

# SOIL BIODIVERSITY ASSESSMENT IN ARABLE AGRICULTURAL SOIL UNDER CONVENTIONAL AND MINIMUM TILLAGE SYSTEMS

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**Introduction.** Soil biota is generally considered as being crucial for assurance of soil ecosystem services. In arable soils, tillage activities cause changes of habitat conditions which in turn affect soil biodiversity structure and related processes. Minimum tillage is considered as being beneficial for soil biodiversity but available data are scarce and sometimes confused.

**Aims.** The aim of present work was to conduct a monitoring process of the main soil biota groups in conventional and minimum tillage systems.

**Materials and Methods.** The samples were taken during spring from fields where wheat was sown in autumn. One experimental site was chosen for sampling and 17 sites (8 under conventional and 7 under minimum tillage) were selected from farms located in N-W part of Romania. For soil fauna sampling we used specific protocol agreed by the consortium partners. The samples were sent to the consortium experts for analyzing. MicroResp method was used for CLPP measurement following soil incubation for 6 hours at 25°C with 15 different carbon substrates (30 mg g<sup>-1</sup> soil H<sub>2</sub>O concentration).

**Results.** The number and wet biomass of earthworms was higher in minimum tillage than in conventional fields. The highest individuals number and biomass were recorded in a minimum tillage field (88 ind/m<sup>2</sup> having 16 g wet biomass) while the smallest number was recorded in a conventional field (5 ind/m<sup>2</sup> having 1 g wet biomass). CLPP measurement shows that carbon utilization pattern was similar for both types of tillage. Highest respiration rate was recorded for carboxylic acids, followed by carbohydrates, amino sugars and amino acids. Anyway, some differences in utilization of specific carbon sources were observed.

**Conclusion.** The obtained results show that both earthworms abundance and CLPP were influenced by the tillage system used by the farmers.

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