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Evaluation of growth in Grampriya poultry fed with poha mill waste

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Abstract
Evaluation of Growth in Grampriya poultry fed with poha Mill Waste concluded that the average initial body weight day old experimental chicks in different treatments i.e. T_1, T_2, T_3 and T_4 groups were found as 33.48, 33.10, 33.22 and 33.30 g, respectively. The average body weight of experimental chicks at 10th week was 1379.75, 1432.61, 1595.77 and 1487.06 g respectively. The weekly body weight changes of chicks indicated no significant difference among various treatment groups during the first week of the experiment. At the end of the tenth week, significantly (p<0.05%) higher body weight gain in the T_3 (1595.77 g) group was recorded. The weekly live body weight gain of chicks indicated (P<0.05) significant difference among various treatment groups during the first week to tenth week of the experiment. In the tenth week, significantly (p<0.05%) higher body weight gain in the T_3 was recorded. The overall average feed intake of the birds during experiment for treatment T_1, T_2, T_3 and T_4 were 3564.76, 3391.42, 3325.45 and 3278.15 g, respectively. However, the difference was significant of the feed consumption in all the treatment groups during experimental period of ten weeks. The average feed intake of the birds at tenth weeks of age during experiment for treatment T_0, T_1, T_2 and T_3 were 576.15, 565.74, 558.46 and 571.30 g, respectively. However, the difference was significant of the feed intake in all the treatment groups for the entire experimental period. All treatments were significant during upto ten week's period. Statistically the significant (P<0.05%) difference was observed in FCR for all the weeks. The feed conversion ratio of all weeks for treatment T_1, T_2, T_3 and T_4 were 2.75, 2.29, 2.25 and 2.62 respectively. Statistically better FCR was recorded in T_3 treatment as compared to other treatments.

Keywords: Growth performance, poha mill waste, Grampriya poultry, feed conversion ratio

Introduction
Poultry is one of India's most active and rapidly increasing industries. Between 2014-15 and 2021-22, egg production climbed by 7.45%, while India's chicken meat sector grew at an average annual rate of 8% The demand for chicken products is predicted to rise in the coming years due to population growth and increased dietary requirements. (Anonymous, 2022) [1]. Gramapriya is more popular in areas with increased egg consumption and more predator threat due to its medium body weight and high egg production capacity. Male Gramapriya are well suited for producing Tandoori chicken dishes. Females in rural or tribal communities lay a large number of eggs in semi-intensive farm settings. Gramapriya birds normally have brown feathers, though they can have a variety of hues. A robust immune system gives this bird the best chance of survival in the rural backyard farming environment. (Singh *et. al.* 2011) [2]. In India, with a modest rise in maize production combined with low production per hectare, the supply-demand mismatch would expand, putting significant pressure on maize prices. Furthermore, because maize is mostly used in the starch industry, ethanol manufacturing, brewing, and human consumption, poultry nutritionists must look for alternative energy sources for maize. (Tornerkar *et al.* 2009) [5].

Materials and Methods
The present study on "To study Effect of Supplementation of Poha Mill Waste on Performance of Grampriya Poultry Birds." was carried out at Poultry unit, college of agriculture, Latur for a period of 10 weeks (70 days). All the experimental Grampriya chicks were reared for 70 days on deep litter system in a well-ventilated shed. Proper brooding of chicks was done by providing sufficient heat by using electric bulbs for first three weeks of age. The standard

temperature of brooding was 32-35 °C for first week. A weekly reduction of 3 °C was done till brooding temperature reaches to 27 °C by third week of age. The chicks were equally and randomly distributed in to four treatment groups. Each treatment groups were further divided in to three replicates with fifteen chicks in each replicate. These chicks were reared on deep litter system in pens up to 10 weeks of age. The rice husk was used as litter material.

Treatment details

Treatment Groups	Treatment Group details	No. of replication	No. of birds/ replication	Total number of birds
T_1	Control (Standard ration)	03	15	45
T_2	95% Carbohydrate from Standard ration + 5% Carbohydrate from Poha mill waste	03	15	45
T_3	90% Carbohydrate from Standard ration + 10% Carbohydrate from Poha mill waste	03	15	45
T_4	85% Carbohydrate from Standard ration + 15% Carbohydrate from Poha mill waste	03	15	45
Total numbers of birds				180

1. Observations Recorded

- **Average Weekly live body weight**

The experimental chicks were weighted individually at 0 day and at weekly intervals up to ten weeks of age.

