

# **Defining Cottonwood Uptake of Phosphorus using Rhizosphere Solution Phase Measurements. (S07-wang101244-Poster)**

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## **Abstract:**

Plant uptake can reduce loss of solution phosphorus. However, we do not have accurate estimates of rhizosphere P, nor do we fully understand the role of plant uptake in controlling solution P loss. Our objective was to measure soil solution P in the rhizosphere of two contrasting plant species. A high spatial resolution grid of micro suction cups was used to collect soil solution from the rhizosphere of corn and cottonwood seedlings. Capillary electrophoresis was used to determine P concentration. Results indicate, that in a mesic Cumulic Hapludoll (Kennebec series) with a base saturation of 80% and a pH of 8.2, the growing roots of corn and cottonwood can lower the concentration of P in the rhizosphere by 22% and 25% after 10 days, respectively. Statistical analysis indicated a significant difference ( $p=0.01$ ) between solution P concentration in the cottonwood rhizosphere vs. bulk soil. A significant difference ( $p=0.05$ ) in P concentration was also found when the corn rhizosphere solution and bulk soil solution were compared.

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rhizosphere, *Populus deltoides*, soil solution, micro-lysimeters