IMPACT OF FEEDING ASHWAGANDHA (WITHANIA SOMINIFERA) ON EGG PRODUCTION IN LAYERS

Dr. Digvijai Singh
Department of Animal Husbandry and Dairying, T.D.P.G. College, Jaunpur
Dr. Rananjay Singh
Department of Animal Husbandry and Dairying, K.A. P.G. College, Allahabad
Dr. Manoj Kumar
Department of Animal Husbandry and Dairying, T.D.P.G. College, Jaunpur
Dr. S .P. Srivastava
Department of Animal Husbandry and Dairying, T.D.P.G. College, Jaunpur

Abstract: A study was carried out to evaluate the effect of Ayurvedic drug Ashwagandha on egg production in layers. Layers are divided into four equal groups and fed with four types of layer mash having 0.0% Ashwagandha (Treatment-1), 0.50% Ashwagandha (Treatment-2), 0.75% Ashwagandha (Treatment-3) and 1.00% Ashwagandha (Treatment-4) for one month. The control group (Treatment-1) was raised on layer mash similar to experimental group except the Ashwagandha. Husbandry and management remained same for all groups with ad-libitum feeding and supply of clean and and fresh water was maintained to all birds. The highest average weekly egg number (per flock) has been found in Treatment-4 fed with Ashwagandha at level of 1.00% and the lowest in control group treatment-1, where layer mash without any medication has been fed.

Introduction: In poultry, feed consumption play a major role in affecting net return from the poultry because about 65 to 70% of the total expenditure in terms of cash spend on feed. To ensure more net return and to lessen the adverse effect of the synthetic feed additives on animal as well as on consumer's health; many of the herbal growth stimulators now a day are being used as an alternative feed additive in the poultry ration. There is some evidence from the earlier workers that the use of commercial blends of herbs can reduce the cost of poultry production and increase the production (Majdanski, 1991).

Ashwagandha (*Withania somnifera*) is one of the well known medicinal plants. A number of macro and microminerals as well as number of active principles like withanolids somnitalglucose, inorganic salts withanone are found. The ashwagandha are also having immunomodulatory, haematinics, antistress, hepatoprotective, antioxidants, growth promoters and productive effect in practice (pandey and Vijaykumar,1994).

Later on Singh et al. (2008) and Sarma et al.(2001), also reported significant increase in growth performance due to supplementation of herbal products.

Material and Method: A total of forty white leghorn of forty weeks of age were allocated randomly to four dietary treatment group of ten birds each and housed in deep litter system under similar managemental conditions. The birds were almost identical in physical appearance and body weight in each group. The layer mash fed to the poultry birds was supplied by M/S Jhunjhunwala Fodder Mills, Varanasi. The composition of layer mash given by manufacturer is Protein-19%, Fat-4%, M.E.-2700 Kcal, Fiber-6% and Sand/Silica-3%.

One of the groups was selected for feeding layer mash which was marked as control group (Treatment-1) and other three groups were selected for feeding layer mash medicated with Ashwagandha at the level of 0.50, 0.75 and 1.00 percent and these groups were marked as treatment 1, 2 and 3, respectively. The trial was conducted for one month and the eggs laid by birds were collected daily during the course of investigation. The data, thus, collected was subjected to statistical analysis for test of significance (Snedcor&Cochran 1976).

Result & Discussion

Weekly Number of Egg Production: The result on production performance of laying hens on weekly in numbers comes 34, 48, 42, and 37 in control (Treatment-1), 50, 51, 49, and52, in Treatment- 2, 53, 51, 51, and49 in Treatment-3, 52 , 50, 55 and 52 in Treatment-4 respectively at the end of the 1st. 2nd. 3rd. and 4th.week of the

experiment . At last 4th.week egg production comes to 37, 52, 49 and 52 in each groups . It indicates a wide difference in egg number. It shows highly significant (p<0.01) difference in-between the treatment T-1, T-2, T-3 and T-4 (table-1).

The difference in the average weekly egg number (per flock) in Treatment – 1and 2, in-between four weeks has been found highly significant (P<0.01) (table-1). The difference between four weeks in treatment - 3 and 4 is non-significant (Table-1). The highest weekly egg production in treatment- 4 has been found in the third weeks , in treatment- 1 in second week, in treatment- 2 in fourth week and in treatment- 3 in first week (table-1). The highest average weekly egg number has been found in treatment- 4 fed with Ashwagandha at the level of 1.00 % and the lowest in control group.

Table: 1 Weekly Egg Production (Number) of the Layer Flock in Four Treatments

Period (Weeks)	Treatments			
	Control	Ashwagandha (%)		
		0.50	0.75	1.00
1	34	50	53	52
2	48	51	51	50
3	42	49	51	55
4	37	52	49	52
Mean	40.25	50.50	51.00	52.25
± SE	2.65	0.559	0.707	0.89
CV%	13.16	2.19	2.77	3.40

Weekly Percentage Egg Production: The average weekly percentage egg production (per flock) has been found to be 48.57, 68.57 , 60.00 and 52.85 in treatment – 1 (Control group) ; 71.42, 72.85, 70.00 and 74.28 in treatment – 2; 75.71, 72.85, 72.85, and 70.00 in treatment -3; and 74.28, 71.42, 78.57 and 74.28% in, treatment – 4, at the end 1st , 2nd , 3rd and 4th week respectively. The last week average weekly egg production has been found 52.85, 74.28, 70.00 and 74.28% in treatment – 1, 2, 3 and 4 respectively. The differences in percentage egg production are highly significant (table- 2). The differences in the average weekly percentage egg production in between the three Ashwagandha treatment – 2, 3 and 4 is found non-significant as per (table-2).

