

PHILIPS

Horticulture
LED Solutions

Case studies



Philips GreenPower LED toplighting

**Improve plant
quality** and speed
of propagation with
Philips LED toplighting

Kalamazoo Specialty Plants reduces labor with Philips LED toplighting – less pinching and handling, and faster transplants



Challenge

Kalamazoo Specialty Plants (KSP) propagates hundreds of varieties of bedding annuals and perennials, and more than one million herbs under 700,000 square feet of greenhouses. KSP focuses on delivering quality product to independent garden centers (IGC) located as far south as Houston, Texas and west to the Dakotas, as well as selling finished plants through their own local retail operation.

Low light levels December through February means supplemental lighting is essential to meeting delivery deadlines for IGCs in southern states. KSP owner, Rick Ouding jokes, “during the winter we measure our sunlight in hours per month not hours per day.”

The solution

As with most growers in North America, KSP does multi-crop propagation, which means many crops and cultivars are continuously moving from one greenhouse to another. To determine the lighting solution that would work best, Ouding spent several years researching numerous LED brands before choosing in 2016, to install a trial of Philips LED toplighting. He then added an additional 1600 Philips toplights in 2018.

With the installation of Philips LED toplighting in the spectrum of DR/W LB, Ouding concluded that the LEDs helped “root our crops more quickly and more uniformly”.

Some crop-specific benefits noted by Ouding include:

- Calibrichoa and Petunia: better branching, less pinching, and transplant more quickly
- Lantana: one-week reduction in rooting time, and less pinching, which saves labor
- Basil: good leaf expansion and deeper foliage color
- Succulents: more intense color, deeper red and brighter yellow colors

“there are huge benefits out there... [LEDs are] the future, it’s what we’re all going to be doing in a few years.”

Rick Ouding,
Owner

Facts

Grower

Kalamazoo Specialty Plants

Location

Kalamazoo, Michigan

Solution

Philips GreenPower LED toplighting DR/W LB

Philips LED Horti Partner

Fred C. Gloeckner

Results

- More crop uniformity
- Faster rooting and flowering
- Thicker, stronger stems

Lucas Greenhouses uses LEDs to achieve sustainable light levels and improve quality and speed of propagation



Challenge

What began as an entrepreneurial dream of George and Louise Lucas for a small greenhouse operation has, 40 years later, grown to more than 1.7 million square feet of glass greenhouse space. Located in Monroeville, New Jersey, Lucas Greenhouses grows and sells vegetative liners to growers all over the U.S., and finished plants to garden center/retailers in eastern U.S.

Because Lucas begins propagating young plants in November and December, the “sustainability of good light levels” during winter months is critical to Lucas’ operations.

George Lucas and Tom Gunther, Lead Grower for Propagation, began investigating LED options when their HID lights (high-intensity discharge) lights began wearing out.

The solution

Lucas set up small a trial with Philips LED toplighting in 2016. With the success of the 2016 trial, Lucas expanded their LED installation for the 2019 growing season by adding more than 2,000 Philips toplights over five bays. With LEDs, Lucas was able to increase their lit space by almost 50% while using the same amount of power.

As noted by feedback received from customers, the quality of Lucas’ vegetative liners has improved under the LEDs. Gunther specifically noted “better height control” on LED-lit liners, which means they’ve been able to reduce the application of PGRs and remain on schedule. Gunther acknowledged the value LEDs bring to the entire growing operation at Lucas, “plants that don’t grow right put stress on everybody.”

“Plants that don’t grow right put stress on everybody.”

Tom Gunther,
Lead Grower for Propagation

Facts

Grower

Lucas Greenhouses

Location

Monroeville, New Jersey

Solution

Philips GreenPower LED toplighting DR/W MB

Philips LED Horti Partner

Fred C. Gloeckner

Results

- Propagation time reduced by 10–20%
- Reduced use of PGRs
- Improved finished product

Jolly Farmer improves plant quality and significantly reduces energy costs with Philips LED toplighting



Challenge

Jolly Farmer is a progressive young plant propagator using the most up-to-date greenhouse equipment and technology. Naturally, they would be one of the first growers in North America to embrace LED technology on a large scale—James Darrow, General Manager, began researching and studying LEDs in 2012.

Jolly Farmer's operations, done in three phases, “germ, grow, and tone”, requires a lot of movement of plant material through their greenhouses. Propagating more than 3,000 varieties meant Darrow needed to select an efficient lighting solution that would benefit multiple crops. In evaluating LED options, Darrow said, “there was no simple answer to determine the best spectrum for our needs.”

