

Phosphorus Fraction dynamics in Amended Soils.

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Phosphorus (P) fraction dynamics on high P ($\text{NH}_4\text{ox P} > 600\text{mg kg}^{-1}$) Southern Delaware soils (0-30cm) was investigated. Short term (24h) P desorption (0.1M NaCl at soil pH) using a stirred-flow method on non-treated and treated (NH_4Cl , $\text{NH}_4\text{Cl} + \text{NH}_4\text{ox}$, and $\text{NH}_4\text{Cl} + \text{NH}_4\text{F}$ extraction) soils showed that P release was significantly reduced in following treatment order ($\text{NH}_4\text{Cl} > \text{NH}_4\text{Cl} + \text{NH}_4\text{F} > \text{NH}_4\text{Cl} + \text{NH}_4\text{ox}$). More than 65 % of labile P in the high P soils was originated from NH_4ox and NH_4F extractable P fractions. Long term (30d) P desorption, using a dilution method (0.1N NaCl at soil pH) coupled with sequential inorganic P extraction (NH_4Cl , NH_4F , NH_4ox , NaOH, NaCDT, and H_2SO_4) on 15d and 30d desorption samples also showed a high correlation between labile P and $\text{NH}_4\text{ox} + \text{NH}_4\text{F}$ extractable P. P mineralogical characterization of the P treated soils was also investigated using ex-situ spectroscopic techniques (FTIR and EDX).

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