



### SHORT COMMUNICATION

## Influence of Feeding Cowpea (*Vigna unguiculata*) Leaves on the Performance of Vanaraja Laying Hen

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### ABSTRACT

The study was undertaken to investigate the utilization of cowpea leaves in Vanaraja laying hens. Vanaraja laying hens (N=36, 25 weeks old) were randomly distributed into 3 equal groups (duplicated into 3 groups of 3 laying hens each) and kept in wire mesh floored cages and offered standard layer ration @ 125 g/hen/ (T<sub>1</sub>, Control), standard layer ration @ 75 g/hen/d and cowpea leaves on fresh basis @ 75 g/hen/d (T<sub>2</sub>, 40% of basal diet replaced by fresh cowpea leaves) and standard layer ration @ 62.5 g/hen/d with cowpea leaves @ 125 g/hen/d (T<sub>3</sub>, 50% of basal diet replaced by fresh cowpea leaves) for a period of 8 weeks. There was reduction (P<0.05) in egg production (dozen or kg) in group fed 125 g cowpea leaves/hen/d. However, laying hens fed 75 g of fresh cowpea leaves/hen/d produced eggs (in dozen) similar to that of control group. Feed intake was reduced (P<0.05) due to feeding of cowpea leaves. Feed efficiency (feed intake in kg/dozen egg or feed intake in kg/kg egg mass) was improved (P<0.05) in group T<sub>2</sub> fed fresh cowpea leaves @ 75 g/hen/d. Feed cost to produce dozen egg was lower (P<0.05) for both the experimental groups fed cowpea leaves. Hence, cowpea leaves could be fed @ 75 g/hen/d on fresh basis to Vanaraja laying hens for more income generation due to significant reduction in feed cost without affecting their performance.

**Key words:** Cowpea leaves, Laying hens, Performance, Vanaraja

Cowpea (*Vigna unguiculata* [L.] Walp.) is an important grain and fodder legume crop grown in many parts of the world. Cowpea is used at all stages of its growth including as vegetables (Ofori and Stern, 1986). Harvested tender green cowpea leaves constitute an important leafy vegetable often prepared as salad like spinach, lettuce, amaranthus and cabbage for direct consumption. Because of the high nutritional value of tender leaves, it can be exploited as a part of feed in poultry.

Therefore, an experiment was conducted to study the effect of inclusion of cowpea leaves in the diet on the performance of Vanaraja laying hens for a period of 6 weeks. Vanaraja laying hens (N=36, 25 weeks old) were randomly distributed into 3 equal groups (duplicated into 3 groups of 3 laying hens each) and kept on wire mesh floored cages and offered standard layer ration (BIS, 1992) @ 125 g/hen/d in group T<sub>1</sub>, standard layer ration @ 75 g/hen/d and cowpea leaves as fresh basis @ 75 g/hen/d in group T<sub>2</sub> and standard layer ration @ 62.5 g/hen/d with cowpea leaves @ 125

g/hen/d in group T<sub>3</sub>. The standard management practices were followed. Data were recorded on feed intake, daily egg production and egg weight. The feed conversion ratio was calculated in terms of kg feed intake/dozen egg produced or kg feed intake/kg egg mass produced. The feed cost per dozen egg produced for each group was also calculated. Proximate analysis was carried out as per AOAC (2005). The data were analysed (Snedecor and Cochran, 1989). The means were tested for significant differences by Duncan's Multiple Range Test (Duncan, 1955).

The CP, EE, CF, total ash and acid insoluble ash contents of control diet were 17.66, 2.62, 6.70, 14.88 and 2.04%, respectively. The levels of CP, EE, CF, total ash and AIA were found to be 20.40, 1.24, 15.02, 11.72 and 0.92%, respectively in cowpea leaves. Higher CP (22%) and fat (9-11%) levels in cowpea leaves were reported by other researchers (Mamiro, 2011; Chikwendu *et al.*, 2014). Ahenkora *et al.* (1998) reported higher values of CP (27.1-34.7%) for cowpea leaves of different varieties. Cowpea plant contained

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**Table 1. Effect of feeding cowpea leaves on the performance of Vanaraja laying hens**

| Parameter   | Group              |                    |                    | SEM   |
|---|--------------------|--------------------|--------------------|-------|
|   | T <sub>1</sub>     | T <sub>2</sub>     | T <sub>3</sub>     |       |
| Egg production (dozen)                                      | 1.709 <sup>b</sup> | 1.646 <sup>b</sup> | 1.292 <sup>a</sup> | 0.084 |
| Egg production (kg)   | 1.093 <sup>b</sup> | 1.026 <sup>b</sup> | 0.796 <sup>a</sup> | 0.058 |
| Egg weight (g)  | 53.30              | 51.96              | 51.30              | 0.471 |
| Feed intake (kg)  | 4.063 <sup>c</sup> | 3.343 <sup>b</sup> | 2.967 <sup>a</sup> | 0.204 |
| Feed conversion ratio (kg feed consumed/dozen egg produced) | 2.380 <sup>b</sup> | 2.067 <sup>a</sup> | 2.298 <sup>b</sup> | 0.063 |
| Feed conversion ratio (kg feed consumed/kg egg produced)    | 3.720 <sup>b</sup> | 3.316 <sup>a</sup> | 3.832 <sup>b</sup> | 0.093 |
| Feed cost/dozen egg (₹)                                     | 47.27 <sup>b</sup> | 34.57 <sup>a</sup> | 33.63 <sup>a</sup> | 2.899 |

<sup>a,b</sup>Values bearing different superscripts in a row differ significantly (P<0.05); T<sub>1</sub>: Standard layer ration @ 125 g/hen/d; T<sub>2</sub>: Standard layer ration @ 75 g/hen/d + Fresh cowpea leaves @ 75 g/hen/d; T<sub>3</sub>: Standard layer ration + Fresh cowpea leaves @ 125 g/hen/d

19.07 and 2.35% of CP and EE, respectively (Chander Datt *et al.*, 2009). A significant (P<0.05) reduction in egg production (dozen) was observed in group fed 125 g cowpea leaves/hen/d (Table 1). However, laying hens fed 75 g of fresh cowpea leaves/hen/d produced eggs (in dozen) similar to that of control group. Egg production record (kg mass) followed the similar trend as that of egg production in dozen. The egg weight was not affected by the feeding of cowpea leaves. Feed intake was reduced (P<0.05) due to feeding of cowpea leaves (Table 1). Feed conversion ratio (kg feed intake in/dozen egg produced) was improved (P<0.05) in group T<sub>2</sub>. Feed conversion ratio (kg feed intake/kg egg production) followed the similar trend. The improvement in FCR might be due to significant reduction in feed intake in groups fed fresh cowpea leaves. In a related study, Eljack *et al.* (2010) reported that cowpea (10-30% of feed) feeding in broilers resulted in significant increase in FCR. Feed cost to produce dozen egg was lower (P<0.05) for both the experimental groups fed cowpea leaves (Table 1).

Cowpea leaves could be fed to Vanaraja laying hens @ 75 g/ hen/d for more income generation due to significant reduction in feed cost.

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