The solution

In 2016, after years of research, Darrow decided to install a single bay trial of Philips LED toplighting. The trial was run for two growing seasons and proved to be “quite successful”, which is why Jolly expanded their installation by adding 1,300 Philips toplighting modules (DR/W MB) over three acres in 2018.

Specific improvements, which included more compact plant growth, less plant stretch, and reduced energy consumption, have been compounded with the larger installation. In a comparison of bay-to-bay energy consumption, Jolly Farmer's electrician calculated the LEDs consumed 52% less electricity compared to HPS.

When asked about the LEDs, Jolly Farmer's head grower, Sharma Jacob said, “we have a lot less stretch in the plants, we've reduced PGRs and the LEDs have helped even things out. I love them.”

“
We've been very happy working with Philips...we love the partnership, they've been very helpful, and offer a lot of good technical support.”

James Darrow,
General Manager

Facts

Grower

Jolly Farmer

Location

Northampton, New Brunswick

Solution

Philips GreenPower LED toplighting DR/W MB

Philips LED Horti Partner

Ball Seed

Results

- 52% lower energy consumption compared to HPS
- Less stretch and shorter, more compact plant growth
- Faster root development

Philips GreenPower LED Toplighting

- Energy efficient alternative to HPS — more light with same power consumption
- Passively cooled — no moving parts that can fail, which require costly maintenance
- Easier and less expensive to maintain and clean
- Longer lifetime than HPS
- Low radiant heat — makes it easier to manage light and temperature as separate crop inputs
- Spectrum designed to optimize crop growth

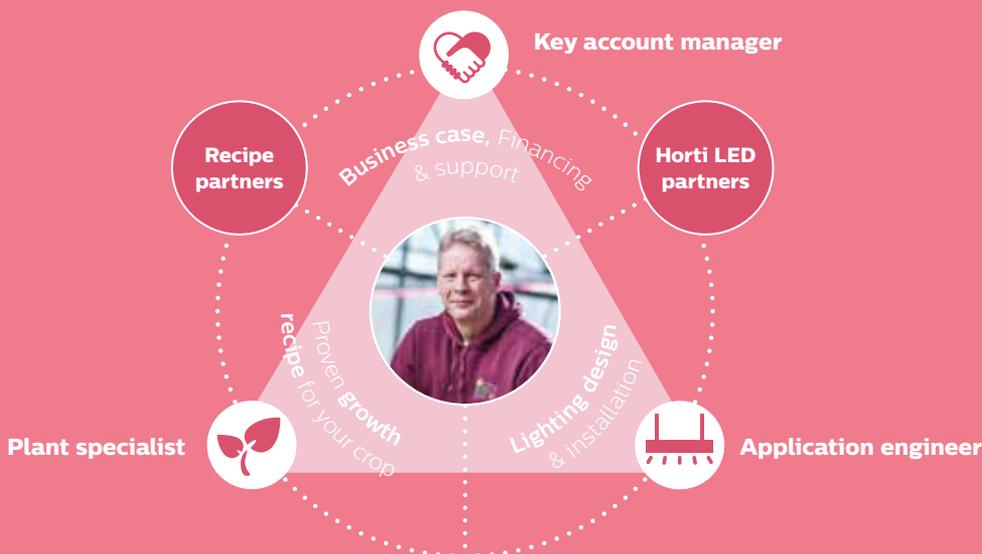


Philips LED Toplighting	Input Voltage	Photon Flux $\mu\text{mol/s}$	Efficacy $\mu\text{mol/J}$
Regular Output	220V–400V	410–550	2.3–2.6
High Output	277V–400V	800	2.8–3.0

L x W x H: 49.8" x 2.2" x 3.2" **L90:** 36,000 hours
UL/CSA rated: Damp/wet **L70:** 50,000 hours
Warranty : 5 year limited

Why partner with Signify

You want to be sure to get a rapid return on your investment and have all aspects of your project carried out professionally. With Signify, your project is in experienced hands every step of the way. You'll have the support of a key account manager, a plant specialist, and application engineer. They can guide you to ensure success and satisfaction when you switch to Philips LEDs.



