Spatial variability of soil nutrients (N and P) in Piedmont soils. (S11-han155755-Poster)

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Abstract:

To refine agricultural practices and improve nutrient management, a study on site-dependence of soil N and P in Piedmont soils was conducted by using GPS and GIS techniques. The objectives of the study were to determine the spatial distribution of soil N and P in Piedmont soils and presenting the nutrient concentration in a grid map, and characterize the spatial patterns of soil N and P by geostatistical parameters. Soil samples were collected by GPS grid cell sampling method, prepared and extracted by 2M KCl for NO3-N and NH4-N. Soil P was extracted by Mehlich3 method. The extracts were analyzed for NO3, NH4 and P by flow injection analyzer. A soil fertility status map was developed for precision agriculture and variable rate of fertilizer application and avoid excessive nutrient application and pollution of surface and ground water. Spatial statistical and classical statistical analysis were used to identify the site-dependence of soil N and P. Soil N and P data and geographical data were extrapolated and interpolated by AgGIS software. All the data collected and the soil fertility maps developed will be presented and discussed.

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