

Proposed Presentation

Sustainable Phosphorus Recycling from Excavated Sediments of A Highly Eutrophicated Lake

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Summary of talk content (max 200 words)

We examined plant behavior and environmental sustainability factors under different ways of sediment application in 2017. In a 9-month lysimeter experiment, 1-m height columns were filled with 6 different combinations of soil, sediment, and biochar, with or without organic P fertilizer meat bone meal. The plant aboveground biomass, nutrient uptake, and N and P leaching were measured. In the field experiment, 4 different sediment application methods were tested in the shore of the lake from which sediments were excavated. The leaf area index (LAI), the relative leaf chlorophyll values, aboveground biomass, total C and N, P fractions, GHG emissions, and the soil penetration were measured.

The sediments were not contaminated by heavy metals, PAHs, or PCBs. The most promising treatment of topsoil and biochar on top of the sediment column resulted in highest plant biomass and low leaching. Sediment labile P content was high, providing sufficient available P for crops. The final presentation will include data on P fractionation, plant nutrient uptake, GHG emissions, and the mechanical soil resistance in different treatments.

Our small case study results will aid in reducing transformation of nutrients to water bodies and facilitate the disposal of dredged sediments in agriculture and environmental engineering.

<http://biochar-hy.blogspot.fi/2017/10/towards-best-practice-for-reusing-lake.htm>