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Improving Egg Production by Using Split-Phase Lighting Program

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Abstract : The egg shell quality and oviposition in laying hens are influenced by a range of factors including strain of birds, age, nutrition, water quality, general stress, heat stress, disease, and lighting program inside houses. A layer experiment was conducted to investigate the effect of split-phase lighting program on egg production efficiency. Four different feeds and average phosphorus (av. P) levels were tested. Diet A was a ration with an av. P level of 0.471%; Diet B was a ration with an av. P level of 0.510%; Diet C contained an av. P level of 0.293%; and Diet D contained an av. P level of 0.327%. The split-phase lighting program tested was one that inserted a 7-hour dark period from 9 am to 4 pm to reduce the heat produced by the feeding increment and physical activity of the hens. Diet B produced significantly more eggs than Diet C, or Diet D. Diet A was not significantly different from any of the other diets. Diet B also had the best feed efficiency with the other three diets in the same order and significance as for egg production. Diet D produced eggshells significantly thicker than either Diet A, or Diet B. Diet C produced thicker eggshells than Diet B, whose shells were significantly thinner than the other three diets. There were no differences in egg size. From these data, it is apparent that the minimal av. P level for the Lohmann strain of layer in Kuwait is above 0.327%. There was no difference in egg production or eggshell thickness between the split-phase light treatment and the standard light program. There was no difference in oviposition frequency. The split-phase light used 3.66% less feed, however, which was significant. The standard light produced eggs that were significantly heavier (66.30g vs. 65.73g). These results indicate that considerable savings in feed costs could be attained by using split-phase lighting, especially when cooling is not very efficient.

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