

## Call for PhD Student

### Thesis title:

Development of digital method for evaluating compaction and SOM under no-till system using digital sensors (EM38 and MSP3000) and calibrating pedotransfert functions for extended scale mapping

### Description of the offer (Summary of the thesis project, global and specific objectives, key words):

This thesis project aims to establish indirect methods and pedotransfer functions to characterize and evaluate soil water content, depth, compactness and SOM evolution for the rainfed no-till cereal/food legume production systems in the arid areas. By using digital sensors for evaluating and mapping soil compaction and SOM, it will be possible to develop specific calibration, pedotransfer functions and models based on digital approach to assess soil compaction and SOM at the farm and the regional scale.

### Global objective:

Evaluation of soil compaction and organic matter under no till system using indirect methods based on electromagnetic induction (EMI) and electrical conductivity (EC) and development of pedotransfer functions for specific soil contexts and for large-scale mapping.

### Specific objectives:

- Direct characterization of soil compactness and SOM trends under no till system in different arid land specific farming contexts
- Calibration of indirect methods based on electromagnetic induction (EMI) and electrical conductivity (EC)
- Development of pedotransfer functions for specific soil contexts and for large-scale mapping

**Key words:** Soil compaction, SOM, digital mapping, EMI, EC, pedotransfer functions, no till, arid land

### Partners involved in the thesis:

- Pr Ibbouamr, Faculty of Sciences, El Jadida
- Dr El Aissaoui Abdellah, INRA, CRRA Settlat

### Host institution and location of work:

INRA, CRRA Settlat

### Qualifications:

Master in Soil Sciences or Soil Physics, Agricultural Engineer or Soil Scientist Engineer

**Eligible candidates:** Eligible candidates are those who have formal pre-registration at the Moroccan Centers for Doctoral Studies (IAV Hassan II, Moroccan Universities). In order to give themselves a chance, candidates must submit their application to these Centers on time.

### Application file:

**How to Apply:** Interested candidates should submit the following documents to [imane.thamialami@inra.ma](mailto:imane.thamialami@inra.ma) and [moha.ferrahi@inra.ma](mailto:moha.ferrahi@inra.ma):

- Curriculum Vitae (CV)
- Statement of Purpose (max 2 pages) outlining your research interests and why you are interested in this project.
- Two reference letters

**Application Deadline: 15 December 2023**

**Duration of the contract and amount of the scholarship:** the amount of the doctoral scholarship is approximately **5000 MAD/month** for **3 years**, subject to the signing of a contract between **INRA** and the candidate.

**About the host institution:** <https://www.inra.org.ma/>