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Effect of feeding *Moringa oleifera* leaf powder on reproductive traits and egg quality parameters of japanese quail under deep- litter system of management

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Abstract

The current research work was intended to assess the regenerative attributes and egg quality parameters of Japanese quail by utilizing the four diverse grouping of *Moringa oleifera* leaf powder (0%, 1.5%, 3% and 4.5%) by weight premise in feed. An entire 108 Japanese quail multi day old quail were acquired and following fourteen days of agonizing period they were haphazardly separated into four exploratory gatherings. Various blends of feed were offered to them for a period upto 12 weeks old enough. The examination of above research work demonstrated that Japanese quail benefited from slims down containing "Moringa oleifera leaf powder" (MOLP) gains fundamentally better conceptive attributes and egg quality parameters that of Japanese quail on control diet (0% MOLP).

Keywords: Moringa oleifera leaf powder (MOLP), Japanese quail, Regenerative Traits and Egg Quality Parameters

Introduction

Japanese quail (*Coturnix japonica*) early on from California University (1974) as another poultry breed at CARI, Izatnagar, Bareilly (U.P) India. In Hindi Quail is known as 'Bater'. Quail is the effective natural machine for changing feed into the high organic estimation of creature protein and thusly is the affordable wellspring of creature protein for human eating regimens. The Japanese quails fill in as a solid wellspring of food and give great quality creature protein in many immature zones of world (Chaturvedi, 1973) [2]. Most of the nations of Asia are suffer from insufficiency of creature protein which can be gotten from milk, meat, fish, eggs and from the poultry species.

The Japanese quail's items are enormously nutritious and flavorsome which need legitimate perception for present day logical quail cultivating. Presently a day, In India quail cultivating massively mainstream, due to their base consumption and upkeep as opposed to different winged animals.

Moringa oleifera is consider as the most productive as their leaves bear higher evaluation of protein and it additionally serve explicit helpful and restorative uses. *Moringa* have a place with plant family Moringaceae and privately known as Munga or Sahjan. Plant is regularly called drumstick tree (Makker and Becker, 1997) [4]. "The tree leaves answered to have a cancer prevention agent action because of higher measure of polyphenol and are a rich wellspring of nutrients" (Moyo *et al.*, 2012) [6]. The *Moringa* tree leaves contain therapeutic and corrective characteristics which are tucked away among individuals and these leaves are promising wellspring of regular cell reinforcement for grill meat. The pterygospermin substance of moringa leaves make it intense antimicrobial part.

Materials and Methods

The current investigation was performed at Avian Research Development Center, Deptt. Of LPM, RVC, Ranchi.

Test feathered creatures and plan

The whole 108, day old unsexed flying creatures of Japanese quail having about equivalent

body loads were cut up into four distinctive treatment gatherings (T0, T1, T2, T3) contained 27 chicks in each gathering having three recreates of 9 chicks each. The entirety of the flying creatures were proffered isocaloric and isonitrogenous eats less carbs which convey approx 24% CP from (0 to sixth long stretches old enough) and 20 % CP from (0 to sixth long stretches old enough). MOLP was consolidated in bunch T1,T2 and T3 aside from in control diet (T0), at the paces of 1.5, 3.0 and 4.5 percent by weight subbing soyabean oil cake by same properties. The feed were outfit twice day by day at 8.30 am in morning and at 5 pm at night. Water was provided off the cuff. The litters were made on the floor contain saw dust spread over the floor around two crawls in thickness. Space was given according to standard in profound litter arrangement of the executives.

A sum of three arrangements of egg were gathered after initiation of laying (i.e. absolute incubating of eggs were represent this examination)

Information got after test were examined according to the standard factual techniques depicted by Snedecor and Cochran (2004) [7], applying one path ANOVA by utilizing IBM SPSS (Statistical Package for the Social Sciences) insights programming.

Result and Discussion

The normal estimations of conceptive qualities viz. ripeness rate, hatchability rate on all out egg set (TES) premise and hatchability rate on rich egg set (FES) premise of eggs of Japanese quails raised with or without MOLP under profound litter framework the board are introduced in Table.1

Under profound litter arrangement of the executives the impact of MOLP on ripeness % of quails egg was seen as non – noteworthy, the normal estimation of richness were 74.15±2.77, 71.07±5.83, 70.63±2.94,78.84±1.90 % for T0,T1,T2 andT3 treatment bunches separately. Hatchability % on Total egg set (TES) and fruitful egg set (FES) premise were additionally seen to be contrast non – fundamentally.

The mean worth relating to above parameters were seen as

54.37±5.34, 56.25±7.35, 59.47±5.91, 59.30±3.67% and 73.61±7.66, 78.91±8.20, 75.17±7.48, 75.53±5.81 % for T0,T1,T2 and T3 treatment bunches separately. Anyway the most elevated avg. estimation of fruitfulness, hatchability (TES), hatchability (FES) were watched for T3,T2 and T1 treatment bunch separately.

The consequences of present investigation are in concurrence with the discoveries of Kloub *et al.* (2006) [3] who announced that the feed added substance came about progress in hatchability when contrasted with the other dietary medicines in Japanese quails.