The difference in the average weekly percentage egg production per flock in treatment-1, in between four weeks has been found significant (p<0.05) (table-2). The highest average weekly percentage egg production has been found in third week of the Treatment-4 and 2nd ,4th and 1st week in treatment-1, 2, and 3, respectively . The highest average weekly percentage egg production has been found in Treatment-4, fed ashwagandha at the level of 1.00% and the lowest in control group treatment-1 where only layer mash ration has been fed.

In the present work highest percentage egg production has been found 74.63% (i.e. 52.25 egg number) and percentage egg production mentioned in the literature are Kurdyukova and Kurdyukova (1980) 61.0 percent; Ishwar and Mohsin (1981) Percentage (Hen day egg production) 82.99, 90.47 per cent and in control 64.85, 66.00 per cent.

Table: 2 Weekly Egg Production (Percentage) of the Layer Flock in Four Treatments

Period (Weeks)	Treatments			
	Control	Ashwagandha (%)		
		0.50	0.75	1.00
1	48.57	71.42	75.71	74.28
2	68.57	72.85	72.85	71.42
3	60.00	70.00	72.85	78.57
4	52.85	74.28	70.00	74.28
Mean	57.49	72.13	72.85	74.63
± SE	3.79	0.797	1.009	1.27
CV%	13.19	2.21	2.77	3.41

Egg Weight (Per Egg): The average egg weight as indicated by (Table –3) has been found as 54.56, 52.18, 48.9 and 55.94 gm in Treatment – 1; 60.50, 60.83, 60.06 and 61.25 gm in Treatment – 2; 61.96, 62.65, 60.57 and 60.82

gm in Treatment – 3; and 59.78, 59.52, 60.76 and 60.76 gm in Treatment – 4, at the end of 1st, 2nd, 3rd and 4th week of the experiment, respectively.

At the end of 4th week, average weekly egg weight has been found as 55.94, 61.25, 60.82 and 60.76 gm in Treatment – 1, 2, 3 and 4, respectively. It indicates very wide difference in egg weight. The difference in average weekly egg weight in between Treatment has been found highly significant. The difference in average weekly egg weight in-between Treatment – 2, 3 and 4 is apparent only and non-significant.

Table: 3 Weekly Egg Weight of the Layer Flock in Four Treatments

Period (Weeks)	Treatments			
	Control	Ashwagandha (%)		
		0.50	0.75	1.00
1	54.56	60.50	61.96	59.78
2	52.18	60.63	62.65	59.52
3	48.09	60.06	60.57	60.76
4	55.94	61.25	60.82	60.76
Mean	52.69	60.66	61.50	60.20
± SE	1.48	0.218	0.462	0.282
CV%	5.65	0.71	1.50	0.93

The highest average weekly egg weight in Treatment – 3 has been found in second week, in Treatment – 4 in third and fourth week and in Treatment – 1, 2 in fourth weeks. The highest average egg weight has been found in Treatment – 3, fed Aswagandha at the level of 0.75 per cent and the lowest in control group Treatment – 1, where layer mash without any medication has been fed.

In the present work average egg weight has been obtained 61.56 gm and mentioned in literature Chen and Bailey (1988) Egg weight 58.00, 57.9, 58.9 and 58.7 gm , Singh et al. (1978) 58.33, 60.45 gm and in Text Book of Banerjee, G.C.(1998) normal egg weight mentioned 58.00 gm are lower than the egg weight obtained in the present work and higher egg weight has been recorded by Mazzocco, P. (1979) 61.80, 67.70 and 70.30 gm.

References:

1. Banerjee, G.C. (1998). A Text Book of Animal Husbandry, Oxford & IBH Publishing Co. Pvt. Ltd., New Delhi.
2. Chen, B.H. and Bailey, C.A. (1988). Effect of truf burmuda grass meal on egg production, feed utilization, yolk colour and egg weight. Poultry Sci. 67(8):1154-1156.
3. Ishwar, A.K. And Mohsin, M. (1981). Effect of leptaden (Vet.) on egg production in poultry birds. P.A. 19(1/2):14-20.
4. Kurdyukova, O.T. And Kurdyukova, Y.N. (1980). The efficiency of egg production in cross 3M-63 x 18 hens maintained under different conditions. Animal Breeding Abstract. 50(1):39, 1982.
5. Majdanski, F. (1991). Herbal feed additive in fedding broilers, chicks. Zeszyty inaukowe Akademii, rolniczej. Wroclawiu wetcrynaria. 48:67-73.
6. Mazzocco, P.(1979). Variation in several egg characteristics dependent on the age of the hen. Animal breeding abstract. 49(7):501.
7. Pandey, C.B and Vijaykumar (1994). symposium on recent advances in veterinary microbiology, BCKVV, Nadia, West Bengal India.
8. Sarma Mihir, Sapcota and Dutta, K.K. (2001). Effect of dietary supplementation of herbal products on the performance of broiler. Indian J. Poultry Science. 35(2):235-236.
9. Singh, D.P; Rai D.C.; Sinha, S.C. and Singh, S.K. (2008). Use of ashvagandha (Withania somnifera) as a feed additives for layers environment and ecology. 26(4c): 2332-2334.
10. Singh, R.P.; Kumar, J.; Balaine, D.S.; Sharma, R.K. And Pruthi, S.P. (1978). Evaluation of some laying commercial stocks. Indian J. Poultry Sci. 13(1):17-22.
11. Snedcor and Cochran, W.G. (1976). Statistical Methods, Oxford & IBH Publication and Co., Calcutta.