



## **Earthworms and priming of soil organic matter – The impact of food sources, food preferences and fauna – microbiota interactions**

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Earthworms deeply interact with the processes of soil organic matter turnover in soil. Stabilization of carbon by soil aggregation and in the humus fraction of SOM are well known processes related to earthworm activity and burrowing. However, recent research on priming effects showed inconsistent effects for the impact of earthworm activity. Endogeic earthworms can induce apparent as well as true positive priming effects. The main finding is almost always that earthworm increase the CO<sub>2</sub> production from soil. The sources of this carbon release can vary and seem to depend on a complex interaction of quantity and quality of available carbon sources including added substrates like straw or other compounds, food preferences and feeding behavior of earthworms, and soil properties. Referring to recent studies on earthworm effects on soil carbon storage and release (mainly Eck et al. 2015 Priming effects of *Aporrectodea caliginosa* on young rhizodeposits and old soil organic matter following wheat straw addition, *European Journal of Soil Biology* 70:38-45; Zareitalabad et al. 2010 Decomposition of <sup>15</sup>N-labelled maize leaves in soil affected by endogeic geophagous *Aporrectodea caliginosa*, *Soil Biology and Biochemistry* 42(2):276-282; and Potthoff et al. 2001 Short-term effects of earthworm activity and straw amendment on the microbial C and N turnover in a remoistened arable soil after summer drought, *Soil Biology and Biochemistry* 33(4):583-591) we summaries the knowledge on earthworms and priming and come up with a conceptual approach and further research needs.