New technology for pest and disease detection in indoor horticulture

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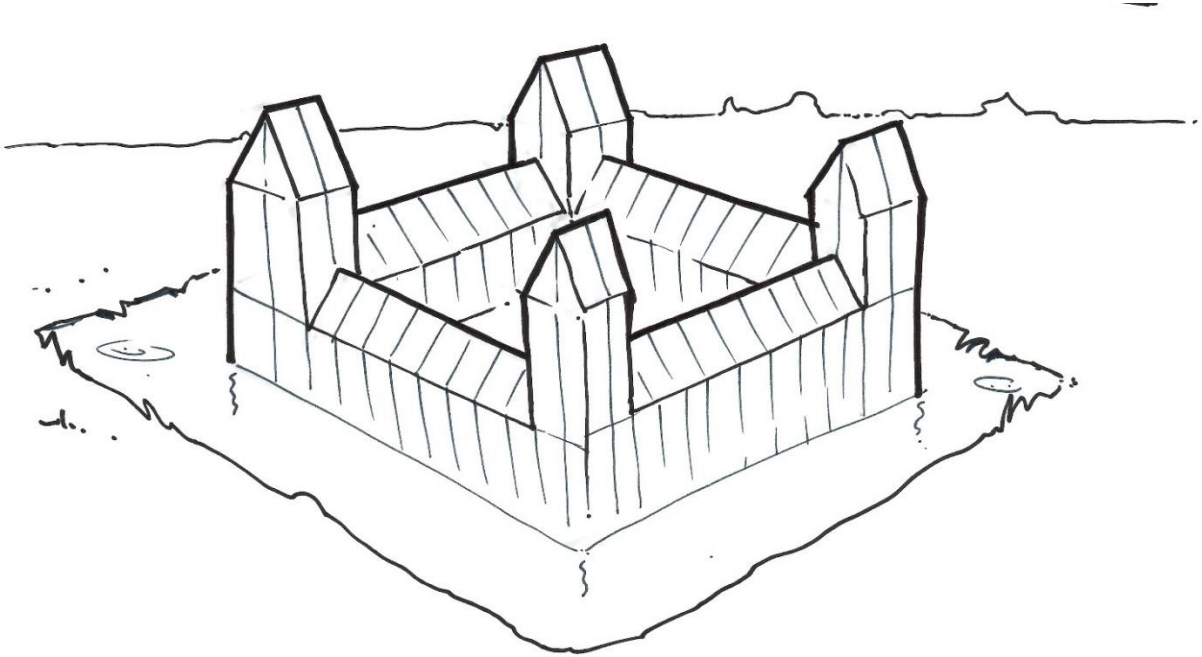
24 April 2024
AGROS network & knowledge event

Monitoring

- Early detection and diagnosis of (not yet) visible pests and diseases to prevent introduction into the greenhouse



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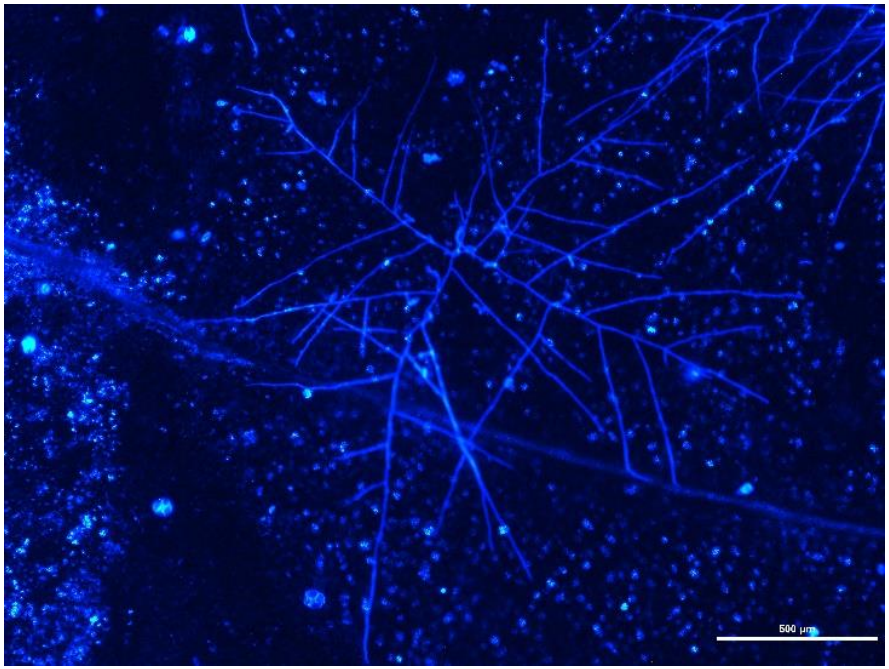
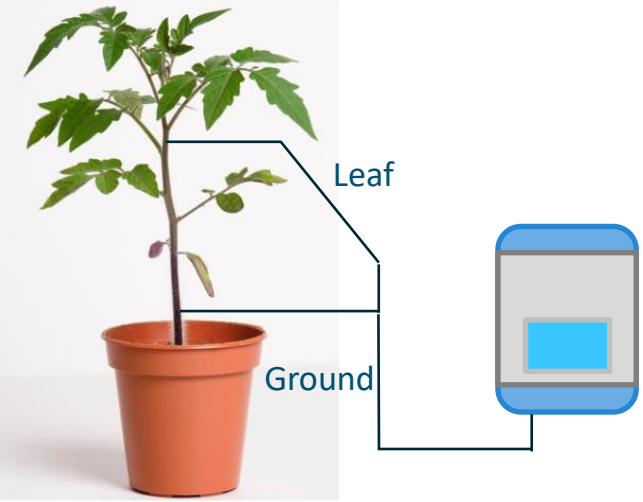
Early detection before visible symptoms

