

Effects of iron–glycine chelate on growth, carcass characteristic, liver mineral concentrations and haematological and biochemical blood parameters in broilers

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Abstract: Studies were carried out to determine the effect of additive iron–glycine chelate on the production performance, slaughter yield, mineral deposition in the liver and the metabolic blood panel in broiler chickens. A total of 250 one-day-old Ross 308 chicks were allotted into five groups with five replicates of 10 birds each. Diets were supplemented with the organic form iron (Fe–Gly at the rate of 25%, 50% or 100% of the total requirements of the elements) and inorganic Fe (FeSO₄ at the rate of 50% or 100%). In the experiment, iron was added to the premix (containing no Fe) in an amount of 40 or 20 mg per kg of basal diet, in groups I and II, in the form of FeSO₄, and in an amount of 40, 20 or 10 mg per kg of basal diet, in groups III, IV and V, in the form of Fe–Gly. The study covering the period from the first to the 42nd day of breeding revealed that the production performance and slaughter yield were not dependent on the form and amount of added Fe. In the experimental groups with the addition of Fe–Gly of 20 or 10 mg/kg, there were no deaths of chickens during the whole fattening period. As a result, introducing an organic form of iron covering 50% and 25% of the birds' requirement increased the effectiveness of chicken fattening (European Efficiency Index) ($p < 0.01$). An organic Fe compound (40, 20 or 10 mg/kg) added to mixtures contributed to significant changes in the level of biochemical and haematological indicators in blood. The study demonstrated that an addition of Fe–Gly to mixtures for broilers can be fully effective in terms of production and health performance even if the suggested requirement for this element is 50% or 25% covered.

Key words: Fe–Gly, FeSO₄, production results, blood indices