

Summary findings of a multiyear study on PFAS uptake into grasses and corn plants on biosolid amended fields in Maine

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At several dairy and beef farms in Maine elevated PFOS in cow's milk and beef muscle have resulted in the farm ceasing sale of their products. The impacted farms have a history of application of biosolids resulting in PFOS and other PFAS soil contamination. Maine CDC over several years conducted field studies to measure PFOS in soil, grasses, and corn plants to obtain a more robust plant-specific transfer factor (TF) estimate for PFOS. For grass-based forages, four study plots were setup on a dairy farm with elevated PFOS soil levels. Within each study plot triplicate co-located soil and grass samples were collected and analyzed for PFAS with repeat sampling in 2021, 2022, and 2023. At four other farms co-located soil and grass samples were collected in multiple fields. The PFOS TF into grass from the plot study was similar in each plot over the years sampled but varied approximately 10-fold among the four plots with averages of 0.02, 0.04, 0.3, and 0.2. The TFs from the field survey study were comparable to the average value from the study plots with less variation between the separate fields. For corn plants at two farms, PFOS transfer was evaluated separately in co-located soil corn plant samples consisting of corn silage, corn snaplage, or corn earlage. PFOS TFs were considerably higher in corn silage than in snaplage. The average corn silage PFOS TF was 0.07 while for snaplage the average value was 0.009. Earlage had generally low or non-detect PFOS levels.