

## Trace Metal Concentration in Soil at Crossroads Farm in Malverne, New York

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Soil pollution is one of the primary ways in which humans have had a negative impact on the environment. Recent studies have shown that excess levels of trace metals in soil are harmful to both human health and the environment. While trace metals are naturally occurring in soil, excessive levels of trace metals such as lead (Pb), copper (Cu), and titanium (Ti) can be harmful. Such trace metal pollution is often a result of anthropogenic activity including industrial activity, use of agricultural chemicals, and improper waste disposal. This study tested the levels of trace metals in different soil samples from Crossroads Farm in Malverne, New York. Sixteen soil samples were collected from Field 2 of the farm at varying distances from the road adjacent to the farm, Ocean Avenue. In addition to Field 2, four soil samples were collected from the soil adjacent to the greenhouse. Finally, four soil samples were collected from the compost piles on the opposite side of the farm. Every sample was tested for its trace metal concentration using a pXRF (Portable X-ray Fluorescence) machine. The recorded trace metal concentrations observed using the pXRF were then compared to the standards set by organizations such as the EPA and NYSDEC. The results for Field 2 supported the hypothesis that as distance from Ocean Avenue increased average trace metal concentration in the soil samples decreased. The highest concentrations for Field 2, lead (281.99 mg/kg), copper (138.2 mg/kg), and titanium (3545.88 mg/kg), were still below the concentration that requires a restriction on land use as established by the EPA and NYSDEC. Although more sparsely sampled, the results for the greenhouse also supported that higher trace metal concentrations were found closer to the greenhouse. Overall, the soil at Crossroads Farm did not exceed the trace metal concentration standards set by the EPA and NYSDEC.