- **Average weekly gain in live body weight**

The weekly live weight gain was calculated from the difference in body weight attained at the end and the start of the concerned period.

- **Weekly feed consumption**

Feed consumption of each pen was recorded weekly and average feed intake in g/chick/week was calculated by dividing the total amount of feed consumed by the number of chicks in the particular pen. Cumulative feed consumption for experimental period was also recorded.

- **Average weekly feed conversion ratio**

Weekly feed conversion ratio was calculated to determine unit quantity of feed required to gain unit live body weight under different treatment groups.

$$FCR = \frac{\text{Feed consumption (g) during the week}}{\text{Gain in body weight (g) during the week}}$$

Per cent chemical composition of experimental Standard ration on dry matter basis

Sr. No.	Nutrients	Per cent in ration		
		Pre-starter	Starter	Finisher
1	Crude protein	22	20	18
2	Crude fibre	6.0	6.0	5.5
3	Ether extract	62.2	65	67.5
4	Total ash	6.5	6.0	5.0
5	Acid insoluble ash	1.50	2.0	2.0
6	Calcium	1.0	1.0	0.9
7	Phosphorous	0.5	0.5	0.5
8	Metabolizable energy (kcal/kg)	2600	2700	2800
9	E/P ratio	118.18:1	135:1	155.55:1

Per cent chemical composition of experimental poha waste on dry matter basis

Sr. No	Nutrients	Per cent in poha waste
1	Moisture	9.1 ± 0.1
2	Ash	1.7 ± 0.1
3	Carbohydrates	80.7 ± 0.7
4	Protein	11.0 ± 0.2
5	Lipid	1.1 ± 0.1
6	CF	1.3 ± 0.1
7	NDF	5.9 ± 0.1

Result and Discussion

The present investigation was undertaken with a view to study the effect of supplementation of poha mill waste on growth performance of grampriya poultry birds. The findings of the present investigation are presented and discussed in this chapter under the following main-heads:

1. Growth performance
- Weekly live body weight
- Weekly body weight gain

2. Feed consumption
- Weekly feed consumption
- Cumulative feed consumption

3. Weekly Feed conversion ratio

Growth Performance

Weekly live body weight

The body weight changes of Grampriya chicks at different weekly intervals on inclusion of poha mill waste in feed has been represented in Table 1

Table 1: Effect of supplementation of poha mill waste on body weight changes

Treatment	WEEKS									
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Treatment 1	69.17	143.86	262.29	397.19	545.51	723.44	897.91	971.64	1170.05	1379.75
Treatment 2	70.51	147.32	263.47	413.9	549.54	733.53	869.48	1024.77	1286.04	1432.61
Treatment 3	71	148.77	267.3	419.18	558.87	778.79	924.3	1167.67	1347.23	1595.77
Treatment 4	70.17	146.49	264.52	413.8	554.34	744.04	871.03	1020.18	1268.87	1487.06
SE±	0.46	1.25	1.79	5.81	3.53	14.72	15.87	51.76	44.9	56.55
CD at 5%	1.07	2.89	4.14	13.4	8.15	33.96	36.6	119.37	103.72	130.42
GM	70.21	146.61	263.64	410.98	552.06	744.95	890.68	1046.06	1268.04	1473.79

The average initial body weight of day-old experimental chicks in different treatments i.e. T_1, T_2, T_3 and T_4 groups were found as 33.48, 33.10, 33.22 and 33.30 g, respectively.
It was observed that average live weight of the chicken at the end of 10th week was 1379.75, 1432.61, 1595.77 and 1487.06 g for the treatments T_1, T_2, T_3 and T_4 respectively. From the statistical analysis it was observed that weekly live body weight at the end of 10th week in treatment T_3 (1595.77 g/bird) was significantly ($P<0.05$) higher than other treatment groups followed T_4 (1487.06), T_2 (1432.61) and T_1 (1379.75) g/bird, respectively. Treatment T_1 was 1379.75g/bird significantly lower than other treatment groups. All the treatments differ significantly from each other.

