

Egg production responses of laying hens to feed medicinal herbs after peak of production

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ABSTRACT: An eight weeks of experiment as conducted to study layer productivity given medicinal herbs mixture and composed in the form of capsule. Laying hens after peak of production at 66-73 weeks were used in this study. It was arranged in a Completely Randomized Design with four treatments and five replications. The treatments were T0 = without medicinal herbs as a control; T1 = one medicinal herbs capsule every day; T2 = one medicinal herbs capsule every two days; and T3 = one medicinal herbs capsule every four days. Data were analyzed using Proc. ANOVA and further tested using Duncan's Multiple Range Test. The results showed that the treatments affected significantly ($P < 0,01$) the egg production and the measurement of eggs, but not significantly for egg weight. It can be concluded that the medicinal herbs will optimize the layer production after peak of production.

Key words: medicinal herbs, egg production, egg weight, egg length, egg wide

INTRODUCTION

Many consumers in both developed and developing countries put more attention and interest in organic foods which is believed to be healthier and saver food. According to Bailey and Henuk (2010), that 15% of commercial eggs in the UK are being produced in free-range systems and marketed at higher prices through regular supermarkets. Of the total Australian hen production of 200 million dozen eggs each year, 5.5% are free-range eggs which sell on average of 1 Australian dollar more per dozen than cage eggs. Because of the increasing demand for organic eggs in developed countries, most free-range egg producers in Europe, Australia and the USA are also accredited to sell their products as both "organic" and "free range".

Dono et al. (2006) stated that main issue on the poultry nutrition in tropical countries is to observe all alternative local feedstuff to improve poultry productivity and it is not separated from the function of feed and nutrient as the most important factor in reaching the best performance. It has been well recognized that small scale farmers in Indonesia are using medicinal herbs to prevent or cure the diseases as well as to give better yellow color to the carcass and egg yolk (Somaatmadja, 1981). The use of herbal medicines (i.e. turmeric – *Curcuma Domestica* Val., ginger – *Zingiber Offizinale* Roxb; and leaf of betle vine – *Piper Betle* L.) mixture in form of capsule prevented diseases of kampung chickens and improved their production capacity (Ludji Jadi, 2003; 2004). This paper elaborate the use of the same treatments for kampung chickens as used previously by the first author to feed to laying hens after peak of production.

MATERIALS AND METHODS

Mixture Preparation

Medicinal plants used were turmeric, ginger and leaf of betle vine. All medicinal plants were sorted and cleaned to remove any dust and unwanted materials and sliced as thin as possible. All slices were dried in oven. The dry and sliced was blended together into powder meal and ready to be composed into capsul weighed 250 mg and used as treatment diets (Figure 1).

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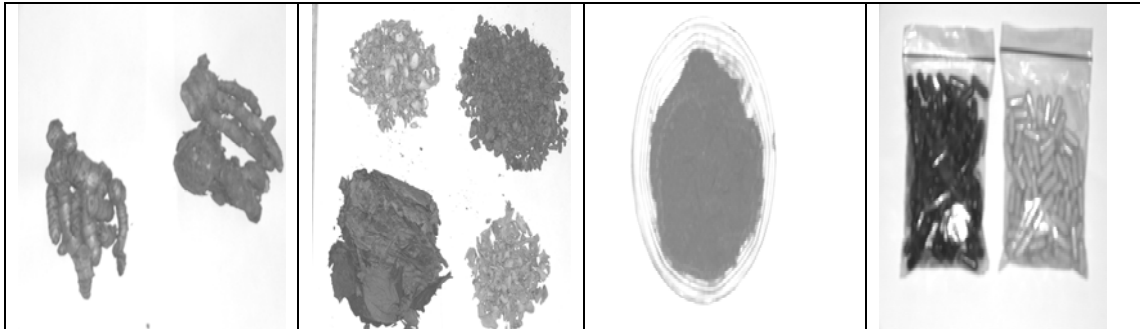


Figure 1. Process of mixture medicinal herbs into capsule.

Feeding Trial

All hens were plotted into four different treatment groups. The treatments were T0 = without medicinal herbs as a control; T1 = one medicinal herbs capsule every day; T2 = one medicinal herbs capsule every two days; and T3 = one medicinal herbs capsule every four days. Each group consisted of 5 replications with 5 bird each. A crumbled layer diet containing 11.7 MJ ME and 180 g CP/kg was provided ad libitum.

Data Collection

All hens were fed 8 weeks from 66 – 73 weeks of age. During feeding trial, eggs were collected, measured and weighed everyday. Data were analyzed by ANOVA (SAS Institute, 1989) and further tested using Duncan's Multiple Range Test.

RESULTS AND DISCUSSION

The statistical analyses of the results of the eight weeks of the experiment showed that highly significant differences ($P < 0.01$) occurred between the treatments for all parameters measured except for egg weight (Table 1). The average weekly number of egg production of birds given one medicinal herbs every four days (T3) were significantly higher ($P < 0.01$) than those without medicinal herbs capsule as control (T0) and with one medicinal herbs capsule every day (T1).

Table 1. Average egg production, egg weight, egg length and egg wide of hens during experimental period.

Treatment	Egg Production (No. of egg)	Egg Weight, g	Egg Length, cm	Egg Wide, cm
T0	3.56 ^c	65.596 ^a	5.476 ^b	3.964 ^b
T1	4.6 ^b	67.632 ^a	5.592 ^{ab}	4.048 ^a
T2	4.88 ^{ab}	65.352 ^a	5.484 ^b	3.936 ^b
T3	5.36 ^a	66.965 ^a	5.632 ^a	3.976 ^{ab}

^{a,b,c} Different superscript within rows shows differences between treatments ($p < 0.01$).

This study confirmed previously reported findings that egg production of laying hens can be increased by the use of herbal products (Wheeler and Fields, 1986). Working with broiler, for example, Nataamijaya et al. (1999) indicated that the addition of zingiber meal mixed together with turmeric increased weight gain and feed intake and this caused by the act of bioactive contents of these herbal products which increased palatability. They also reported that the use of turmeric and zingiber tended to increase the weight of carcass part such as legs, breast and wings. Bintang et al. (2006) has reviewed some previous experimental results and reported that the use of turmeric (*Curcuma Domestica* Val.) and zingiber (*Zingiber Aromaticum*) meal mixture in the broiler diet, may improve feed efficiency, weight gain, carcass and over feed and chick cost. Dono et al. (2006) also reported that supplementation of white turmeric (*Curcuma Xanthoriza*) meal up to 2.0% can be used

to increase feed efficiency of male broiler, but can not be used to improve carcass quality. As our mixture of medicinal herbs contained turmeric which has been reported that the animal and human feed fed with supplementation of turmeric in the ration showed better condition than those which are not supplemented (Sharma et al., 2005).

CONCLUSIONS

From the results obtained during the eight weeks of feeding trial, it can be concluded that the average weekly number of egg production of one medicinal herbs every four days (T3) were significantly higher ($P<0.01$) than those without medicinal herbs as control (T0) and with one medicinal herbs capsule every day (T1). They also produced eggs with longer in size ($P<0.01$) than those of T0 and T1.

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