed), second group(T2) was fed with wet azolla by replacing 30% of desi starter and the third group(T3) was fed with the dry azolla by replacing 30% of the desi starter. After the 21 days feeding trial, it was found that the weight gain of second and third trial was at ~~on~~ par with the control group indicating the azolla can be used as a partial substitute to the desi feed which is used by the farmers to feed the chicks at early stage. By this way the feeding cost can be reduced by 30 per cent, which directly will be added to the total profit gain.

K e y w o r d s: Backyard poultry,Azolla, Bodyweight gain

Introduction

In present scenario livestock farming is gaining utmost importance as it is having important role in the sustainable livelihood and socio economic equality of rural families(Tisdell andGali, 2000). In these livestock farming dairy, poultry, sheep and goat farming are the major contributors to the Indian economy. Among the different farming system the poultry farming is growing exponentially in order to meet out the daily requirements of meat and the eggs. For the rural poor backyard poultry is an important component for their nutritional supplement as well as it has become a source of subsidiary income.

The Northern part of Karnataka comes under dry zone in which we cannot expect the continuous income from only agriculture sector, in addition to this the livestock enterprises such as sheep, goat and poultry farming are the feasible ones.In this part of state now a days there is increased demand for the locally reared poultry birds, to meet out this, rural families are rearing improved breeds suitable for backyard farming as these local breeds exhibit poor production performance.Improved breeds based on the type of feed fed to them will give better performance, for this, farmers are depending on the feed supplied by the local vendors which is increasing the cost of production. If a feed formulated by using locally available food ingredients which is nutritionally rich for growth of these birds can reduce the burden of cost.Azolla is one of the plant resources withhigh biomass and protein content.Azolla has several pharmacological effects and can be used as antioxidant, immune-stimulating, hepato-protective, phytoremediation,

Comment [O.O.1]: Poultry is not part of livestock. Livestock are animals that give birth to their young ones alive. Poultry hatch their eggs.
The sentence can be removed or centered on poultry only.

Comment [O.O.2]: Recast. Now-a-days, there is increased demand for .....

Comment [O.O.3]: Poultry are birds. use either birds or poultry not the two together.

Comment [O.O.4]: Are they really breeds or strains?

Comment [O.O.5]: Too long to be a sentence. Break it to have meaning.

Comment [O.O.6]: This sentence is not complete. Remove 'If a'. start the sentence from ;feed formulated.....'

bioremediation and also as nutritious material. Azolla contains vitamins (B12, beta carotene, vitamin A) and biopolymers (Riaz *et. al*., 2022)

It is anabundantly available aquatic fern in ponds,ditches, and paddy fields in tropical andsubtropical regions of the world.~~For this reason the azolla feeding trial taken up.~~ In view of the qualities of azolla, this experiment was conducted to evaluate the growth performanceof broiler chickens fed dry and wet azolla.

Materials and methods

Azolla production

Three pits of size 10 ft length× 3ft width×2ft height were made underneath ~~the~~a shaded area. Polythene sheets were spread in these pits, ~~on that sheets,~~ slurry prepared from fertile soil and dung (3:1) was poured to a height of ~~and prepared a bed of~~ two inches. Over that, a layer of 1.5 ft height water was made stagnant. The water utilized must be having pH 6-7. Then azolla culture was put in the pit. For dry azolla preparation, ~~we use take up the~~ wet azolla from the pits ~~and~~was sun dried for a whole ~~one~~ day in the partially shaded area till 15% moisture content was gotten.~~in such a way that there should be around 15 per cent of moisture and t~~There was~~should~~ not ~~be~~ breakage nor powdering of azolla leaves. After the drying process it was stored in dry and moisture free condition.

Comment [O.O.7]: Recast. Water with pH of 6-7 was poured up to 1.5ft high and was made stagnant.

Selection of poultry chicks

One week old 90 Swarnadhara chicks which were vaccinated against Marek disease and Ranikhet disease were selected and made in three groups T1, T2, T3 so that each group comprising 30 chicks. All the three group chickens were kept in an open sided partitioned deep litter pens with adequate ventilation.Ground nut husk was used as bedding material, over that a layer of newspaper covering was made.The body weight was taken for the randomly selected 10 poultry chicksbefore starting feeding trial.

Feeding trial

For all the three groups the total feed given during first week was 20gms/chick/day and during second week 25gms/chick/day. For the first group only the desi feed (commercial feed) was given. Second group(T2) was fed by replacing 30 per cent of desi feed with wet azolla. The third group(T3) was fed by replacing 30 per cent (W/w)of desi feed with dry azolla. This feeding trial was carried out for 15 days as seen ~~mentioned~~ in Table.

Table 1 :Feeding trial for 7th to 21st day

Sl no	7-15th day(@20gm/day/chick) for one week		15th – 21st day(@25gm/day/chick) for one week	
	Desi feed(gms)	Azolla(gms)	Desi feed(gms)	Azolla(gms)
T1	4200 gms	-	5250	-
T2(Wet azolla)	2940	1260	3675	1575
T3(Dry azolla)	2940	1260	3675	1575

Results and discussion

The azolla pits were entirely filled after the 15 days of inoculation of azolla culture in the pits. The growth of azolla depends mainly on the quality of water utilized in-terms of its pH.The higher growth of azolla is observed at pH 6 to 7. For easy understanding to farmers, it is said that, the water which is suitable for human consumption in-terms of its taste can be utilized for growing azolla. We use to get 1.1 kg of dry azolla after drying the 5 kgs of wet azolla.

Comment [O.O.8]: Azolla grows best at pH of 6-7. This is a statement of fact that had been established.

The average body weight gain from randomly selected 10 chicks before starting the feeding trial was 67.1 gm/chick. After the first week of feeding trial it was observed that T1 was having comparatively higher weight gain of 141.4gm/chick than T2(124.1gm/chick) and T3 (125.1gm/chick). ~~During second week completion~~At the end of second week it was observed that there was not much difference in the weight gain of T2 as compared to T1 group, whereas there was significant difference in the weight gain of T3 and T1 groups.

Either it may be wet or dry azolla, during the feeding trial, we observed that the one week old chicks were reluctant to take up the azolla. In second week of feeding trial, chicks were taking up wet azolla without any reluctance whereas, the chicks were not relishing the dry azolla. This may had in the lower weight gain by the third group in comparison with the other two groups.

Although there is not much difference observed in the weight gain during the experiment, but there was difference in the feed type which we had given. The cost spent for 30 per cent replaced feed can be included in the total profit gain.

Table 2 :Weight gain during the experiment

Random wt gain of 10 chicks from each group	Initial wt(gms)	T1(gms)		T2(gms)		T3(gms)	
		1st week	2nd week	1st week	2nd week	1st week	2nd week
1	67	135	162	125	186	119	162
2	66	135	165	116	153	118	160
3	68	154	180	101	174	143	175

4	68	130	175	141	160	134	162
5	67	138	150	117	154	130	154
6	72	140	159	121	167	109	153
7	66	158	163	117	172	151	179
8	67	149	180	137	168	112	157
9	64	134	164	131	155	128	161
10	66	147	188	135	164	107	145
Average wt	**67.1**	**141.4**	**168.6**	**124.1**	**165.3**	**125.1**	**160.8**

Conclusion

By this study we can understand that the feed cost incurred in the rearing of poultry can be reduced by utilizing the locally available feeds which will not have any significant difference in the growth and production performance of the birds.

Refferences

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