LemnaTec
MEMBER OF THE NYNOMIC GROUP

analytik

HYPER**AI**XPERT

Multi-Sensor Laboratory
Phenotyping System

LemnaTec AIxpert Product Family
Documentation, Phenotyping, Seed Testing and more

HYPERAIXPERT

The most flexible multi-sensor laboratory phenotyping system for Arabidopsis, seedlings, petri dishes, MTPs, and many more sample types.

- Rapid digital analysis of phenotypic traits
- Large set of sensor options
- Advanced analytical software and machine learning
- Standardized and repeatable data acquisition
- High throughput

- Pots, trays, dishes, MTPs, beakers
- Adaptors for many sample types
- Up to 40 cm sample height with manual loading. Up to 20 cm with automated sample loader (TrayProvider™)

Features

- Experiment-driven design
- High-resolution phenotyping
- Comprehensive machine-learning based analytical software

- All major phenotyping cameras and sensors available
- Configurable multi-sensor imaging
- Automatic sample loading available
- Integrable into climate chambers

Multisensor imaging

- Visible light images provide information on sample dimensions, morphology, and color
- An IMAGING-PAM camera delivers dynamic chlorophyll fluorescence parameters.
- Hyperspectral imaging delivers a range of wavelength data for calculation of known and user-defined vegetative indices.
- Near-infrared (NIR) images capture the intensity of reflected NIR radiation at 1450 nm to measure water content.
- Fluorescence images capture the intensity of a wide range of fluorescent pigments.
- 3D laser scanning generates point clouds for detailed architectural and morphological information.

Configuration and options

- The Base Module supports manual input of microtiter plates, petri dishes, plants in pots or plant flats.
- Cameras and sensors move across the sample stage inside the base module and are positioned with high accuracy
- The Sensor Exchange System stores cameras and sensors and the moving arm attaches them for running image acquisitions across the sample stage
- Tray Adaptors for use with trays, MTPs and other sample carriers
- Light table for MTPs, petri dishes etc. available
- The TrayProvider™, an automatic tray loading module enables high throughput sample handling for efficient pipeline screening.
- The HyperAIxpert can be integrated into Climate Chambers

individual plant pots
and plant trays

Sample trays
(here: seeds)

Microtiter plates
(MTPs)

HyperAIxpert provides various possibilities in research and development.

GENETICS
screening of populations, assessment of gene functions, QTL discovery, biomarker studies

PLANT RESEARCH AND BREEDING
genotype-phenotype links, environmental effects, physio-logical effects

PLANT CULTIVATION PRODUCTS
compound screening, treatment efficiency

PLANT STRESS AND DISEASES
resistance responses, disease studies

Application examples

Population screen with seedlings
– genotype or treatment effects
Growth studies
Phenotypic assessments
Stress response monitoring
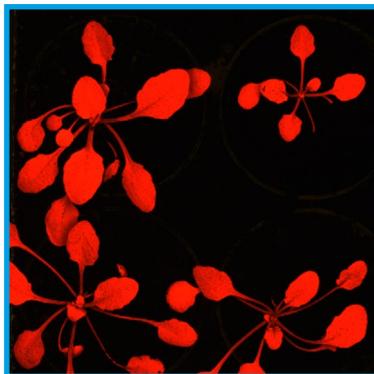
Chlorophyll Fluorescence studies
Status and activity of photosystem
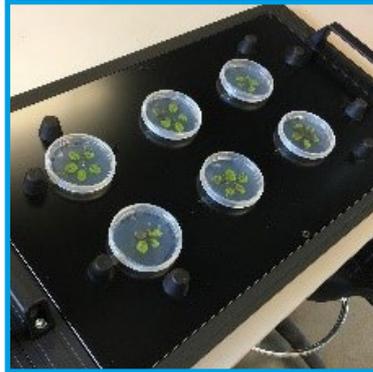Dynamic chlorophyll fluorescence imaging
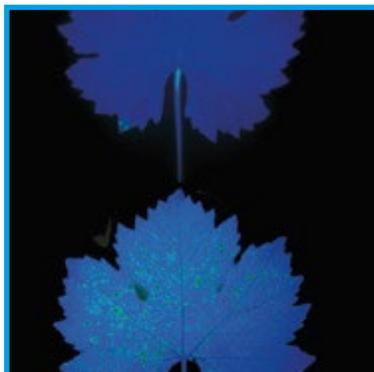
Plant disease rating and plant health assessments
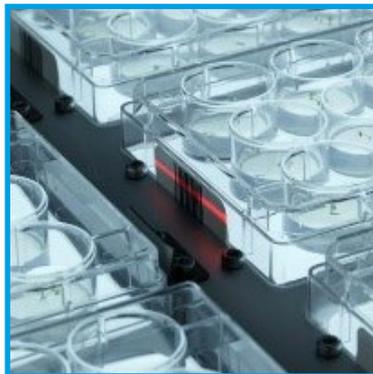Physiological phenotyping

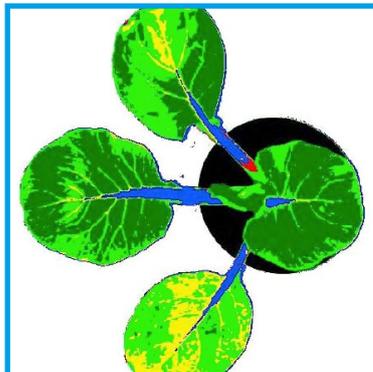Fluorescent biomarkers in gene expression studies

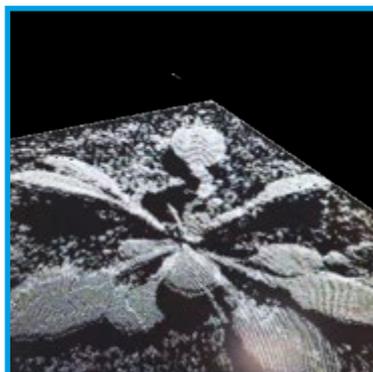Assessment of samples in petri dishes

Compound or genotype screen in MTPs

Plant performance, development, and stress studies

3D imaging of plant architecture

Manufactured by LemnaTec, distributed in the UK and Ireland by **analytik**.