The mean estimations of egg quality attributes viz. Egg weight (g), Egg Length (mm), Egg Width (mm) and Shape Index, Albumin Height (mm), Albumin Width (mm), Albumin Index, Yolk Height (mm), Yolk Width (mm),shell thickness (mm) of Japanese quails raised with or without MOLP under profound litter arrangement of the board are introduced in Table.2.

Under profound litter arrangement of the executives the mean estimation of all the egg quality parameters were seen as contrast non-essentially with the exception of shape list. The avg. estimation of shape file were 81.62±0.39, 84.32±0.43, 80.11±0.91, 81.11±1.17 for T0, T1, T2 and T3 treatment bunches individually. The most elevated avg. shape record was found for feathered creatures raised under T1 treatment gathering

The revelations of above test was in concurrences with the disclosures of Mellau (1999) [5], viewed an extension in egg weight regards with increase in *Leucenaleucocephala* leaf feast (LLM). Bhatnagar *et al.* (1996) [1] in any case found non - basic effect on egg loads at 0%, 5% and 10% thought levels yet egg weight was generally decreased at 20% joining level.

Conclusion

In view of above finding it could be deduced that fuse of *Moringa oleifera* leaf powder (MOLP) at levels of 1.5%-3% of the quail's eating routine improved regenerative traits and egg quality parameters diverged from control diet.

Table 1: Effect of MOLP on hatchability parameters of quail eggs under deep litter system of management

Parameters	T0	T1	T2	T3	F Value
Total Egg Set	104	107	109	109	
Fertile Eggs	75	79	77	85	
Chicks Hatched	57	60	64	64	
Fertility%	74.15±2.77	71.07±5.83	70.63±2.94	78.84±1.90	1.060 ^{NS}
Hatchability% (TES)	54.37±5.34	56.25±7.35	59.47±5.91	59.30±3.67	0.187 ^{NS}
Hatchability% (FES)	73.61±7.66	78.91±8.20	75.17±7.48	75.53±5.81	0.092 ^{NS}

Table 2: Effect of MOLP on egg quality parameters of Japanese quail under deep litter system of management

Parameters	T0	T1	T2	T3	F Value
Egg Weight	11.25±0.48	11.50±1.04	11.00±0.41	11.00±0.41	0.139 ^{NS}
Egg Length(mm)	29.47±0.48	27.94±0.83	29.31±0.51	29.64±0.36	1.847 ^{NS}
Egg Width(mm)	24.06±0.49	23.55±0.66	23.67±0.30	24.05±0.62	0.232 ^{NS}
Shape Index	81.62±0.39 ^b	84.32±0.43 ^c	80.11±0.91 ^a	81.11±1.17 ^b	5.094 [*]
Albumin Height(mm)	6.10±0.07	6.25±0.06	6.05±0.03	6.18±0.08	1.919 ^{NS}
Albumin Width(mm)	36.13±0.33	35.40±0.94	35.63±0.78	35.73±0.87	0.159 ^{NS}
Albumin Index	0.19±.00	0.19±.00	0.19±.00	0.19±.00	0.427 ^{NS}
Yolk Height(mm)	11.13±0.11	11.13±0.22	11.18±0.15	11.38±0.17	0.511 ^{NS}
Yolk Width(mm)	24.96±0.11	25.25±0.37	24.93±0.11	25.18±0.29	0.405 ^{NS}
Shell thickness (mm)	0.181±0.002	0.176±0.004	0.179±0.002	0.180±0.003	0.324 ^{NS}

Table 3: Chemical composition of *Moringa oleifera* leaf powder (MOLP)

Constituents	Amount (per 100g)
Moisture	9
Protein	28.65
Lipid	7.09
Ash	10.9
Carbohydrate	44.36
Calcium (mg)	2.97
Magnesium (mg)	1.9
Zinc	1.58

Table 4: Starter and Grower Ration (0 To 6 Weeks Of Age)

Ingredients	Control Ration (CP % = 24.81)	Treatment Ration 1 (CP % = 24.53)	Treatment Ration 2 (CP % = 24.25)	Treatment Ration 3 (CP % = 24.41)
Yellow Maize (%)	48	48	48	48
Soyabean Cake (%)	32	30.50	29	27.50
Wheat Bran (%)	6.50	6.50	6.50	6.50
Fish Meal (%)	11	11	11	11
Molp (%)	0	1.5	3	4.5
Min.Mix (%)	2	2	2	2
Salt (%)	0.50	0.50	0.50	0.50

Table 5: Layer Ration (6 Weeks onwards up to Experimental Period)

Ingredients	Control Ration (CP%=20.95)	Treatment Ration 1 (CP%=20.67)	Treatment Ration 2 (CP%=20.40)	Treatment Ration 3 (CP%=20.12)
Yellow Maize (%)	54.50	54.50	54.50	54.50
Soyabean Cake (%)	25	23.50	22	20.50
Wheat Bran (%)	5.50	5.50	5.50	5.50
Fish Meal (%)	8.50	8.50	8.50	8.50
Molp (%)	0	1.5	3	4.5
Oyster Shell Grit	4	4	4	4
Min. Mix (%)	2	2	2	2
Salt (%)	0.50	0.50	0.50	0.50

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