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**Comparison of a 3D and multispectral imaging phenotyping platform with a whole plant gas exchange analysis prototype-platform to unravel mechanisms of action of biostimulants.**

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<https://informaconnect.com/biostimulants-world-congress/>

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Comparison of a 3D and multispectral imaging phenotyping platform with a whole plant gas exchange analysis prototype-platform to unravel mechanisms of action of biostimulants.

Agri-tech industries try to develop effective biostimulants that implement plant productivity allowing in parallel to safeguard the environment and human health.

Drugging the market with biostimulants of dubious utility and/or applied in unsuitable contexts undermine the acceptance of new products by users. European Union aims at guaranteeing the effectiveness and field of use of these products, trying to avoid this kind of scenario.

What is necessary today is the identification of a biostimulant-screening procedure to 1) screen promising matrices under standard conditions, 2) accelerate the development times of the prototypes deriving from these matrices by rapidly identifying the formulation and dosage, 3) identify the action mechanisms of tested products.

Which technologies may be the most appropriate and which is the right moment for biostimulant use in plant development is debated.

To answer these questions we tested two phenotyping platforms, one based on 3D and multispectral imaging technology (PlantEye, Phenospex, Netherlands) and a prototype based on whole plant gas exchange analyses, capable of differentiating root from canopy gas exchange.

A commercial biostimulant eliciting resistance of horticultural plants to abiotic stresses was used to identify the timing of the appearance of plant traits observable with the two platforms. The combined use of the two platforms allowed to provide additional information on the mechanism of action of the commercial product used in the test. The results of this test coupled with a detailed explanation of the operation and potential of the prototype whole plant gas exchange analysis platform are discussed.