Bone traits of local chicken breeds fed with field beans differing in vicine content

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In recent decades, field beans have been repeatedly considered as an alternative to soybeans for chicken feed. However, its anti-nutritive agent vicine is attributed to losses in performance and health. This study aims at testing if the hens’ respond to varying contents of vicine in terms of bone traits is breed dependent. The experiment comprised laying hens of two local breeds and one high-performing line. From 18th to 53rd week of age, 40 hens of each breed were subjected to one of three diets: soybean-based control, field bean-based diet containing either 1.0% or 0.1% of vicine. After euthanasia, tibiotarsi and humeri were dissected and mineral density, breaking strength, and cortical bone proportion were assessed. Analysis of variance negated an effect of breed x diet interaction (p>0.5), what indicates that within each breed neither field bean itself nor its vicine content led to undesirable effects. Instead of diet, which was proved to be non-significant (p>0.07), bones traits were affected by breed (p<0.0001) as local types turned out to be beneficial. However, before a statement can be made on the general suitability of field beans, further investigations regarding performance and animal health have to be conducted.

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