



## **Lysimeter Experiments to investigate the Fate of Chemicals in Soils and how to sufficiently interpret their Results?**

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Several lysimeter approaches exist to follow the fate of chemicals in soil columns. In many systems just the transport and leaching of the parent compound is followed, in some systems also the leaching and transport of the metabolites is followed. In more sophisticated lysimeter systems, the evaporation and also the mineralization of the applied chemicals can be determined as well from the lysimeter surface, but when using a two-chamber-approach it is feasible to identify and quantify the pathways of gaseous compounds from soil and plant surfaces, separately. Depending on the used lysimeter system and on the approach to use the chemical in lysimeters e.g. as a  $^{14}\text{C}$ -labelled compound or as a non-labelled compound, different results and various interpretations of the results might be achieved. Different lysimeter systems are introduced in this presentation and a real dataset of a specific lysimeter experiment with four very different agricultural soils and the herbicide isoproturon was transferred to other virtual lysimeter systems in order to show the advantages and disadvantages of the various systems.

Finally several results from additional laboratory experiments are presented which were essential to obtain a complete understanding of the environmental behaviour of isoproturon in these four different agricultural soils.