

**PhD Thesis description:**

The main focus of this PhD thesis is to study the environmental factors controlling greenhouse gas (GHG) emissions. Laboratory and field measurements will be used to improve our understanding of the relationship between GHG gas emissions and soil and environmental parameters, as well as with climatic conditions.

This thesis will also study the relationship between soil biota and GHG emissions. By burrowing and feeding on crop residues or soil organic carbon, earthworm activity directly affects many physicochemical soil factors, which in turn affect GHG emissions. There is also evidence that other soil fauna (such as predatory mites, collembola, isopods and enchytraeids) can also influence GHG emissions, by modifying soil properties such as porosity. But it is still uncertain whether the effect on GHG emissions is mainly through the effect of soil mesofauna on the microbial community or through their effect on soil structure, or both.

The main aims of the PhD project are:

1. To study the relationships between GHG emissions and soil and environmental properties (as affected by management and weather conditions), using tools such as multivariate statistics, path analysis, linear mixed models and others.
2. To model the relationships between soil diversity indicators and GHG emissions.
3. To identify and evaluate potential GHG emissions mitigations strategies.

**Candidate profile:**

Requirements:

- The candidate should have a Master in Agriculture, Ecology, Biology, Environmental sciences or related fields.
- Should be highly motivated.
- Excellent level of English.

Beneficial skills:

- B driving license.
- Knowledge of R software (preferred), Python or similar.
- Knowledge of advanced statistical methods.
- capability to work independently.
- capability to be a part of an interdisciplinary team.
- Knowledge of greenhouse gas emissions, carbon and nitrogen cycles.
- Knowledge of GIS software.

**Duration:**

The nominal duration of the PhD in Estonia is four years, during which the candidate should reside in Estonia.

**Location:**

Estonian University of Life Sciences

According to QS World University Rankings 2024, the Estonian University of Life Sciences is in 54th place in the field of *Agriculture and Forestry*. Thomson Reuters Essential Science Indicators database places the Estonian University of Life Sciences into the top 1% most cited research facilities in the world in the field on plant and animal science as well as environment and ecology.

#### Tartu, Estonia

Estonia is a small but very dynamic country, with a thriving research landscape. Estonia combines historical heritage, with abundant natural forests and wetlands and a rich cultural life.

Tartu is the second city of Estonia, and its cultural and university capital. More than 10% of the population of Tartu are university students.

#### **Application:**

Please send a motivation letter, a complete CV with a list of authored scientific publications, projects and participation in experiments.

#### **Contact:**

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