With its work, the Leibniz Institute of Vegetable and Ornamental Crops (IGZ) contributes to a better understanding of plant systems and thus to the development of sustainable and resilient horticulture. The IGZ conducts research at the interface between plants, humans and the environment. In doing so, we address systemic and global challenges such as biodiversity loss, climate change, urbanization and malnutrition. We provide scientifically sound recommendations for healthy agri-food systems and sustainable interactions with the environment. The IGZ brings together a broad spectrum of scientific disciplines. Employees with different backgrounds conduct research in national and international research co-operations. The IGZ is based in Großbeeren near Potsdam and near Berlin and is a member of the Leibniz Association.

In the research group HORTSYS-Controlled environment horticultural system we create model-sensor based decision support tools for resource optimised crop production in protected cultivation. The main research in this group is model-based monitoring using systems modelling and sensor technology, aiming at resource-use optimised production. We use our research for environmental control and resource conservation in greenhouses and controlled environments.

Climate control in a greenhouse is either done preventive with large security margins or it runs behind and tries to heal damages caused. Damages to the physiological apparatus caused by plant stress, however, are known to be reversive up to a certain point, while mild stress can have positive effects on plants in terms of harvest product composition and other quality parameters. Decisions on actions to be taken are usually done from experience where commercially used standard sensor information is used. As for scientific work high-tech sensor technologies were developed for measuring plant physiological responses more or less directly, those 'phenotyping' equipment can be used for detailed measurements of stress markers that eventually will be translated to soft-sensor/sensor combined DSS.

To strengthen our team in model-based crop monitoring and to contribute to the target of resource optimisation in crops cultivated greenhouses in general, we look for an enthusiastic and ambitious

PhD-student (f, m, div) in the area "Model-based climate monitoring and control in CEA for resource efficient production"
Reference Number: 19/2024/4

The employment will be initially for four years, starting at the earliest from November 2024. The salary will be based on qualification and research experience according to the wage agreement TV-L, up to pay scale 13, 65% of the regular working time. The PhD student will be enrolled in the scientific programme at Wageningen University, Horticultural Physiology Group.

Tasks include

- plant physiological based experiments in climate chambers and greenhouses
- mathematical modelling of crop physiological processes, preferably in Matlab
- systems design of decision support and control strategies
- writing scientific publications for high impact journals and as part of a PhD thesis
- supervision of bachelor's and master's students
- presentation of results to international scientific audience

We are looking for candidates with

- a master degree within greenhouse horticulture, plant physiology and modelling or a related field
- fable for technology in greenhouse and/or indoor-farming
- proficiency or interest in using computer programming to develop plant models and data processing
- English language communication skills
- interest in modelling with Matlab, R or a related programming environment
- open to travel for various short term and/or long term stays in Wageningen (NL)
- open, flexible and positive person, able to take the initiative
- readiness to integrate into an international working environment

We offer

- an inspiring and dynamic research environment, including state-of-the art research facilities
- very good conditions to develop your own scientific career and your network in the field of high-technology crop production
- participation in a successful, dedicated and team-oriented research group
- an exciting international collaboration project between IGZ and Wageningen University of considerable fundamental and applied relevance
- flexible and family-friendly working time models and the possibility of mobile working (up to 50% of working time)
- a place of employment located close to Berlin and Potsdam

More information on the IGZ under www.igzev.de. For questions please contact: Dr. Oliver Körner (koerner@igzev.de) or Dr. Giuseppe Carlo Modarelli (modarelli@igzev.de).

We encourage a healthy work-life balance. The IGZ attaches great importance to equal opportunities. Applicants with disabilities will be given preference in case of equal qualifications. The IGZ embraces diversity in its workforce, and welcomes applications from all qualified candidates, irrespective of age, gender, sexual orientation, religion, world view, disability and belief or ethnic origin. In an effort to increase the proportion of female employees in this area, we specifically urge women scientists to apply for the position.

Please send your application including a motivation letter stating why this is an interesting topic for you and why you have the right expertise to contribute to the topic "Model-based climate monitoring and control in CEA for resource efficient production" and make progress in this field, your CV and copies of academic certificates by email to bewerbung@igzev.de in pdf format by September 15, 2024. Our postal address is: Leibniz Institute for Vegetable and Ornamental Crops, Theodor-Echtermeyer-Weg 1, D-14979 Großbeeren.