Powdery mildew



Electrophysiology



Bio-electrical signals

Analysis of signals using machine learning

Model for early detection of probability of a specific stress

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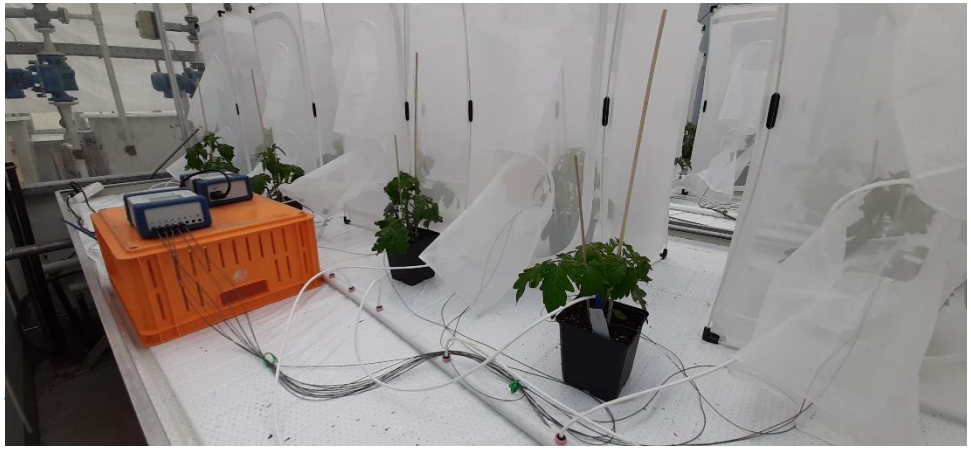
Elektrofysiologie

