Effect of Soil Type and Temperature on Phosphorus Dynamics in Soils Treated with Broiler Litter. (S08-adeli125251-Poster)

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Abstract:

Since land application of broiler litter is commenly applied in different seasons, it is essential to understand how environmental variations affect the rate and extent of P mineralization. Broiler litter was applied at the rate of 0, 8, 16, and 32 Mg/ha and repeated three times. Soils were incubated for 90 d at 18 oC, 25 oC, and 32 oC and repeated twice. Soil samples were taken at 2, 5, 7, 10, 15, 30, 60, and 90 d and analyzed for water soluble P, Mehlich3 extractable P, and soil P fractions. Water soluble and Mehlich3 extractable P levels initially decreased, then increased, and approached a steady state after approximately 15d. For Leeper soil, the quantity of Mehlich3 extractable P at 32 oC was greater than those at other two temperature but no significant diferecees in Mehlich3 extractable P were obtained for Grenada and Ruston soils. The concentration of water soluble P, NaHCO3-IP, NaOH-IP, and HCL-P fractions were linearly increased with increasing broiler litter application rates and with increasing temperature from 18 oC to 25 oC. The concentration of H2O-P and HCL-P in Grenada soil was much greater than the other two soils at 25 oC, and 32 oC. Broiler litter application did not have significant effect on NaHCO3-OP and NaOH-OP.

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