Degree of Phosphorus Saturation of Selected Soils in North Carolina. (S08-johnson190101-Poster)

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Abstract:

The degree of soil phosphorus saturation (DPS) represents a significant improvement over soil test P (STP) alone because it accounts for both the amount of sorbed phosphorus and the soil's capacity to continue to sorb additional P. Therefore, DPS is better able to predict potential soluble P loss across different soil types. Acid ammonium oxalate extractable iron and aluminum have been shown to be correlated to soil P sorption capacity because oxalate extracts the active, or amorphous, forms of Fe and Al. The objectives of this study were to determine DPS of soils from across North Carolina, and to examine how well North Carolina's Phosphorus Loss Assessment Tool (PLAT)is predicting P sorption capacity. In the present version of PLAT it is assumed that the amount of P sorbed will increase linearly with STP. However, STP does not account for the fact that the P binding strength of soils will decrease with increasing P loading as the soil's capacity to sorb additional P is diminished. Major soil types were sampled from 0 to 32 inches in 4-inch increments. P sorption capacity and DPS were measured by the ammonium oxalate method. Results and implications will be discussed.

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