Job posting

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Title  
Job offer for a PhD student (TV-L E13, 65%) on canopy micro-climate modelling

Institution  
University of Hohenheim, Institute of Soil Science and Land Evaluation, Biogeophysics section

Position  
For the development and analysis of a new agricultural system without chemical synthetic pesticides but with optimised and innovative cultivation measures, the University of Hohenheim (UHOH), in cooperation with the Julius Kühn Institute and the University of Göttingen, has established a joint project (Agriculture 4.0 without Chemical-Synthetical Plant Protection (NOcsPS)) with test sites throughout Germany. The new agricultural system will be the basis to analyse agronomic, technological, economic, ecological and social issues.

Excluding chemical-synthetic crop protection will increase the pressure of fungal diseases. The central working hypothesis of the subproject "CFD-MIKRO-SIM: OPTIMISATION OF THE MICRO-CLIMATE IN NOCSPS CULTIVATION SYSTEMS ON THE BASIS OF 3D FLOW SIMULATIONS" is that the infection risk can be reduced by optimizing the micro-climate in the canopy (e.g., by equidistant row spacing). In this case, aerodynamics is considered decisive. The core issue is to improve the turbulent mixing of the upper canopy layers. You will perform 3D flow simulations to investigate the fine structure of turbulent mixing in the canopy-atmosphere boundary layer. A virtual wind tunnel will be set up to investigate the impact of canopy- and plant architecture on turbulent mixing. The results will be transferred to a crop growth - land surface model to simulate temperature and humidity dynamics in the canopy and to assess the infection risk. The new insights will help to establish new recommendations for breeders and field management in NOcsPS cropping systems.
Responsibilities

Requirements
The successful candidate should have a Master's degree, preferably in agricultural sciences, environmental sciences or applied mathematics. Modelling skills with COMSOL or similar software packages are helpful, but not required. Programming skills in R are mandatory. In addition, the applicant is expected to be fluent in spoken and written English. If you also have high motivation, team spirit, scientific commitment, flexibility and creativity, we look forward to receiving your application. We offer an open, pleasant and constructive working atmosphere within our group.

Application procedure (deadline etc.)
Severely disabled persons are given preference if they are equally suited. Women are explicitly encouraged to apply. Please send us your detailed application and the necessary documents (cover letter, letter of motivation, CV, certificates) as well as 1-2 references. The job will be advertised until the position is filled; please submit your application as soon as possible. We look forward to receiving your application as a single pdf via the online portal of the university (https://www.uni-hohenheim.de/stellenangebote).

Contact
Please contact Dr. Joachim Ingwersen (joachim.ingwersen@uni-hohenheim.de) if you have questions about the vacancy.