



- Title:** Comparison of the effects of synthetic and natural zeolite on laying hen and broiler chicken performance.
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- Citation:** Poult-Sci. 1991 Oct; 70(10): 2115-30
- Abstract:** Three experiments were conducted to investigate the effect of zeolites on laying hens (Experiments 1 and 2) and broiler chickens (Experiment 3). Each experiment used corn and soybean meal-based practical diets. Experiment 1 was a 90-day trial and used 200 40-wk-old laying hens. The basal diet contained 2.75% calcium and .7% total phosphorus. The dietary treatments were the basal diet and the basal diet plus 1.5% synthetic zeolite (SZ; Ethacal). Experiment 2 was a 56-day trial and used 360 36-wk-old laying hens. The dietary treatments were .12, .22, .32, and .42% nonphytin phosphorus with and without 1.0% SZ and 1.0% natural zeolite (NZ; Zar-Min). All diets contained 3.5% calcium. Experiment 3 utilized 240 broiler cockerels from 1 to 16 days. The dietary treatments were two calcium levels (.65 and 1.0%) with and without 1.0% supplementary SZ and NZ. In Experiment 1, egg specific gravity was significantly increased with SZ supplementation. Egg weight and egg production were unaffected. Phytin phosphorus retention and plasma dialyzable phosphorus were significantly reduced by SZ. In Experiment 2, egg specific gravity was not affected by SZ or NZ. Egg weight, egg production, plasma dialyzable phosphorus, and the retention of phosphorus and phytin phosphorus were significantly reduced by SZ with the effect on egg weight and egg production being the most severe at the lower levels of dietary nonphytin phosphorus. Natural zeolite had no effect on egg weight, egg production, plasma calcium, plasma phosphorus, or on the retention of calcium, phosphorus, and phytin phosphorus. In Experiment 3, weight gain and percentage tibia bone ash were significantly reduced by SZ. The SZ had no effect on the incidence and severity of tibial dyschondroplasia. Weight gain, feed efficiency, and the incidence and severity of tibial dyschondroplasia were significantly reduced and the percentage bone ash significantly increased by 1.0% calcium. **Natural zeolite significantly improved feed efficiency and had no effect on any other parameter measured.**
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- Language:** English
- Publication Type:** Journal-Article
- Keywords:** Aluminum Silicates pharmacology : Chickens physiology : Oviposition drug effects