

## Exploiting the Maximum Productive Potential of Spent Laying Hens with Different Metabolizable Energy and Protein Levels after Induced Molting

Akram M\* · J. H. Park\*\* · M. S. Ryu\*\* · W. J. Shin\*\* · K. S. Ryu\*\* / Department of Poultry Husbandry, University of Agriculture, Pakistan\* Department of Animal Resources and Biotechnology, Chonbuk National University Research Center for Industrial Development of Biofood Materials, Chonbuk National University\*\*

### ABSTRACT

This experiment was conducted to investigate the influence of different dietary ME and CP on post-molt performance of spent laying hens. Four hundred and thirty two, ISA brown after molt induction were fed 6 experimental diets containing 3 ME(2,750, 2,800, 2,850 kcal/kg) and 2 CP(15, 17%) levels in factorial design. The influence of ME and CP were measured on body weight, egg production, egg weight and feed intake throughout 24 weeks of production. Egg mass and FCR were calculated for the entire experimental period. Body weight remained less in hens receiving 2,800 kcal/kg. ME and showed the highest egg production coupled with 15% CP. Feed intake decreased with the increasing level of ME and CP. As the results of this experiment, 2,800 kcal/kg ME can be used to maintain the low body weight and to obtain higher egg production with 15% CP in induced molting hens.

(Key words : induced molting, laying hens, egg production, CP, ME)

### INTRODUCTION

Induced moult is a managerial technique usually employed on spent layers for profit enhancing, avoiding the cost of replacing the pullets and increasing the subsequent egg production(Akram, *et al.*, 1998b). Revitalizing the spent layer flocks has been more convenient and economical as compared to annual replacement because of day to day higher expenditures incurred on the inputs like chicks, feed, vaccine and medicine(Akram *et al.*, 1998a). However, the nutritional requirements of post-molt hens are not yet described. Therefore, the present study was conducted to investigate the influence of dietary different ME and CP on the post-molt performance of spent laying hens.

### MATERIALS AND METHODS

Four hundred and thirty two ISA brown spent hens were induced to molt following the method of Akram *et al.*, (1998a) and randomly divided into 24 experimental units having 18 hens each. These units were allotted to 6 experimental rations having 3 metabolizable energy(ME) and 2 crude protein(CP) levels in factorial arrangements with 4 replicates of each. Body weight, egg production, egg weight and feed intake were recorded throughout the 24 weeks of production. Egg mass and FCR were calculated for

the entire experimental period.

**RESULTS AND DISCUSSION**

Lower body weight was recorded in hens fed diet having 2,800 kcal./kg compared to its highest and lowest levels(Table 1). The medium energy level coupled with 15% CP resulted into the highest egg production. The egg weight tended to increase in hens receiving 2,800 kcal. ME alone or with any level of CP. Feed intake was the highest in hens having 2,750 kcal./kg and the lowest in 2,850 group, developing a negative correlation with increasing level of ME. The protein level in the diet also established the similar trend that intake decreased with the increasing level of protein. Higher level of ME and CP diet tended to significantly decrease the feed intake. Egg mass tended to increase with 2,800 ME and 15 % CP. The present study suggested that 2,800 kcal/kg diet. ME can be applied to maintain the lower body weight of hens and achieve highest egg production coupling with 15 % CP.

**Table 1. Influence of dietary ME and CP on post-molt performance of spent laying hens**

ME(kcal/kg)	CP(%)			Body weight(g)			Egg production(%)			Egg weight(g)		
	15	17	Mean	15	17	Mean	15	17	Mean	15	17	Mean
2,750	2,158 ±58.4	2,063 ±51.5	2,111 ±39.5 <sup>a</sup>	62.51 ±2.97 <sup>ab</sup>	65.84 ±3.32 <sup>ab</sup>	64.18 ±2.20	62.50 ±0.52 <sup>ab</sup>	62.70 ±0.51 <sup>ab</sup>	62.60 ±0.35 <sup>ab</sup>			
2,800	2,005 ±51.0	2,031 ±85.3	2,018 ±48.3 <sup>b</sup>	70.43 ±2.25 <sup>a</sup>	60.46 ±3.50 <sup>b</sup>	65.45 ±2.35	63.51 ±0.56 <sup>a</sup>	64.19 ±0.65 <sup>a</sup>	63.85 ±0.42 <sup>a</sup>			
2,850	2,095 ±52.8	2,080 ±36.1	2,087 ±31.1 <sup>a</sup>	60.14 ±2.63 <sup>b</sup>	62.03 ±3.58 <sup>ab</sup>	61.09 ±2.17	61.41 ±1.06 <sup>b</sup>	61.86 ±0.76 <sup>b</sup>	61.63 ±0.63 <sup>b</sup>			
Mean	2,086 ±32.5	2,058 ±34.2	2,072 ±23.4	64.36 ±1.70	62.77 ±1.98	63.57 ±1.29	62.47 ±0.45	62.91 ±0.40	62.69 ±0.30			

**적 요**

본 실험은 산란노계에서 강제환우 후에 단백질과 에너지수준이 다른 사료를 급여시에 생산성에 미치는 영향을 구명하고자 실행하였다. 76주령 이사브라운 노계를 강제환우후에 2수준의 단백질(15, 17%)과 3수준의 대사에너지(2,750, 2,800, 2,850kcal/kg)를 2×3요인 시험으로 처리구당 72수, 반복당 18수, 전체 432수를 배치하였다. 조사항목은 체중의 변화, 산란율, 난중, 사료섭취량, 사료요구율을 24주간 조사하였다. 체중은 2,800 kcal/kg ME 처리구에서 낮은 경향을 보였으며 이러한 처리구의 단백질 수준이 15%일 때 산란율이 가장 높게 나타났다. 사료섭취량은 사료의 대사에너지와 단백질 수준이 높아질수록 감소되었다. 본 실험의 결과 2,800 kcal/kg 대사에너지 급여구에서 15%의 단백질이 함유된 사료를 급여시에 체중의 변화가 적었으며, 산란율이 가장 높게 나타났다.

(색인어 : 강제환우, 이사브라운, 산란율, 단백질, 대사에너지)

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