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البحث الخامس

عنوان البحث باللغة الانجليزية:

Effect of iron glycine chelate supplementation on egg quality and egg iron enrichment in laying hens.

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ABSTRACT

This study was conducted to evaluate the effects of iron glycine chelate (Fe-Gly) on egg quality of laying hens. A total of 810 laying hens (HyLine Variety White, 26 wk old) were randomly assigned to 6 groups, and each group consisting of 135 hens (5 replicates of 27 hens each). Hens in the control group received a diet supplemented with 60 mg Fe/kg as FeSO4, whereas hens in the other 5 groups received diets supplemented with 0, 20, 40, 60, and 80 mg Fe/kg from Fe-Gly, respectively. The study showed that dietary Fe-Gly treatments influenced ($P < 0.05$) the internal egg quality (Haugh unit, albumen height), compared with the control group. However, dietary Fe-Gly supplementation showed few effects on the ultrastructure of eggshell in this study. The group of 60 mg Fe/kg as Fe-Gly was promoted ($P < 0.05$) in succinate dehydrogenase levels of liver and spleen compared with the 0 mg Fe-Gly/kg group, whereas the control (Fe/kg as FeSO4) group has no differences compared with the 0 mg Fe-Gly/kg group. The concentrations of Fe in the eggshell, yolk, and albumen were increased with increasing concentrations of Fe-Gly, where Fe-Gly (60, 80 mg Fe/kg) had higher ($P < 0.01$) Fe concentration than the control in yolk and albumen. The Fe-Gly groups (60, 80 mg Fe/kg) were influenced ($P < 0.05$) in transferrin, divalent mental transport 1, and ferroportin 1, compared with the control (FeSO4). In conclusion, Fe-Gly (60 mg Fe/kg) improved egg quality and egg iron enrichment. In general, there were no significant differences between Fe-Gly (40) and the control group in albumen height, Haugh unit, Fe concentration in eggshell and yolk. It revealed that FeSO4 could be substituted by a lower concentration of Fe-Gly and Fe-Gly may be superior to FeSO4 for egg quality in laying hens.