

**PHILIPS**

LED Horti Partner

AND *Fred C. Gloeckner*  
Company, Incorporated

**– AN IDEAL PARTNERSHIP THAT WORKS FOR YOU!**

Two renown and well respected firms in the horticulture industry have partnered to bring you the best in LED lighting solutions. Philips has extensive expertise and experience in both conventional lighting and state-of-the-art LED lighting technology for horticulture purposes. Combined with Gloeckner's market expertise, we'll be able to offer optimum light recipes to save energy and make plant production more profitable.

**Philips LED Lighting – Growth Like Never Before**

LED lighting is here now, and promises to be the dominant lighting method sooner than later. And here's why:

- Supplements natural daylight and enhances photosynthesis which drives growth and improves quality of plants in greenhouses
- Controls the light period by extending the natural day length with artificial light
- Replaces daylight with artificial light for maximum climate control
- Energy efficient; long-life; low heat radiation; light and heat can be separately controlled; and more

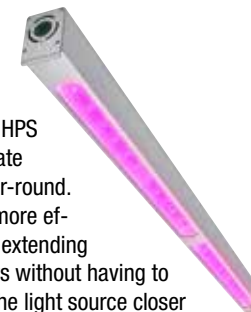
**Call for Expert Consultation and Product Pricing**

The best fit light recipe depends on a great many factors, and that's why it's important that you allow us to learn more about your specific needs and to recommend the best lighting solutions. Call us now at 800-345-3787 for dedicated assistance.



**GREENPOWER LED TOPLIGHTING**

LED Toplighting produces significantly less heat, especially less radiation heat, than conventional HPS lamps, so you can control your greenhouse climate more precisely and grow better crops faster, year-round. Less heat gives you more flexibility to use light more effectively; for example, by increasing light levels, extending lighting periods, or by using light on warmer days without having to ventilate. Less heat also means you can place the light source closer to your plants to reduce light loss even in low-ceiling greenhouses.



- *Improves Production:* Shortens growth cycles; Improves color, shape, and taste; Grow with more control over your climate; Grow year-round in low greenhouses
- *Cut Operational Costs:* Saves up to 42% on energy costs compared to HPS toplighting; Reduces cost of power infrastructure to obtain your light level; Avoid costly remodeling with easy plug and play installation; Lower maintenance costs
- *Long-Life:* Emit at least 90% of their output after 25,000 hours and can last 5 times longer than conventional HPS light sources

Item #	Mfr #	Description	Case Pk	Price (\$)
<b>GreenPower LED Toplighting</b>				
49342	303818	Deep Red/Blue/Low Blue	3	
49344	303842	Deep Red/Blue/Medium Blue	3	
49345	303859	Deep Red/Blue/High Blue	3	
49346	303867	Deep Red/White/Low Blue	3	Call for Pricing.
49347	303883	Deep Red/White/Medium Blue	3	
49348	303891	Deep Red/White VISION/Medium Blue	3	
49349	303909	Deep Red/White/Far Red/Medium Blue	3	
<b>Toplighting Accessories</b>				
49350	303966	End Cap	100	
49351	303925	Mounting Bracket	200	
49352	303933	Jumper Cable (6.6 ft L/2.01m)	15	Call for Pricing.
49353	304188	Mains Power Cable (pre-assembled w/ female connector)	15	

	Toplighting	Flowering Lamp	Production Module	TLED	Interlighting
<b>Application</b>	Increase winter light levels; Extend lighting hours; Night interruption	Extend lighting hours; Night interruption	Sole-source lighting for: Tissue culture acclimatization; Propagation; Climate cabinets	Sole-source lighting for: Tissue culture	Below crop canopy lighting for: High-wire crops
<b>Crops</b>	Supplemental light for: High-light ornamental; High-light leafy greens; High-wire fruit and vegetable	Photoperiodic genera	Leafy greens, ornamental propagation, ornamental production, algae	Fruit, vegetable, and ornamental propagation	High-wire tomato, cucumbers, and peppers; Tall roses
<b>Spectrum</b>	Tailored for your specific crops	Blue and red wavelengths vs white-only light	Tailored for your specific crops	Blue and red wavelengths vs red-deficient fluorescent light	Spectrum specific to stimulate growth
<b>Low Energy Consumption</b>	175W – 215W	13W – 16W	12W – 30W	14W-15W	117W
<b>High Efficacy</b>	2.3 – 2.6 μmol/J <sup>1</sup>	0.8 – 1.2 μmol/J	2.1 – 2.2 μmol/J <sup>2</sup>	1.4 μmol/J	1.9 μmol/J
<b>Long Lifetime</b>	50,000 hours <sup>3</sup> L70	10,000-15,000 hours L90	50,000 hours L70	25,000 hours	25,000 hours L90