Body Weight Gain

The body weight gain of grampriya chicks at different weekly intervals on inclusion of poha mill waste in feed has been presented in Table 2 From the data it was observed that average initial live weights (g) of day-old chicks in treatment groups viz. T_1, T_2, T_3, and T_4 was 33.48, 33.10, 33.22 and 33.30 g respectively. At the end of tenth week significantly ($P<0.005$) higher body weight gain was observed in treatment T_3(248.54 g/bird) than other treated group. The trend shows that the higher body weight gain was observed in treatment T_3 (10 g PMW/1 Kg of feed) than the rest of the treatment. The minimum body weight gain was observed in control T_2 (146.57 g/bird).

Table 2: Weekly body weight gain of chicken (g/bird) fed with poha mill waste.

Treatment	WEEKS									
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Treatment 1	35.09	74.69	118.43	134.9	148.32	177.93	174.47	153.78	198.41	209.7
Treatment 2	36.81	76.81	116.15	150.43	135.64	183.99	135.95	155.29	261.27	146.57
Treatment 3	37.17	77.77	118.53	151.88	139.69	219.92	145.51	243.37	179.56	248.54
Treatment 4	35.58	76.32	118.03	149.28	140.54	189.7	126.99	149.15	248.69	218.19
SE±	0.59	0.78	0.66	4.82	3.23	11.41	12.59	27.7	17.05	26.19
CD at 5%	1.37	1.8	1.54	11.12	7.45	26.32	29.05	63.88	39.33	60.19
GM	36.16	76.4	117.03	147.34	141.08	192.89	145.73	155.38	221.98	205.75

4.2 feed consumption

4.2.1 Weekly feed consumption

The feed consumption per bird was calculated from 2-10 week's period and presented in given Table 3.

Table 3: average feed intake of chicken (g/bird) throughout the experiment

Treatment	WEEKS								
	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Treatment 1	227.23	322.24	350.55	328.88	368.39	424.77	404.3	482.38	576.15
Treatment 2	224.53	306.83	396.36	332.06	393.76	290.7	392.03	411.79	565.74
Treatment 3	225.02	299.15	334.44	298.76	413.44	265.78	451.45	394.19	558.46
Treatment 4	236.77	282.72	245.32	318.76	417.28	317.51	298.26	509.55	571.30
SE±	4.93	13.27	41.70	12.90	15.48	44.82	41.43	57.11	65.04
CD at 5%	9.48	26.39	92.28	24.90	33.37	100.79	92.75	128.77	146.39
GM	228.38	302.73	331.66	319.61	398.21	324.69	386.51	499.45	517.91

The average feed intake of the birds during 2 nd week experiment for treatment T_1, T_2, T_3 and T_4 were 227.23, 224.53, 225.02 and 236.77 g, respectively. The average feed intake of the birds during 10 th week experiment for treatment T_1, T_2, T_3 and T_4 were 576.15, 565.74, 558.46 and 571.30 g, respectively.

4.2.2 Cumulative feed consumption

The feed consumption per bird was calculated from 2-10 week's period and presented in given Table 4.

Table 4: Cumulative feed intake of chicken (g/bird) throughout the experiment

Treatment	WEEKS								
	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Treatment 1	307.10	629.34	979.89	1308.77	1677.16	2101.93	2506.23	2988.61	3564.76
Treatment 2	302.15	608.98	1005.34	1337.4	1731.16	2021.86	2413.89	2825.68	3391.42
Treatment 3	309.78	608.93	943.37	1242.13	1655.57	1921.35	2372.8	2766.99	3325.45
Treatment 4	317.45	600.17	845.49	1164.25	1581.53	1899.04	2197.3	2706.85	3278.15
SE±	4.04	7.71	18.51	26.70	19.93	45.97	53.47	79.43	63.91
CD at 5%	9.33	17.79	42.70	61.58	45.97	106.02	123.30	183.18	147.38
GM	309.12	611.85	943.51	1263.12	1661.33	1986.02	2372.53	2871.98	3389.89

The cumulative feed intake of the birds during 2 nd week experiment for treatment T_1, T_2, T_3 and T_4 were 307.10, 302.15, 309.78 and 317.45 g, respectively. The cumulative feed intake of the birds during 10 th week experiment for treatment T_1, T_2, T_3 and T_4 were 3564.76, 3391.42, 3325.45 and 3278.15 g, respectively.

