

Evaluating the influence of interspecific competition on uptake of per- and polyfluoroalkyl substances (PFAS) in crops: A paired greenhouse and field study

Alex Scarce, Rachel Schattman, Jean MacRae, Caleb Goossen

Amending soils with biosolids, some of which contain per- and polyfluoroalkyl substances, has caused widespread presence of “forever chemicals” on farm soils in Maine and beyond. Intercropping is a common method used by growers to maximize ecosystem services and biodiversity of a farm, but there is little research investigating the influence of intercropping on the uptake of chemicals such as PFAS. In this paired greenhouse and field study, we explore the role that interspecific competition between *Lactuca sativa* (Lettuce) and *Solanum lycopersicum* (Tomato) and *Lactuca sativa* and *Festuca arundinacea* (Tall Fescue) plays in the uptake of PFAS from soil to plants. This work establishes baseline transfer factors (n=4) across three crop species and how transfer shifts in response to interspecific competition, while also highlighting similarities and differences in results from greenhouse and field studies.