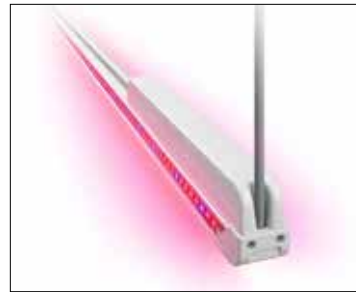
<sup>1</sup> Efficacy of toplighting (efficiency of toplighting can be as much as 50% higher than HPS)

<sup>2</sup> Efficacy of production module in blue-only spectrum is 1.7 μmol/J; efficacy of all other Philips production modules fall in the range stated above

<sup>3</sup> L90 expresses the useful lifespan of an LED indicating the number of hours before light output drops to 90% of initial output at 25 °C / 77 °F. L70 represents number of hours before light output drops to 70% of initial output

Item #	Mfr #	Description	Case Pk	Price (\$)
<b>GreenPower LED Interlighting Module</b>				
49662	260992	Deep Red/Blue	4	<i>Call for Pricing.</i>
<b>Interlighting Accessories</b>				
49663	262220	Mounting Bracket – middle line	200	<i>Call for Pricing.</i>
49664	303974	Mounting Bracket – end of line	50	
<b>GreenPower LED Production Module</b>				
49254	301887	Deep Red/Blue/Low Blue (120)	6	
49665	303321	Deep Red/Blue/Low Blue – low output (120)	6	
49255	301895	Deep Red/Blue/Low Blue (150)	6	
49666	303339	Deep Red/Blue/Low Blue – low output (150)	6	
49667	303289	Deep Red/Blue/Medium Blue (120)	6	
49668	303347	Deep Red/Blue/Medium Blue – low output (120)	6	
49669	303297	Deep Red/Blue/Medium Blue (150)	6	
49670	303354	Deep Red/Blue/Medium Blue – low output (150)	6	
49671	303305	Deep Red/Blue/High Blue (120)	6	
49672	303388	Deep Red/Blue/High Blue – low output (120)	6	
49673	303313	Deep Red/Blue/High Blue (150)	6	
49674	303396	Deep Red/Blue/High Blue – low output (150)	6	
49256	301903	Deep Red/Blue/Far Red/Low Blue (120)	6	
49257	301911	Deep Red/Blue/Far Red/Low Blue (150)	6	<i>Call for Pricing.</i>
49258	301929	Deep Red/Blue/Far Red_2/Medium Blue (120)	6	
49259	301945	Deep Red/Blue/Far Red_2/Medium Blue (150)	6	
49262	301978	Deep Red/White/Far Red/Low Blue (120)	6	
49263	302018	Deep Red/White/FarRed/Low Blue (150)	6	
49260	301952	Deep Red/White/Low Blue (120)	6	
49675	303511	Deep Red/White/Low Blue – low output (120)	6	
49261	301960	Deep Red/White/Low Blue (150)	6	
49676	303529	Deep Red/White/Low Blue – low output (150)	6	
49677	303537	Deep Red (120)	6	
49678	303545	Deep Red (150)	6	
49679	303578	Far Red (120)	6	
49680	303586	Far Red (150)	6	
49681	303594	Blue – low output (120)	6	
49682	303602	Blue – low output (150)	6	
<b>Production Module Accessories</b>				
49264	302026	Female Connector	6	<i>Call for Pricing.</i>
<b>GreenPower LED Flowering Lamp</b>				
48585	285692	Far Red	4	
48583	285700	Deep Red/White	4	<i>Call for Pricing.</i>
48584	285718	Deep Red/White/Far Red	4	
<b>GreenPower TLED* InstantFit</b>				
48969	259358	Deep Red/White/Medium Blue	10	<i>Call for Pricing.</i>
48970	259374	Deep Red/White/Far Red/Medium Blue	10	

\*TLED is only a lamp and requires a driver; works with 120V, and 347V drivers.



### GREENPOWER LED INTERLIGHTING MODULE

- The first module that can be positioned between the crops, as a result of the small amount of heat generated by LED lights
- Provides greater control over plant growth, ensuring better results (eg. for tomatoes and roses)



### GREENPOWER LED PRODUCTION MODULE

- Can be used to replace conventional fluorescent lamps (36 or 58W), reduces energy consumption by up to 60%; IP 66 rating makes it ideal for germination rooms and greenhouses (on waterbrooms)
- Deep red/blue; Deep red/white
- 2 lengths, 120cm (4') and 150cm (5')
- Lifetime 90% output: 25,000 hours



### GREENPOWER LED FLOWERING LAMP

- Extends daylight hours when cultivating and bedding plants or producing cuttings
- Up to 90% energy savings
- Presence of far red (crucial for certain crops)
- Easy to install in your current installation or for replacement of incandescents
- Less sensitive to voltage variations
- No start-up time
- Available in 3 spectral options to provide the right light required for optimal control

### GREENPOWER TLED INSTANTFIT LAMP

GreenPower TLED InstantFit is an effective and efficient alternative to traditional fluorescent lamps, delivering energy savings up to 45% compared to fluorescent lighting.

