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## Land use effect on microbial growth and respiration under future climate

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Fresh input of organic material in soil is continuously transformed and processed by growing microorganisms using this organic input as a substrate. Therefore, the quality and quantity of soil organic C stock is strongly dependent on the intensity of mineralization processes through microbial respiration and growth. We aimed to prove the sensitivity of microbial respiration and growth parameters to indicate an interactive effect of land use and climate warming. For this we used Global Change Experimental Facility in Bad Lauchstädt, UFZ, Halle, Germany. This long-term experiment is designed in 5 land use strategies (Organic Farming, Conventional Farming, Intensive Meadow, Extensive Meadow, and Extensive Pasture) and 2 climate scenarios (ambient and future). We determined basal respiration by CO<sub>2</sub> emission, microbial growth parameters by substrate-induced growth respiration (SIGR), and the quality of soil organic matter by Fourier-transformed infrared spectroscopy (FTIR). The effect of biotic (vegetation type) and abiotic (temperature and moisture) factors on microbial attributes and on chemical composition of soil organic matter will be compared.