PROJECTS

Monitoring of air samples for the presence of plant pathogens within the framework of IPM (PPS Air Monitoring)

Project information

Project title: *Monitoring of air samples for the presence of plant pathogens within the framework of IPM*

Project acronym: *PPS Air Monitoring*

Duration: *48 months, from April 2022 to March 2026*

Project No.: *LWV21.183*

Call/framework: *BO Akkerbouw*

Funding agencies: *Ministry of Agriculture, Nature, and Food Quality (LNV) and Greenhouse Horticulture in the Netherlands through the KIJK Foundation (Kennis In Je Kas)*

Pessl Instruments GmbH, Werksweg 107, 8160 Weiz, Austria

Tel: +43 (0) 3172 5521 · Email: office@metos.at · www.metos.at

Summary

PPS Air Monitoring ”What’s in the air?”

As a grower, you have to deal with all kinds of diseases and pests that can affect the health of your crop. These can be spread through the soil, nutrient solution but also through air. How do you best sample and analyze whether there are pathogens in the air in your greenhouse? And if so, how do you know which these are? This is being investigated in the PPS Air Monitoring, which has just started and will run until April 1, 2026.

How are we going to investigate this?

The project will compare different equipment with which air samples can be collected in greenhouses. These samples are then analyzed for the presence of plant pathogens (i.e. fungi and bacteria). Various parts of the process, from taking the air sample to the molecular analysis and the results, will be optimized and integrated where possible. The air sampling systems for the monitoring of important pathogens in greenhouse horticulture are compared on capacity, efficiency, and the ability to detect these pathogens. After sampling, various molecular tests will be used to find out which fungi and bacteria are currently in the air in the greenhouse. In addition, it is examined where and when these pathogens are present, even before symptoms are visible. Pathogens spread through the greenhouse in space and time depending on, among other things, the growth stage of the crop, the temperature in the greenhouse, and the relative humidity. All these parameters are included in the analysis of the air sample. The equipment is used at various growers to take air samples and then analyze them in the lab. The crops on which the focus will initially be are: cucumber, gerbera, and rose. Other crops can also be sampled at a later stage. In addition, the project is collaborating with growers who can contribute their practical experiences.

The research was recently started and will run from April 1, 2022, to April 1, 2026. The Ministry of Agriculture, Nature, and Food Quality contributes half of the costs through a Public-Private Partnership (PPP). The other half is contributed by the other organizations and companies together. The (interim) results can be found on the project page of Wageningen University & Research. All partners involved also share these via their newsletters and other channels.

Project cooperation & consortium

Two Business Units of Wageningen University & Research (WUR) are involved in the project: BU Biointeractions & Plant Health and BU Greenhouse Horticulture & Flower Bulbs.

A broad consortium of organizations has been involved in this research.

The largest financier of the research is the Ministry of Agriculture, Nature, and Food Quality (LNV) and Greenhouse Horticulture in the Netherlands through the KIJK Foundation (Kennis In Je Kas), which represents greenhouse horticultural growers. Other partners in the project are: Crop cooperatives Cucumber, Gerbera and Rose, Naktuinbouw, Royal Brinkman, Pessl Instruments, Bertin Instruments, 20/20 Seedlabs Inc, One Planet / Imec NL and University of Applied Sciences Leiden.

Note for editors

For questions about this research, please contact Peter Bonants, senior researcher and team leader at the Wageningen University & Research Business Unit Biointeractions & Plant Health, peter.bonants@wur.nl, 0317-480649.