

Results of a country-scale survey on the effects of agricultural practices on soil mesofauna in Hungary

Miklós DOMBOS, Csongor GEDEON, Péter LÁSZLÓ and József SZABÓ
*Research Institute for Soil Science and Agricultural Chemistry of the Hungarian Academy of Sciences,
Department of Environmental Informatics, Hungary
e-mail: dombos@rissac.hu*

Although certain elements of agricultural practices have been known as main factors of biological soil degradation for decades, data that could show degree of these degradation processes are still limited and insufficient to estimate current ecological status of soils in agricultural landscapes. We will show the results of our country-scale survey (Soil Degradation Subsystem of the National Environmental Information System; details are in Szabó and co-workers' poster) on the effects of agricultural practices on soil biological activity in Hungary.

200 evenly distributed farms from Hungary were randomly selected from the database of the Hungarian Central Statistical Office, according to their agricultural techniques. We recorded all farming activities from tillage to harvest in each farm. Composite soil sampling was carried out in each sampling site in spring 2011. More than one hundred soil physical, chemical and biological properties were measured, which are considered relevant to all soil threats. Regarding the biological properties, abundance, biomass distribution, diversity indices of the mesofauna, and microbial activity were characterized at 200 farms. Traditional soil extraction method and taxonomic analysis for description of the soil microarthropod communities and live extraction followed by image analysis using EDAPHOLOG[®]/Coll-Scope[®] systems (see. poster of Gedeon et al.) run parallel for further comparison.

In our presentation we will show how the different farming practices - including different agro-environmental schemes, farming practices used in organic and conventional farming systems and the resulting physical and chemical soil degradation (e.g. soil compaction) - influenced the ecological status of arable soils in Hungary.