Considering Sodium in Nutrient Management Planning. (S11-cihacek154020-Poster)

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Abstract:

Current nutrient management planning for application of agricultural wastes includes considerations of nitrogen (N) and phosphorus (P) loading of the soil relative to crop utilization and protection of land and water resources. However, many wastes including animal manures and processing byproducts of agricultural commodities contain significant amounts of sodium (Na) that may overshadow the considerations of the N and P contents of the materials. Levels of up to 5% Na on a dry weight basis have been regularly noted in some wastes. High Na levels in these wastes may adversly affect soils with repeated applications and present a particular hazard in areas where Na may be inherently high in soils. We have established a simple system of evaluating soils for Na risk by utilizing cation-exchange capacity (CEC) and exchangeable Na (ESP) from soil tests in determining waste loading rates. Wastes containing high levels of Na are limited to application rates where inherent soil Na and applied Na do not exceed a 5% saturation of the soil CEC. This provides for a scientific basis for determining soil Na loading and provides an alternative to fixed rate (lb/A or kg/ha) Na application limits used by some states which may exceed soil Na loading capacity and cause soil degradation.

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