

## Earthworms in horticultural systems in Paraná State, Brazil

Marie Bartz<sup>1</sup>, Orlando Assis<sup>2</sup>, Cintia Niva<sup>1</sup>, George Brown<sup>3</sup>, and Samuel James<sup>4</sup>

<sup>1</sup> Universidade Positivo, Brazil

<sup>2</sup> Instituto Paranaense de Assisência and Extensão Rural, Universidade Tecnológica Federal do Paraná, Brazil

<sup>3</sup> Empresa Brasileira de Pesquisa Agropecuária – Florestas, Brazil

<sup>4</sup> University of Iowa, USA

Aiming to expand the limited knowledge about earthworms in horticultural sites and their use as indicators of soil quality, this work proposes to evaluate the earthworm richness in four sites: natural forest fragment – FN, organic vegetable crop – OL (potato), conventional vegetable crop – OC (zucchini) and conventional tillage – LC (corn), in the municipality of Quitandinha in southeastern Paraná. The samples were taken in two replicates of each site in January 2014. The earthworm sampling was qualitative and consisted of the digging of 10 randomly selected holes in each site. The earthworms were fixed in alcohol (92.8%) and later identified to family, genus and species level. In total, four species of earthworm were identified from the 8 sites: *Glossoscolex* sp.1, *Glossoscolex* sp.2, *Glossoscolex* sp.3 and *Amyntas gracilis*, and several juvenile individuals of Megascolecidae and one Glossocolecidae. The OC and LC sites had only the presence of the exotic species *A. gracilis* (100%), while the OL sites had 50% and FN 67% of native earthworm species. The results suggest enhancement of exotic species and absence of native species in the sites with higher input of chemical and anthropic impact. Future samplings are necessary to quantify earthworm populations at the sites and to better understand the species dynamics.