PNAS, 2018, 115 (40) 10178-10183

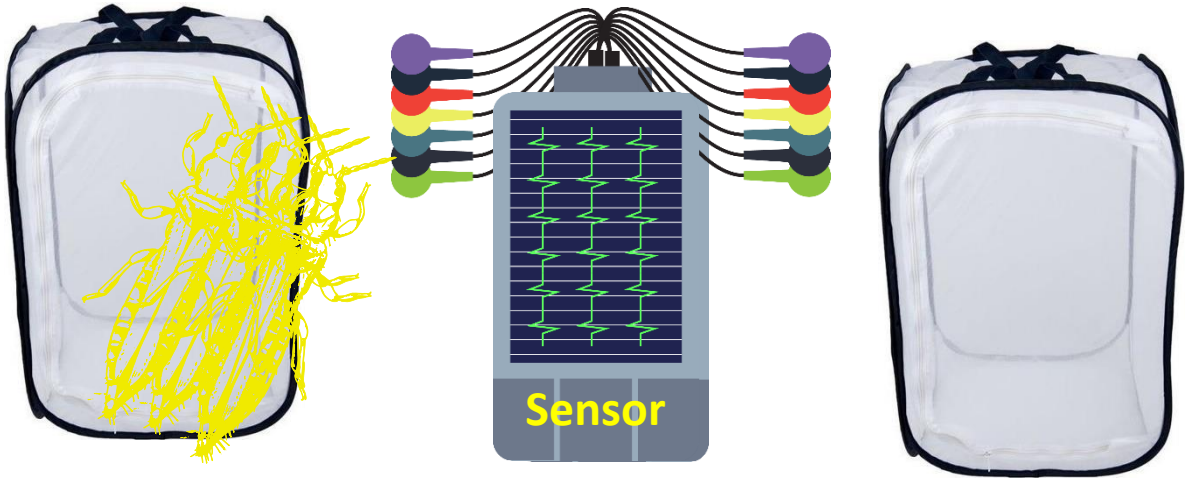
Electrophysiology

- 2 crops: 1 vegetable, 1 ornamental

- Different organisms:
  - Insects: thrips
  - Fungi: powdery mildew
  - Virus: cucumber mosaic virus



Experimental set-up thrips



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Volatile organic compounds

Roland Mumm

Sesquiterpenes

Aliphatic hydrocarbons

Powdery mildew

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Portable GC’s

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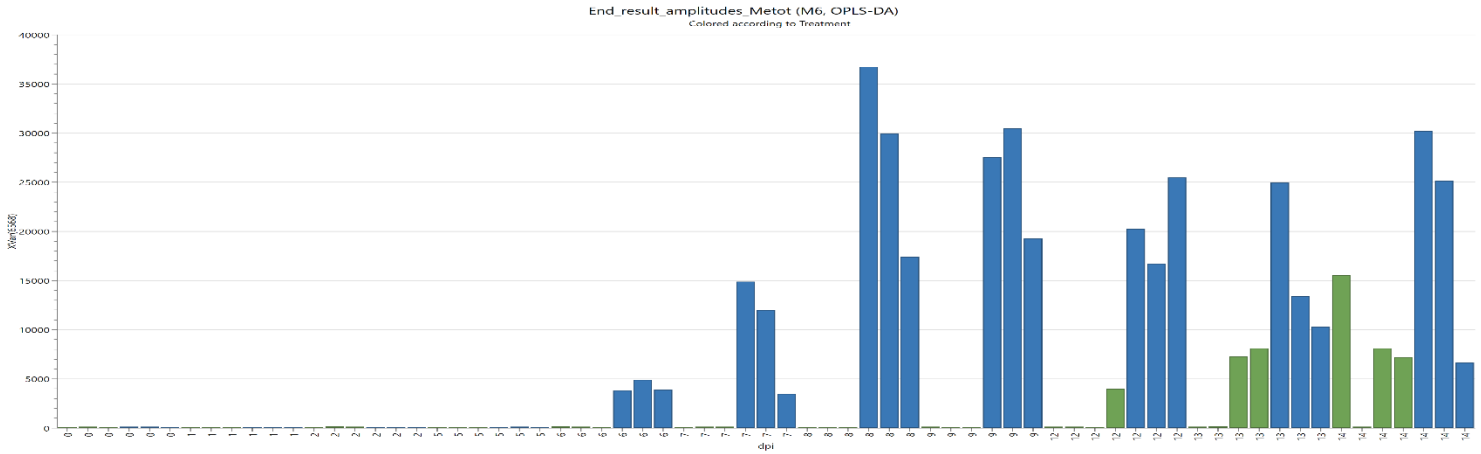
Mildew detection tomato



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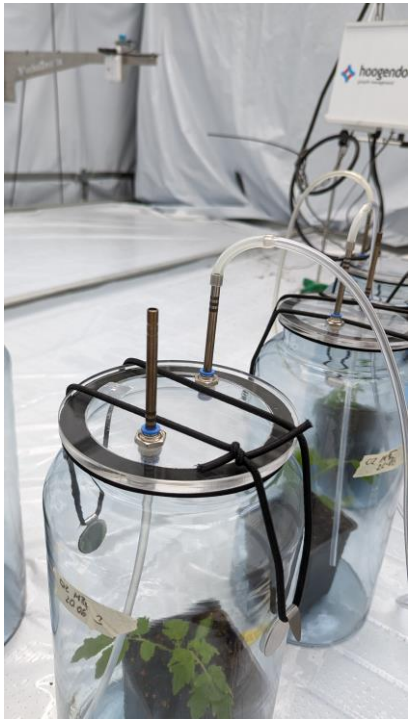
Mildew detection tomato



