

Calcium and phosphorus requirements for maximized growth in modern market poults

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Calcium and phosphorus are important macrominerals in the diets of market turkeys. However, using excessive amounts of these minerals is expensive and results in nutrient loading in the environment. Little research has been done since 1994 to examine the requirements of these minerals in young poults. Other research in chickens has suggested that we are feeding excessive amounts due to a failure in accounting for the dissociation of dicalcium phosphate, a common feed additive, and that a Ca:NPP ratio of 2.25:1 is more correct. This experiment was designed to examine this phenomenon in turkeys. The first trial attempted to identify the minimum phosphorus requirement given a calcium concentration of 1.2%. The second trial attempted to see if lower concentrations of calcium and phosphorus would result in slower growth rates (the calcium concentration was lowered to 1.0%, and the phosphorus concentrations were placed around the 2.25:1 ratio of Ca:NPP). Female poults were raised from 1-21 days of age. The birds were then weighed, and the tibia was removed and ashed. These are the methods for determining the optimal phosphorus concentration. Statistical analyses of this data has not been completed, but there appears to be a trend for growth and bone ash percentage to increase until above 0.55% NPP (there is slightly more growth in the 0.61% NPP group, but it does not appear to be significant). With 1.0% Ca, it appears that turkeys may grow faster than with 1.2% Ca, but the bone ash is decreased. This difference is expected to be significant. This data suggests that a Ca:NPP ratio of 2.0 is probably most correct. This implicates that by decreasing Ca concentrations, we can also decrease NPP concentrations, lowering phosphorus emissions in manure.