



PROFESSIONAL SOLUTIONS

VERTICAL FARMING

We are faced with more and more challenges. Climate change, growing world population, loss of farmland and the need for a better use of resources. To solve these challenges, Würth Elektronik is actively accelerating the green revolution by supporting the development of the farm of tomorrow to ensure sustainable food production.

DECADES OF MASTERY | TRANSFORMATIONAL RESILIENCE

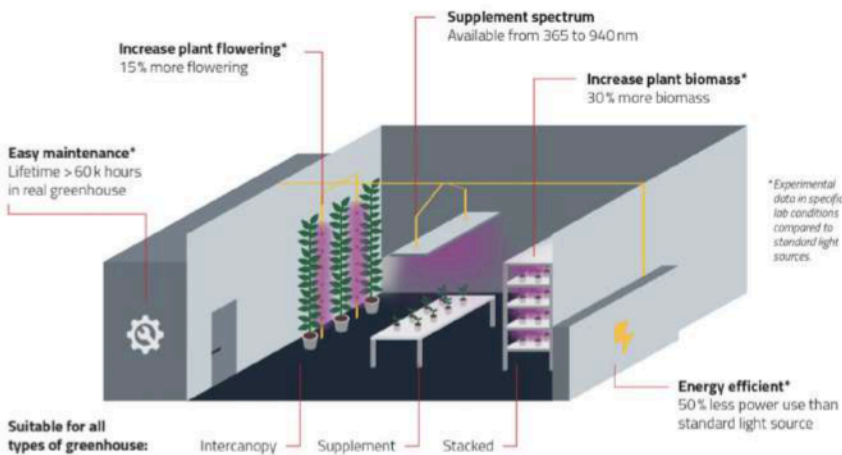
APPLICATIONS OF HORTICULTURE LEDS

Applications of Horticulture LEDs

Supplemental Lighting in Greenhouses

The small size of the LED in combination with a low operating temperature delivers a wide range of applications.

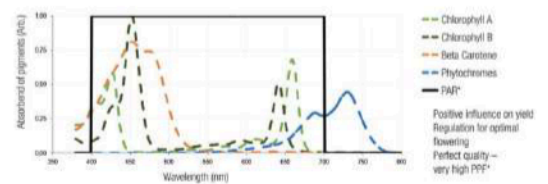
Würth Elektronik provides and selects with you the right LED for your target quality parameter in your specific application.