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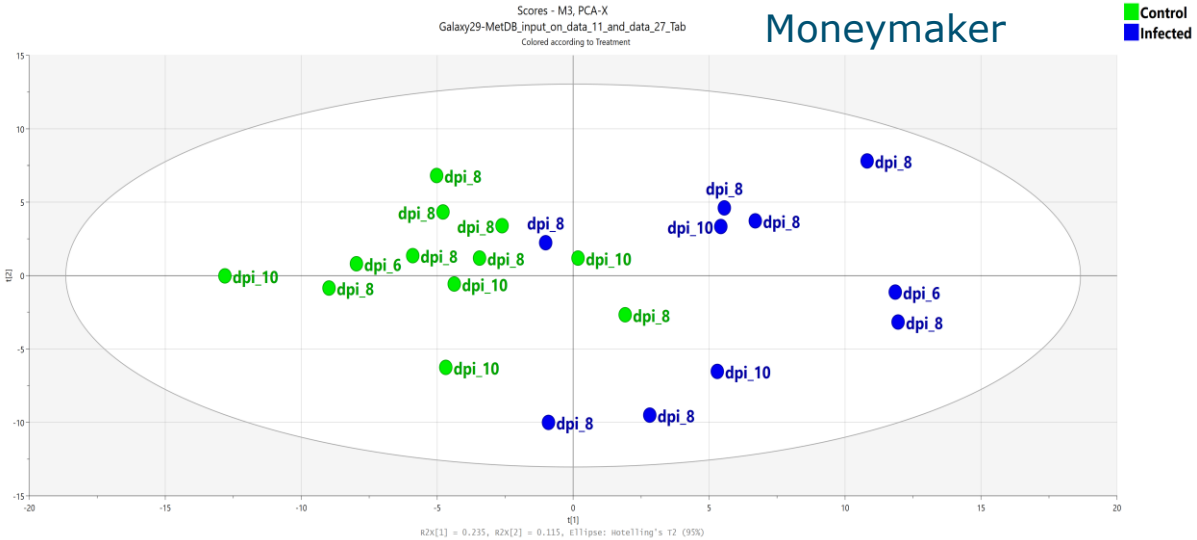
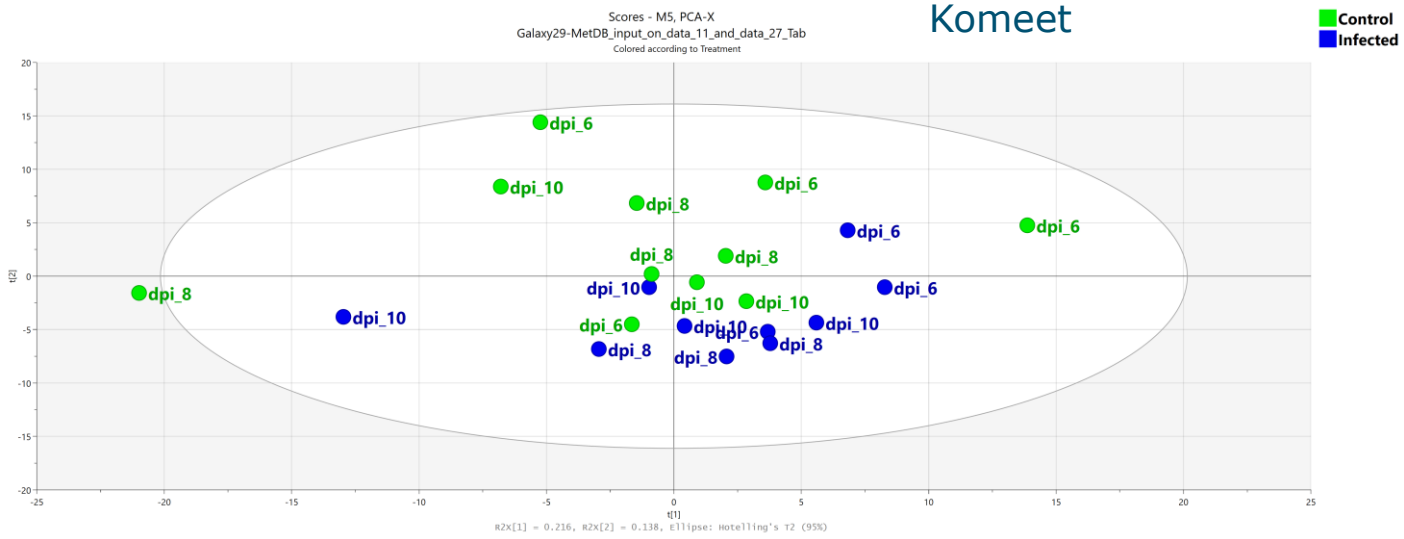
Meeldew detection in tomato





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Acknowlegdements

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Thank you for your attention!

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