Horticulture Lighting

Humans, animals and plants all live under the same sun, but do they also need the same lighting? Seasons show how much plants can be controlled by light and how essential the right lighting is in different growth phases.

www.vde.com/light-en

VDE

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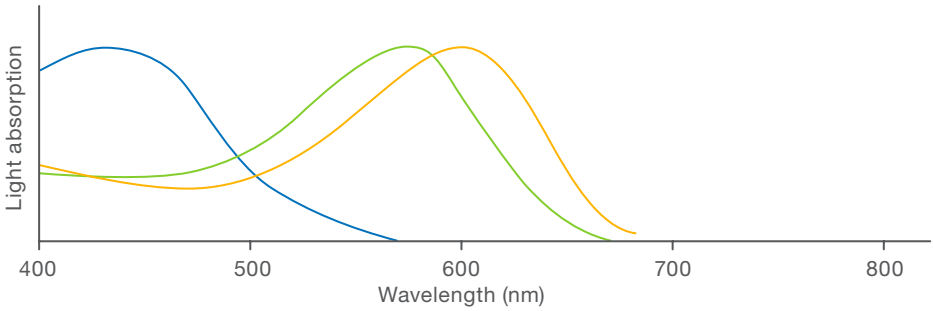
General lighting and plant lighting differ mainly in their light spectrum and therefore in their focus on the needs of plants.

Photons of a certain wavelength are absorbed by the plants and converted into chemical energy. The increase in plant biomass is therefore directly related to the photons absorbed. The evaluation of light using classical photometry is therefore replaced by corresponding parameters from photon metrics.

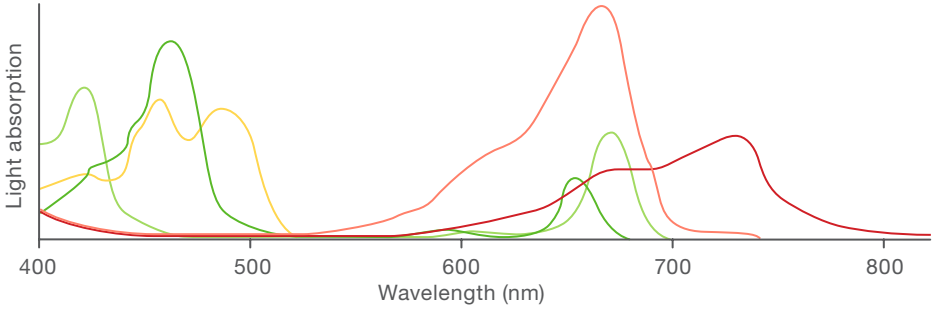
The difference can also be seen in the absorption curves of the human eye (S-, M- and L-Receptors in the eye) and various plant components. Each growth phase and plant species produces a different combination of absorbers (Chlorophyll type a, Chlorophyll type b, Phytochrome Pr, etc.), so that efficient lighting responds to the growth phases of the plant.

Photometric parameters	**Corresponding photometric parameters**
Luminous flux	Photon flux
Luminous flux reduction	Photon flux reduction
Maintaining the luminous flux	Maintaining the photon flux
Luminous flux maintenance factor	Photon flux maintenance factor
Luminous intensity distribution	Photon intensity distribution

Absorption curves of the human eye



Absorption curves of plants



The VDE competence

Research and committees deal with the question of efficient lighting for plants. Together with experts from industry, the VDE is taking on a pioneering role in international committee work and shaping the technical changes of tomorrow.
Empirical models for evaluating the right amount of light for specific cultivation issues have been created and provide statements on the photosynthetic photon flux (PPF) of cultivation lamps. This makes it possible to calculate how many lamps are required for an area in order to achieve the optimum light level for the plants. Such models are accompanied by various other measured variables such as Photosynthetic Photon Flux Density (PPFD), Yield Photon Flux (YPF) or the Daily Light Integral (DLI).

Our services

- Planning services (lighting concepts for professional cultivation)
- Normative advice on product development directly with the latest knowledge from the relevant committees.
- Analysis of your individual challenge with the currently established models and professional measurement technology
- Everything from a single source through to your “Horticulture Lighting” certificate.

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Horticulture Lighting
www.VDEinfo.com
ID 49000000

Available from May 01, 2024

10 YEARS OF PRODUCT SAFETY

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