

Press

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Osram unveils grow light system for horticulture research

Osram has developed a research luminaire to meet the growing demands of researchers at universities, private institutes and plant production in greenhouses and vertical farms. Researchers and modern agriculturists can use the LED-based plant luminaire system Phytofy RL in the lab or in climatic chambers in order to develop new plant-specific light and growth recipes. These recipes can lead to desired outcomes in plant quality, yield and flavor.

Various light wavelengths and intensities allow selective intervention in the metabolic processes of agricultural crops and ornamental crops. Yield, coloration and taste as well as other features can be influenced in this way. The latest research shows that not only is this process impacted by photosynthetically active radiation (PAR) – in the range of 400 to 700 nanometers (nm) – but that shorter and longer wavelengths also influence plant development. With Phytofy RL, six spectral channels – from a natural far-red end-of-day light to UV light – can be addressed individually and the photosynthetic photo flux density (PPFD) planned and controlled precisely in real time: 385 nm, 450 nm, 521 nm, 660 nm, 730 nm as well as a warm white channel with 2,700 Kelvin. At the same time, the large number of LEDs in the fixture allows a higher photosynthetic photon flux (PPF).

A special feature of the system is its highly uniform light distribution. The calibrated system furthermore supplies a precise irradiance map, calculated by the software with no quantum flux measurements required. Use of Phytofy RL allows for evaluation of the most varied light recipes, without having to change luminaires between individual tests. Diverse combinations of wavelengths also can be programmed, in different light profiles and across the entire photoperiod. In addition, users get five light recipes following registration, which have been specially developed by Osram.

The system software was developed by Osram together with plant biologists and can be used intuitively via the graphical user interface. Manufacturers of climate chambers benefit too, with integration possible in their systems. The flat and robust design (667 x

299 x 44 mm, just under 9 kilos) is optimized for vertical farms, rack systems and growth chambers.

Phytofy RL is already being used by [NASA](#) and [Michigan State University](#). Osram is using it to carry out research of growth, anthocyanins and taste, conducted in a climate chamber at the TU Munich.

For further information on horticultural applications at Osram and Phytofy RL:

www.osram.com/phytofy



Each of the six spectral channels can be addressed individually with Phytofy RL and the intensity planned and managed precisely in real time.

Picture: Osram



Use of Phytofy RL allows the researchers to evaluate the most varied light recipes, without having to change luminaires between individual tests.
Picture: Osram

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ABOUT OSRAM

OSRAM, based in Munich, is a leading global high-tech company with a history dating back more than 110 years. Primarily focused on semiconductor-based technologies, our products are used in highly diverse applications ranging from virtual reality to autonomous driving and from smartphones to smart and connected lighting solutions in buildings and cities. OSRAM uses the endless possibilities of light to improve the quality of life for individuals and communities. OSRAM's innovations enable people all over the world not only to see better, but also to communicate, travel, work and live better. OSRAM has approximately 26,200 employees worldwide as of end of fiscal 2018 (September 30) and generated revenue of more than €3.8 billion from continuing operations. The company is listed on the stock exchanges in Frankfurt and Munich under ISIN: LED 400 (WKN) and OSR (trading symbol). Additional information can be found www.osram.com.