Comparison of Phosphorus and Heavy Metal Pools in Ditch Bottom Sediments and Source Soils. (S11-stoffella091937-Poster)

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Abstract:

There is minimal information on the chemical forms of phosphorus (P) and heavy metals in the initial sediments of agricultural drainage ditches and their relations to source soils in adjacent fields. The properties, P fractions, water soluble P, and heavy metals of upper layer (0-5 cm) of sediments from four drainage ditches and the surface soils in the adjacent fields under vegetable and citrus production in Florida were characterized. Compared with surface soils in the adjacent fields, the ditch bottom sediments were enriched with organic matter, iron, and clay, but had lower available P (Mehlich 1-P and Olsen-P). Also, marked alteration was detected in P fractions. From the source soils to the sediments, the percentages of H2O-P and NaHCO3-P decreased dramatically, those of NaOH-P and HCl-P were almost identical, but that of residual-P increased significantly. Total contents of most heavy metals, including Co, Cr, Cu, Ni, and Pb in the sediments at all sites tended to increase, but the concentrations of available heavy metals declined significantly. These results indicate that most of labile P and heavy metals in the sediments were released into water or transformed into stable forms during the short

distance transportation from the fields to the ditches.

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