Increased incidence of Rickets in broilers and thin eggshells in broiler breeders

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Increased reports of lameness in organic broilers initiated a field investigation. The flocks visited showed signs of lameness and unwillingness to move. Varying between farms, 10-25% of the birds in the broiler barns were lame. Field necropsy revealed bones that were softer than expected for the age with grossly abnormal growth plates on the tibio-tarsus. Sections of tibia were submitted for histopathology which revealed failure of endochondral ossification with expansion of the growth plate in the zone of hypertrophy and the zone of proliferation consistent with rickets. At the same time, an elevated number of thin shells and cracked eggshells were reported by the hatchery. Eggs were evaluated and the shells were significantly thin and mottled for their age. Feed samples were collected from the impacted farms and the mill. While waiting for feed analysis, vitamin D was administered via water and oyster shells were spread in the hen houses. The organic feed and hen feed was produced at the same mill, and all diets from the affected mill were reformulated to include additional calcium as a precaution. Feed samples were taken from affected flocks and the retained samples at the mill. The results of feed analysis showed variable calcium in the hen diets from 6% above to 51% below target. Similar results were seen with phosphorus values ranging from target to 18% below target. Investigation at the mill revealed a leak into the dicalcium phosphate bin of other bulk ingredients ultimately diluting the dicalcium phosphate and creating a deficiency. The leak was repaired and the dicalcium phosphate bin was emptied and cleaned. The breeder eggshell quality and broiler bone strength returned to normal within two weeks of the correction.