

# POST-DOCTORAL POSITION IN PLANT ECOPHYSIOLOGY AND MODELLING INRA, CLERMONT-FERRAND, FRANCE

<b>Specialities</b>	Plant Ecophysiology, Crop Modelling
<b>Job Type</b>	Post-doctoral
<b>Starting Date</b>	1 <sup>st</sup> September or 1 <sup>st</sup> October 2007
<b>Duration</b>	3 years
<b>Gross Salary</b>	€ 25,800
<b>Location</b>	Agronomy Laboratory, INRA, Clermont-Ferrand, France
<b>Lab Web Sites</b>	<a href="http://www2.clermont.inra.fr/agronomie/">http://www2.clermont.inra.fr/agronomie/</a> <a href="http://www2.clermont.inra.fr/umr-asp/">http://www2.clermont.inra.fr/umr-asp/</a>
<b>Project Web Site</b>	<a href="http://www.rothamsted.bbsrc.ac.uk/bab/mas-projects/NUE.html">http://www.rothamsted.bbsrc.ac.uk/bab/mas-projects/NUE.html</a>

## Topic

Modelling ecophysiological and genetic determinants of wheat nitrogen use efficiency and grain protein concentration.

## Full Description

A three-year Postdoctoral Research Associate position will be available at the Agronomy Laboratory of the French National Institute for Agricultural Research (INRA), Clermont-Ferrand, France in autumn 2007. The postdoctoral research fellow will work as part of a young interdisciplinary team in a bilateral research initiative between France (INRA, Clermont-France) and Great Britain (University of Nottingham, John Innes Centre, and Rothamsted Research). This project aims at a better understanding of the ecophysiological and genetic determinism of high nitrogen use efficiency and high and stable grain protein concentration under variable environment for bread wheat. The successful candidate will join a multi-disciplinary group of scientists (crop physiologists and modellers, geneticists, and molecular biologists) actively working on wheat ecophysiology and genetics, and developing the Sirius wheat simulation model [Plant Physiol. 133(4)1959-1967; Eur. J. Agron. 25(2):138-154]. This model is designed to simulate mechanistically, at the square meter scale, wheat development, growth, and dry matter and nitrogen allocations. It allows to better understand genotype x environment interactions and to decompose complex traits, such as NUE and grain protein concentration, into elementary processes and traits, which are independent of the environment.

In addition to providing the necessary ecophysiological expertise in the analysis of the field experiments and the identification of relevant ecophysiological traits for quantitative trait loci (QTL) detection, the successful applicant will be involved in the development of a QTL-based simulation model combining the Sirius wheat simulation model with QTLs for key genotypic parameters. This QTL-based model will help analysing the effects of the detected QTLs in different genetic backgrounds and environments. These researches will first be carried out with well characterised genetic materials (e.g., parents of mapping populations). In a second time, genetic determinants of the studied ecophysiological traits will be analysed using several mapping and mutant populations. The results of these researches should identify physiological traits and genetic loci or genes associated with improved stability of grain protein concentration and high nitrogen use efficiency while conserving high grain yield potential. The successful candidate will have access to state of the art laboratory and experimental facilities for ecophysiology, genetics, and functional genomics. Clermont-Ferrand is a city of 140,000 ideally located in the Massif Central Mountains and 400 km south from Paris.

## Education and Experience Requirements

A PhD in Plant Ecophysiology or Crop modelling or a closely related field is required. Expertise in plant ecophysiology and modelling concepts and methods applicable to the study of carbon and nitrogen fluxes is requested. Additional working experiences in plant quantitative genetics is desirable but not required. Proficiency in spoken and written English would be considered an asset. Organizational skills and the ability to work collaboratively with various research groups are essential.

## Application Instructions

Application form can be downloaded at: [http://www.international.inra.fr/join\\_us/positions/post\\_doctoral\\_positions](http://www.international.inra.fr/join_us/positions/post_doctoral_positions)  
Candidate of any nationality may apply. Candidate must not have already carried out research work at the Clermont-Ferrand INRA Research Centre.

## Contact

For information on the research program and/or more details on the position, contact Dr. Pierre Martre by phone at +33 473 624 351, or by email at [pmartre@clermont.inra.fr](mailto:pmartre@clermont.inra.fr).