

## **Professor of Soil Science - soil health and agrosystems**

Establishment: Institut Agro RENNES-ANGERS

DISCIPLINE: SOIL SCIENCE

CNECA N°2

SESSION 1

N° RENOIRH: A2ACO00008

### **WORK ENVIRONMENT**

Since January 1, 2020, L'INSTITUT AGRO RENNES-ANGERS (national school of agronomic, agri-food, horticultural and landscape sciences) has been a part of the Institut Agro (French Higher Education Institution in Agriculture, Food, Horticultural and Landscape Sciences), the new major establishment for agriculture, food and the environment overseen by the French Ministry of Agriculture.

Located in the midst of Europe's leading agricultural and food-processing region, on two training and research campuses in Rennes and Angers, L'INSTITUT AGRO RENNES-ANGERS has 130 expert lecturers and researchers working with 2,000 students enrolled in four engineering courses and other programmes from bachelor's degree to doctorate (110 doctoral students, co-accreditation in four doctoral schools). L'INSTITUT AGRO RENNES-ANGERS conducts academic and applied research in close partnership with INRAE and transfer and development activities in conjunction with three competitive hubs (Mer Bretagne, Végépolys, Valorial).

The appointed professor will be attached to the Soil Science Teaching Unit, part of the Physical Environment, Landscape and Territory Department of L'INSTITUT AGRO RENNES-ANGERS.

### **BACKGROUND AND PURPOSE OF THE ROLE**

Food security requires fertile soils able to feed a growing world population against a background of global change. Soils are also crucial in regulating flows within the biosphere and are the habitat of considerable biodiversity that drives biological processes and contributes to the overall ecology and functioning of ecosystems. They are therefore central to interactions between human activities and the environment and to what has been described as the health-food-agriculture-environment nexus.

The health of agrosystems reflects their ability to produce healthy food for animals and humans, while limiting the leakage of pollutants to other parts of the ecosystem. It also reflects their ability to sustainably provide the ecosystem functions of climate, water and biodiversity regulation beyond their mere production function. The health of agrosystems is therefore part of a unique health concept ("One health"), which promotes an integrated approach to public, animal and environmental health, and which constitutes a major challenge for agricultural education and research.

In this context, the "Soil Health and Food" project, which is part of the European Horizon Europe research and innovation programme, aims to ensure that 75% of the European Union's soils are "healthy" by 2030, i.e. able to provide all essential ecosystem services.

The UP Soil Science training project is in keeping with this recognition of soils and their complexity within the broader framework of environmental protection and natural resources, but also of the design of agricultural production systems based on agroecology, with an emphasis on mixed farming environments. Based on its strong disciplinary skills in soil science, the UP is involved in multidisciplinary training projects that take an integrated approach to environmental and sustainable agricultural production issues. Incorporating the link between soil health, agrosystem health and human health into training and research projects is a new approach that addresses the issues of environmental protection and food safety.

## TEACHING ASSIGNMENTS

The UP Soil Science (SDS) provides fundamental and applied teaching on soil knowledge in professional training courses (Environmental Engineering and Agroecology specialisations, Master's degree in Transition Environment Agriculture Milieux (TEAM), Master's degree in Water Sciences co-accredited with the University of Rennes 1- INSA-ENS, professional degree in Agroecology, continuing education courses), based on a multidisciplinary approach to agronomy and environmental engineering. It also helps train future researchers in the field of hydrology and soil science.

The appointed person will supervise the group of teacher-researchers from the UP Soil Science and other teaching units to run the multidisciplinary environmental training project "Management of soil/water/biodiversity resources/localized food systems". This provision must be integrated into the institution's strategic project and be consistent with the other training provision at the Rennes and Angers sites, the Institut Agro Dijon and the Institut Agro Montpellier. They will organise the participation of the L'INSTITUT AGRO RENNES-ANGERS in site projects, a health and environment course for the master's degree in water science (AO, EHESP, ENSCR, University of Rennes 1) and the "Environmental Intelligence" project (accreditation of environmental training courses and master's degree in environmental intelligence). The successful candidate will lead discussions within the Agro Institute and its European partner networks on specialised training on soils.

## RESEARCH AND TRANSFER ASSIGNMENTS

The appointed person will develop their research activities in the UMR INRAe L'INSTITUT AGRO RENNES-ANGERS Soils, Agro-hydro systems, Spatialisation (SAS) in Rennes. They will focus on the link between soil health/quality and the health of agrosystems, and will be part of one or more of the following work streams:

- propose methods to assess the health of soils and agrosystems;
- characterise the ability of soils to regulate water quality in relation to agricultural pollution emissions;
- assess the effect of climate change on the performance of soils and the ecosystem services they provide;
- making the link between soil health and human health through the exposure of human organisms to pollutants initially present in water and soil.

The successful candidate will also play an important role in thematic leadership and coordination within the UMR SAS as part of the different research axes.

## LEADERSHIP AND OUTREACH

The appointed professor will be fully involved in the UP Soil Science and Milppat Department team, as well as the institution's various bodies. They will strengthen the visibility and reputation of the L'INSTITUT AGRO RENNES-ANGERS by actively participating in regional, national and international research and innovation networks that seek to account for the role of soils in the health of agrosystems and make the link with human health. There are high societal expectations in this area of research.

## For further information

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- on administrative matters: Madam Director of L'INSTITUT AGRO RENNES-ANGERS

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