- Application: Tissue culture laboratories
- Higher multiplication factor
- Better rooting quality
- Higher survival rate in rooting
- Improved/controlled stretching process
- Accelerate hardening phase
- Improved survival rate in greenhouse due to more hardened plants
- Shortening of the total growth cycle



**Boost your bottom line by starting at the top**

Energy-efficient lighting delivering photons your crops need for optimal growth

Philips LED Toplighting

**PHILIPS**

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## What Your Peers are Saying About Philips LED Lighting

*"Dianthus and Hibiscus finished as much as two weeks faster under LEDs compared to the same crops grown under HPS."* Jeremy Windemuller, Trial Manager, Walters Gardens, Zeeland, MI

**Crops**

Perennials and bedding plants

**Challenge**

Reduce crop loss and manage finish times to meet delivery dates

**Results**

- 10-14 day faster finish for select cultivars: Dianthus and Hibiscus
- Increased survival percentage in plug trays: Agastache, Echinacea, Heuchera
- Faster and better rooting: Agastache, Dianthus, Hibiscus
- Increased flowering: Coreopsis and Nepeta pots

**LED Product – Spectrum – Light Level**

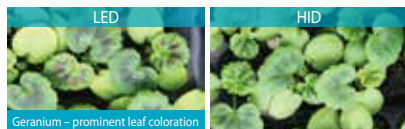
Toplighting – Deep Red/Blue/Medium Blue – 80 μmols



Agastache 'Peachie Keen'



Coreopsis 'Red Chiffon'



Geranium – prominent leaf coloration



Dianthus – compact growth



Begonia – faster rooting

*"The Begonias rooted one week faster – it was amazing."*

Dave Redoutey, Propagation Grower, Bordine's Farm, Grand Blanc, MI

**Crops**

Bedding plants

**Challenge**

Improve transplant rate and reduce rooting time of farm propagated annuals and perennials

**Results**

- 7-10 day improvement in rooting time
- Stronger roots, sturdier leaves, more compact growth
- Prominent pigmentation in Geranium leaves

**LED Product – Spectrum – Light Level**

Toplighting – Deep Red/Blue/Medium Blue – 80 μmols

*"We experienced as much as a 32% reduction in Heuchera tissue culture loss."*

Travis Higginbotham, Research and Development Manager, Battlefield Farms, Rapidan, VA

**Crops**

Heuchera cultivars propagated from tissue culture

**Challenge**

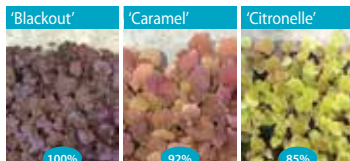
Poor propagation rates and missed transplant dates due to unreliable growth rates

**Results**

- Up to a 32% reduction in tissue culture loss
- Finished almost one week faster compared to traditional lighting
- Reduced labor by reducing the need to pick through trays

**LED Product – Spectrum – Light Level**

Production Module – Deep Red/Blue/Medium Blue – 60 μmols



Transplant success rate of Heuchera tissue culture under Philips LED lighting



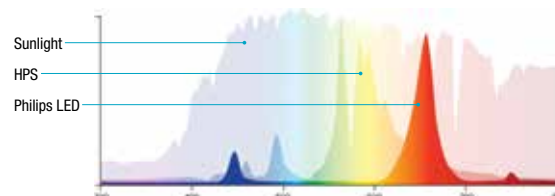
LED

Natural light



**Did you know?**

Plants have specific light sensitivities and utilize blue and red light wavelengths more efficiently. In fact, the light wavelengths of blue and red have been demonstrated to produce higher quality growth.



**Did you know?**

Did you know that not all light is optimal light? In other words, quality growth is the result of quality light. And quality light is in the blue and red wavelengths of the light spectrum.

**Did you know?**

When thinking about greenhouse lighting, there are three characteristic factor into your lighting strategy:

1. Intensity: Rate at which light energy is delivered to a unit of surface
2. Duration: Period of time in 24 hours that plants are exposed to light
3. Spectrum: Band of colors produced when sunlight is passed through a prism (violet, indigo, blue, green, yellow, and red)

Philips LEDs provide you with the intensity, duration, and optimal spectrum plus electrical efficiency.

**Did you know?**

Philips LEDs provide the right greenhouse lighting spectrum to stimulate quality plant growth and have been demonstrated in various genera\* resulting in:

- Compact growth
- Strong rooting
- Faster rooting
- Sturdier leaves
- Prominent pigmentation

\*Refer to the published case studies on this page for specific crop benefits.

**Did you know?**

Benefits of using supplemental Philips LED lighting include:

- Improved crop production planning and scheduling
- Greater predictability of production times
- Significantly lower energy consumption per fixture
- Light can be controlled independent of heat
- Attractive rate of return