Phosphorus Solubility in Soils Amended with Manure Containing Phytase and 25OH-D3. (S11-maguire084249-Poster)

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Abstract:

The use of feed additives, such as phytase, to increase the digestibility of P in animal diets has become common, in an attempt to decrease the problems associated with excessive amounts of total P in animal manures in areas with intensive animal agriculture. However little is known about how feed additives affect P solubility in manures and manure-amended soils. We generated turkey manures using several combinations of non-phytate P (nPP), phytase, and 25OH-D3. Three diets that contained reduced nPP, phytase, 25OH-D3 and both phytase and 25OH-D3 were identified as the most beneficial for reducing feed total P and maintaining bird health and weight gain. The manures from these diets, as well as control manures, were incubated with five soils from four U.S. states. Water soluble molybdate reactive P and organic P were measured after 1, 7, 21 and 42 days and Mehlich 3 P at days 1 and 42. The effects of dietary modification with reduced nPP, phytase and 25OH-D3 on the solubility of P in manure amended soils will be discussed.

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