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PROTEIN-ENERGY LEVELS AND LEAST COST LAYING DIETS

E. Guenther<sup>1</sup>, D. Arshem<sup>2</sup>, C. W. Carlson<sup>3</sup>

Hens eat to satisfy their energy requirements and for this reason a proper balance between protein and energy is necessary to achieve optimum use of feed. These concepts, applied to practical feed formulation, have tended to promote high density, high efficiency diets. A study just completed involving protein-energy relationships and least costing techniques indicate that the most efficient feed conversion is not always the most economical method of production.

Nine laying diets were formulated using three levels of energy and three levels of protein in all combinations. The three levels of energy were 2,500, 2,900, and 3,300 Calories metabolizable energy per kg, and the protein levels were 13.9, 16.1, and 18.3%. These diets were fed to DeKalb 161 hybrid pullets housed at the rate of six birds per 24-inch cage for a laying cycle of 10 months.

Increasing the energy level significantly decreased feed consumption, significantly improved feed conversion, and increased the feed cost per dozen whereas the rate of egg production was not affected.

The feed cost of the eggs increased when the protein level was either above or below 16.1%, but production, feed intake and feed conversion were not significantly influenced by the levels of protein used. These results are summarized in Table 1.

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TABLE I. INFLUENCE OF ENERGY AND PROTEIN LEVELS  
ON LAYING HEN PERFORMANCE

Variable	Feed Cost/ Doz. ¢	Feed/ HD gm	Prod/ HD %	gm Egg/ kg Feed gm	HH Mortality %
<b>Energy, Cal/kg</b>					
2,500	10.056	101.3	69.8	384.8	20.4
2,900	10.548	95.2	69.7	414.3	24.1
3,300	11.649	83.0	69.6	476.0	16.7
<b>Protein, %</b>					
13.9	10.818	93.7	68.6	419.4	14.8
16.1	10.464	92.8	69.6	424.0	27.8
18.3	10.971	92.8	71.0	431.7	18.5