

Beneficial Use of Lake Erie Dredged Material as Farm Soil Amendment

By Dr. Angélica Vázquez-Ortega, avazque@bgsu.edu

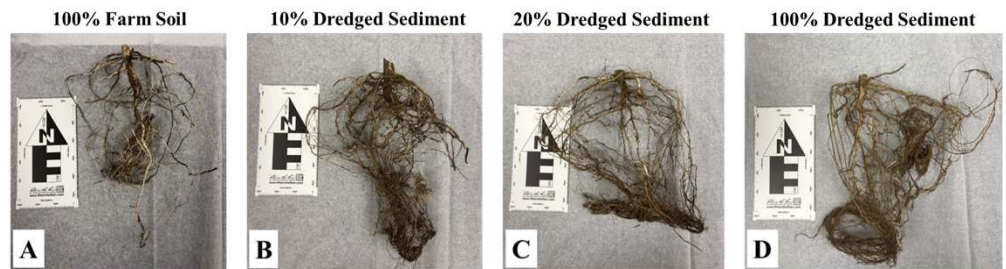
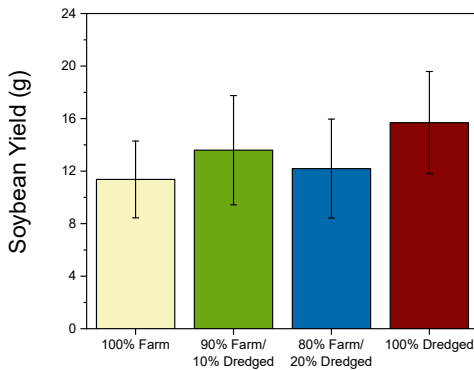
Chemical characterization of dredged material from Toledo Harbor, Ohio

Parameters	Optimal values (mg/kg)*	Dredged Material (mg/kg)
pH	5.3 to 7.0	7.9
Cation Exchange Capacity (CEC) (meq/100g)	21	35
Phosphorus (Bray-1 Method)	15 to 40	38
Potassium	100 -200	259
Magnesium	50 to 1000	375
Calcium	200 – 8000	6200

- Overall, dredged material meets the optimal values as an amendment to farm soils.
- Organic carbon content in dredged material is 29,800 mg/kg (5.5%).

*Depending on CEC Vitosh, et al. (1995)

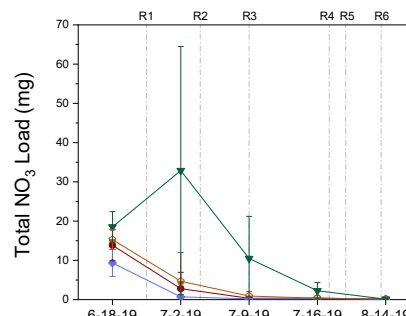
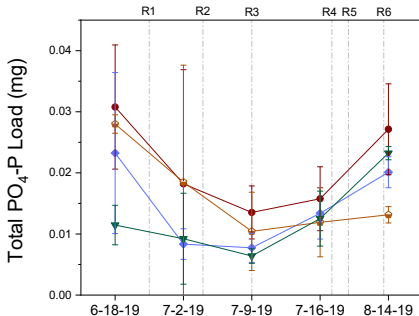
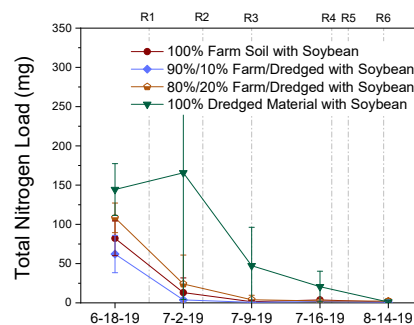
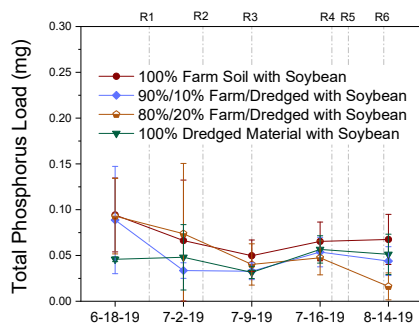
Soybean Crop Yield



Greater amounts of finer roots and root hairs.

- Dredged material does not affect negatively the soybean crop yields in the greenhouse experiment.

Nutrient Export into Soil Water



- Adding dredged material to the farm soil did not increase the export of phosphorus and nitrate into the soil solution.



R1, R2, ... correspond to soybean growth stages