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CAGE DENSITY AND HEN LAYING PERFORMANCE

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What is the optimum density for laying type hens in cages? Over 10 years ago we noted that two hens in an 8-inch cage laid as well as one per cage, and that feed efficiency was superior. Commercial practice of a few years ago was to provide four inches of cage width per bird, thus placing two birds in an 8-inch cage, three in 12 inches, four in 16 inches, etc. Then some poultrymen began using a 3-inch density figure with apparent success. A study was recently completed at this laboratory using 16-inch cages with bird densities of 3, 4, 5 and 6 per cage. Hybrid pullets (DeKalb 161) were used. Water was provided with the automatic nipple system (Monoflo) and roosts were installed in the cages with five and six bird densities. Three diets were used: 16% protein corn-soy, 14% protein corn-soy plus 0.10% methionine and 16% protein corn-soy plus 0.10% methionine. Two environmental conditions were incorporated, also. Our regular fan ventilation system was thermostatically controlled to vary air intake from ½ to 8 cu. ft. per bird per minute and a separate heating and air conditioning unit supplemented this system in a separate section of the house which enabled us to increase air movement in the winter and decrease air movement in warmer weather conditions. Twelve cages of birds received each treatment respective to density, diet and environment.

A summary of the cumulative results for the second through fifth 28-day periods with respect to hen-day egg production, feed efficiency, mortality and

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feed cost per dozen eggs produced is given in Table 1. Although egg production was somewhat higher with three birds per cage, there were no detrimental effects with as many as six birds per cage except for higher mortality. From the standpoint of feed efficiency, feed cost and investment cost, five birds per cage would be recommended.

No great differences were noted due to diets except for the reduced feed efficiency with the 14% protein plus methionine diet. The 16% plus methionine diet was somewhat more economical per standard weight of eggs (24 ounces) because of a slightly larger egg size.

The effect of air conditioning, which slightly increased performance and reduced cost, was most noted during the warmer months. The higher mortality encountered in this unit is difficult to explain.

TABLE 1. PERFORMANCE OF LAYING HENS AS INFLUENCED BY CAGE DENSITY, DIET AND ENVIRONMENT OVER FOUR 28-DAY PERIODS

No. of Hens Per Cage	Hen-Day Egg Production (%)	Feed/ Dozen Eggs (lbs.)	Total Mortality (%)	Feed Cost/ 24 Ounces of Eggs (¢)
3	73.3	3.39	2.8	11.1
4	69.6	3.45	6.6	11.4
5	69.8	3.39	6.0	11.2
6	70.0	3.45	9.4	11.5
Diet				
16% Protein	71.9	3.37	5.4	11.4
14% Protein plus methionine	71.0	3.48	5.6	11.4
16% Protein plus methionine	70.0	3.39	7.7	11.1
Environment				
Air Conditioned	71.3	3.37	7.2	11.0
Fan Ventilation	70.5	3.45	5.2	11.6