4.3 Weekly Feed conversion ratio

The mean weekly feed conversion ratio and their standard error at different weeks of age are presented in Table 5.
The feed conversion ratio at tenth week for treatment T_1, T_2, T_3 and T_4 were 2.75, 2.29, 2.25 and 2.62, respectively. Statistically better FCR was recorded in T_3 treatment as compared to other treatments. Significant better FCR was recorded in 10% Poha mill waste supplemented group (T_3) as compared to other group during second to ten weeks of the growth period. Overall FCR ranged from 2.25 to 2.75. The difference was statistically significant (P>0.05) and improved

FCR was found as the level of inclusion of Poha mill waste upto 10 per cent was increased as compared to control group.

Table 5: Feed conversion ratio of Grampriya birds in different treatments

Treatment	WEEKS								
	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
Treatment 1	3.04	2.96	2.44	2.22	2.07	2.43	2.63	2.43	2.75
Treatment 2	2.92	3.41	2.21	2.45	2.14	2.14	2.52	1.58	2.29
Treatment 3	2.89	2.82	1.97	2.14	1.88	1.83	1.85	2.20	2.25
Treatment 4	3.10	2.08	2.14	2.27	2.20	2.50	2.00	2.05	2.62
SE±	0.04	0.05	0.12	0.07	0.08	0.17	0.22	0.17	0.14
CD at 5%	0.11	0.13	0.28	0.16	0.18	0.41	0.52	0.41	0.33
GM	2.98	2.81	2.19	2.27	2.07	2.22	2.24	2.06	2.47

Summary

Growth performance

Weekly body weight

The average initial body weight day old experimental chicks in different treatments i.e. T_1, T_2, T_3 and T_4 groups were found as 33.48, 33.10, 33.22 and 33.30 g, respectively. The average body weight of experimental chicks at 10th week was 1379.75, 1432.61, 1595.77 and 1487.06 g respectively. The weekly body weight changes of chicks indicated no significant difference among various treatment groups during the first week of the experiment. At the end of the tenth week, significantly (P<0.05%) higher body weight gain in the T_3 (1595.77 g) group was recorded.

Body weight gain

The weekly live body weight gain of chicks indicated (P<0.05) significant difference among various treatment groups during the first week to tenth week of the experiment. In the tenth week, significantly (P<0.05%) higher body weight gain in the T_3 was recorded.

Feed intake and feed efficiency

Feed intake

The overall average feed intake of the birds during experiment for treatment T_1, T_2, T_3 and T_4 were 3564.76, 3391.42, 3325.45 and 3278.15 g, respectively. However, the difference was significant of the feed consumption in all the treatment groups during experimental period of ten weeks. The average feed intake of the birds at tenth weeks of age during experiment for treatment T_0, T_1, T_2 and T_3 were 576.15, 565.74, 558.46 and 571.30 g, respectively. However, the difference was significant of the feed intake in all the treatment groups for the entire experimental period.

Feed conversion ratio

All treatments were significant during upto ten week's period. Statistically the significant (P<0.05%) difference was observed in FCR for all the weeks. The feed conversion ratio of all weeks for treatment T_1, T_2, T_3 and T_4 were 2.75, 2.29, 2.25 and 2.62 respectively. Statistically better FCR was recorded in T_3 treatment as compared to other treatments.

Conflict of Interest

Not available

Financial Support

Not available

References

1. Anonymous. Department of Animal Husbandry Statistics 2023. Ministry of Fisheries, Animal Husbandry, and Dairying, Government of India; c2022. Available from: https://dahd.nic.in/Animal-Husbandry-Statistics
2. Singh NP. Gramapriya: A backyard poultry for egg production. ICAR Research Complex for Goa; c2011. Extension folder no. 42. Available from: https://icar.gov.in/Grampriya-English.pdf
3. Khalique A, Lone KP, Pasha TN, Khan AD. Amino acid digestibility of chemically treated and extruder cooked defatted rice polishing. Malays J Nutr. 2004;10(2):195-206.
4. Eizadi E, Shariatmadari F, Karimi-Torshiz MA, Hemati-Matin HR. Broiler chicken performance in response to various levels of raw and autoclaved rice bran. Bulg J Vet Med. 2015;18(4):348-360.
5. Tornekar AP, Munde VK, Kokane SS. Effect of replacing maize with bajra (pearl millet) on the performance of broilers. Vet World. 2009;2(8):310-312.
6. Shaheen M, Ahmad I, Anjum FM, Syed QA, Saeed MK. Effect of processed rice bran on growth performance of broiler chicks from Pakistan. Bulg J Vet Med. 2015;21:440-445.

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