What Plants Need

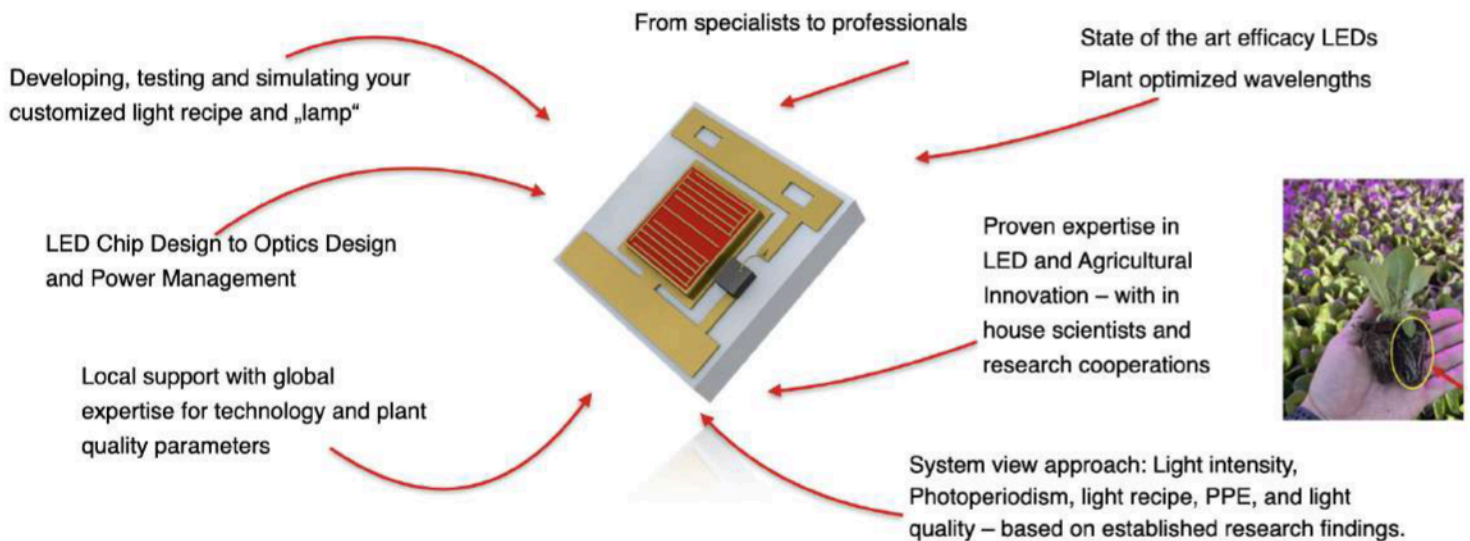


Emission spectrum of the Horticulture LEDs



Photosynthetic pigments and light receptors

A GLOBAL PLAYER WITH ATTENTION TO DETAILS





ONE STOP SHOP: FROM SINGLE COMPONENTS TO CLOUD SOLUTIONS AND FARM CONTROL



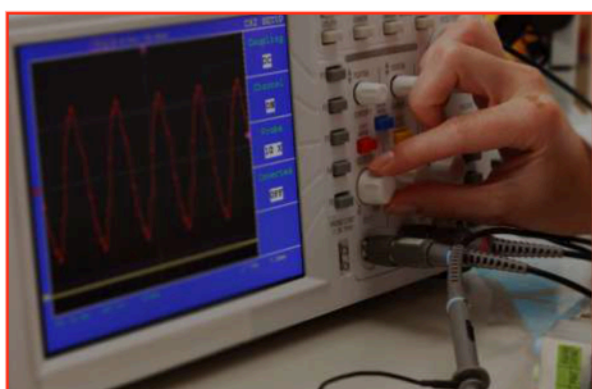
CONCEPT & RESEARCH

- Light Recipe Concept
- Bill of Material Optimization
- System Concept



DESIGN & DEVELOPMENT

- Tailored IoT Design
- Customized Software
- Farm & Plant Parameter Control



PROTOTYPING & TESTING

- 3D Printing
- Lighting Laboratory
- Electronics Pre-compliance and Debugging



PRODUCTION & OPERATIONS

- Measurement and Plant Data Collection
- IOT Support and Cybersecurity
- Cloud Collection & Control





Lower use of nutrients 60%

95% Lower water consumption

90% Lower CO₂ emissions

98% Lower acreage

Increase plant flowering*
15% more flowering

Easy maintenance*
Lifetime > 60 k hours in real greenhouse

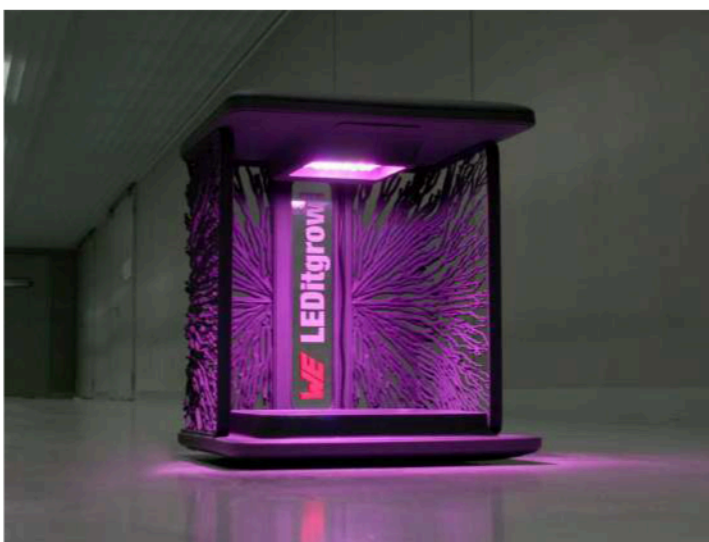
Suitable for all types of greenhouse: Intercanopy, Supplement, Stacked

Supplement spectrum
Available from 365 to 940nm

Increase plant biomass*
30% more biomass

Energy efficient*
50% less power use than standard light source

*Experimental data in specific lab conditions compared to standard light sources.



Optimizing crops with horticulture LEDs

- In view of a growing world population, advancing climate change, and rising transportation costs, we need to make the production of crops more efficient, more environmentally friendly, and more consumer-friendly now and in the future
- Würth Elektronik has been promoting the development of indoor vertical farming and algae cultivation for some time now with its own research and startup collaborations.
- Würth Elektronik demonstrates how various projects are supported with plant-optimized lighting using special horticulture LEDs and modern sensor and communication technology.
- With the help of plant-optimized lighting, we can specifically influence, maximize and standardize the formation of certain ingredients.

