Elevated Phosphorus Impacts the Biological and Physical Properties of Certain Oxisols. (S06-green151438-Poster)

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Abstract:

In order for the Cerrado region of Brazil to be agriculturally productive, large amounts of P fertilizer must be added to overcome the P fixation capacity of these Oxisol soils. Additions of large amounts of fertilizers affect the chemistry of the soil and may affect the soil physical and biological properties. We examined the effect of different amounts of fertilizer P on soil physical and biological properties on limed and unlimed Oxisols. We incubated limed and unlimed soils for 36 wks after addition of P fertilizer. Our objective was to determine the effect of liming and P addition on important physical and biological properties. The effects of liming and P were most pronounced on soil enzyme activities. Liming decreased the activity of b-glucosidase and acid phosphatase while it increased the activity of arylsulfatase. Additions of P increased the activity of b-glucosidase while it decreased the activity of acid phosphatase and arylsulfatase. Liming and P addition decreased water dispersible clay but did not affect aggregate stability. Liming also increased C-mineralization. This research provides important information that can be used to better manage high P-fixing soils.

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