Properties, classification, and erosion of volcanic ash derived soils in tropical steeplands of Nicaragua, Central America. (A06-rivas150316-Poster)

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Abstract:

Chemical, physical, micromorphology and mineralogical properties of volcanic ash-derived soils were determined from 12 pedons. Runoff (RO) and soil loss (SL) were measure in field-scale plot (FSP) and USLE-scale plot (USP) and estimated with USLE-model (UM). Our aim was to characterize and classify the soils, and hydrological pathways in agricultural microwatersheds in steeplands under tropical climate of Nicaragua, Central America. Soils were classified as Durustands, Haplustands, and Argiustolls. Soils had dark brown surfaces (7.5YR 3/3, moist), high infiltration rates (11-14 cm hr-1), moderately acid to neutral (pH(H2O) 5.5-7.4), base saturation between 40% and 95%, and CEC's ranging from 3.6 to 65.6 cmol kg-1. Halloysite and semectite are the main clay minerals, and predominance of amorphous material of short-range order minerals. Glassy amorphous material was identified in thin section. The SL's were 40, 10 and 4 ton ha-1 yr-1 for the UM, USP and FSP, respectively. SL in FSP was observed only when restrictive layers were close to the soil surface (<50 cm). Soil and water intervention strategies should consider subsurface soil properties for volcanicash derived soils.

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