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## **4-chloro-2-methylphenoxy-acetic acid (MCPA) concentration and nutrient amendment impact the centimeter-scale vertical variability of mineralization potential around the groundwater table**

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The effects of 4-chloro-2-methylphenoxy-acetic acid (MCPA) concentration and nutrient amendment on the measured centimeter-scale vertical variability of mineralization potential was investigated in the aquifer sediments surrounding the groundwater table. The mineralization potentials were more variably distributed at high concentration ( $\text{mg kg}^{-1}$ ) than at low concentration ( $\mu\text{g kg}^{-1}$ ). The greater number of 20% carboxyl labeled-MCPA mineralizing samples was observed than that of ring labeled-MCPA mineralizing samples at low concentration. The cold soil extract (CSE) and BA as additional substrates decreased the time needed to achieve 20% carboxyl labeled-MCPA mineralization around the groundwater table. However, only a few samples reached 20% mineralization at high concentration with or without additional substrates. The ring labeled-MCPA mineralization was stimulated through CSE and BA for a few sediments at low concentration and even fewer at high concentration.