



## **CO<sub>2</sub> flux comparison of agroforestry and monoculture systems**

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Agroforestry, which is a combination of monoculture agriculture and trees, is currently being investigated if it can contribute to more sustainable soil management in the light of green economy strategies. Studies show agroforestry alters the microclimate, the productivity, and nutrient and water usage. Also, agroforestry systems can have a higher carbon sequestration potential compared to monoculture systems and could therefore be more sustainable. However, it is unclear to what extent climatic and soil conditions control the difference in carbon sequestration between agroforestry and conventional agricultural. In the current study we will investigate the carbon sequestration potential of agroforestry compared to that of monoculture agricultural systems at five locations, with different climatic and soil conditions, across Germany as part of the SIGNAL (sustainable intensification of agriculture through agroforestry) project. Each location has two eddy covariance flux towers, one above the agroforestry system and one above an adjacent monoculture system. Due to the large number of flux tower sites, we will deploy ten innovative low-cost CO<sub>2</sub> eddy covariance sensors, which performed well in a previous study over grassland. The continuous 30-min time series of the net ecosystem CO<sub>2</sub> exchange measured by eddy covariance will complement independent estimates of the biomass yield by inventory and harvesting methods.