

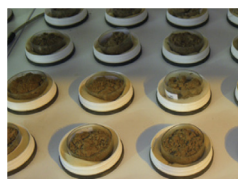
## SOIL MICRO-ARTHROPOD FIELD STUDIES

### Welcome To Eurofins Agrosience Services

Soil micro-arthropods, such as mites (e.g. *Oribatida*, *Gamasina*) and springtails (*Collembola*), fill important ecological niches in almost all terrestrial ecosystems. They affect decomposition processes directly and indirectly, e.g. by breaking down litter, feeding on micro-organisms and dispersing microbial propagules.

In future, there will be more focus on the possible impact of plant protection products (PPPs) on the structure of the relevant soil communities (in-crop and off-crop). For this reason, a design for a field study with soil-dwelling organisms (Römbke *et al.* 2009) has been developed. The main targeted organism groups are soil-dwelling mites and Collembola. Additionally the impact on the development of nematodes and enchytraeids can be monitored within the same study. It is also possible to combine a soil micro-arthropod study with an earthworm field study.

Soil micro-arthropod studies usually run for one year with one pre-application sampling followed by samplings at one, three, six and twelve months after application (comparable to litter bag studies). The soil micro-arthropods are sampled with soil cores. The soil cores measure five centimetres in diameter with a depth of five centimetres. The arthropods are extracted from the soil using a high gradient extractor (MacFadyen 1961). Complementary information may be gained by sampling surface-active micro-arthropods using pitfall traps. Nematodes and enchytraeids are extracted from the soil by wet extraction. The determination of Collembola and soil mites is done in-house. Study designs may be adapted and tailored to your specific needs.



### Special Studies

- Long-term studies
- Special study designs for persistent compounds

### Special skills

- Determination of soil mites (*Oribatida* and *Gamasina* to species level) and Collembola (species level)
- Special application techniques (granule application in furrow or wide spread, application of spray liquid in furrow, fumigation, application of non-soluble substances on carrier substance etc.)
- Potential to develop and adapt test designs to special requests
- Cost-efficient combined study designs (combination of soil micro-arthropod field and earthworm field studies)
- Statistics using SAS, Canoco etc.

### References

Macfadyen, A., 1961: Improved funnel-type extractors for soil arthropods. *J. Anim. Ecol.* 30, 171-184.

Römbke, J., Schmelz, R.M., Knäbe, S. 2009: Field studies for the assessment of pesticides with soil mesofauna, in particular enchytraeids, mites, and nematodes: Design and first results. *Soil Organisms*, Volume 81 (2), 237-264.

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