Methods

Phosphatase levels were measured using a colorimetric assay using a p-nitrophenyl-linked substrate.

1. Phosphatase was measured from soil samples at each site.
2. Soils from each study site was incubated for 21 days, under 4 different treatments with 5 replicates of each. Phosphatase activity was measured at the end of the incubation period.
3. Soil Moisture treatments were determined relative to percent soil moisture observed in the field.

Results

Key Findings & Summary

We demonstrate that alteration of soil moisture regime had a greater impact on soil phosphatase activity in agricultural soils compared with forest soils. Within agricultural soils, fluctuating moisture conditions suppressed phosphatase activity. These findings suggest that fluctuating soil moisture regime could stress microbial communities and slow microbial processing of phosphorus in agricultural soils.

Climate change is expected to alter soil moisture regimes, particularly in the summers in the Northeastern U.S. Future work should examine how soil moisture regimes may influence soil retention of phosphorus runoff.

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Please Direct any questions to Meyru Bhanti: mbhanti@clarku.edu