Extensive lighting knowledge and plant expertise

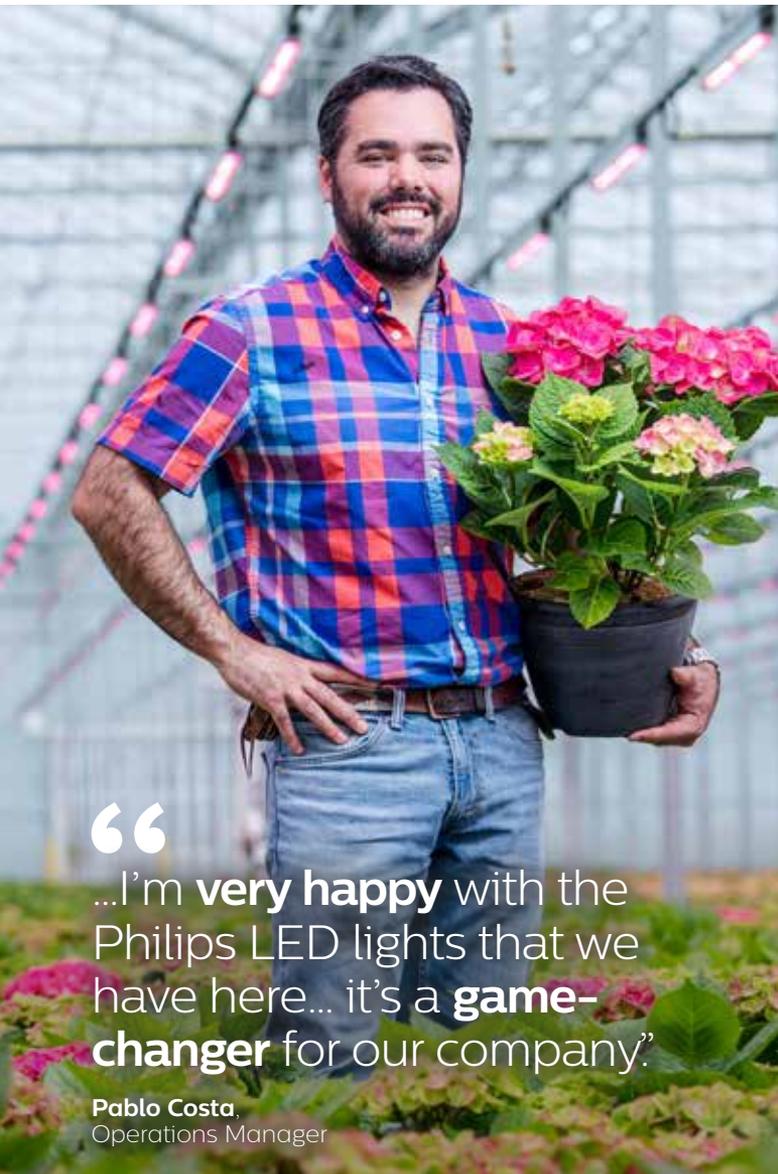


Understand the growers business thanks to our Horti experience and access to a global network of industry experts



Technical knowledge and expertise to support plan design and installation process

Van Belle Nursery uses the right light to improve growth of potted hydrangea



“
...I’m **very happy** with the Philips LED lights that we have here... it’s a **game-changer** for our company.”

Pablo Costa,
Operations Manager

Facts

Grower

Van Belle Nursery

Location

Abbotsford, British Columbia

Solution

Philips GreenPower LED toplighting DR/W LB

Philips LED Horti Partner

Fred C. Gloeckner

Results

- 2–3 weeks faster crop time
- 10% reduction in PGRs
- Improved color intensity especially red flowers
- Easier to manage a “cooler” crop

Challenge

Potted hydrangea is one of many retail-ready crops grown at Van Belle Nursery. Crops inside the Van Belle greenhouse receive on average only two mols per day of natural light at the crop canopy level during the winter. Whereas the optimal DLI (daily light integral) for finishing potted hydrangea is a minimum of 12 mols per day.

Van Belle evaluated numerous HPS and LED supplemental lighting options. With hydrangea being a “cooler crop”, factors that included heat output, energy consumption, and light spectrum, were considered in the lighting selection process. Van Belle chose to install Philips brand toplighting in 2017.

The solution

Pablo Costa, Operations Manager, described the process, “We work together with Philips and with Philips plant specialist. We looked at plants, the light intensity and the quality of the light that we have in the period that is critical for our crops and we design together the best option for the crop we grow.”

Growing under the Philips LEDs improved their crop scheduling. Now Costa knows he will have beautiful hydrangea on time and ready to ship even with the unpredictable winter conditions in Abbotsford.

Costa sees great potential using LEDs and is testing different varieties and crops. “I’m very happy with the Philips [LED] lights that we have here and [have] tested different crops so it’s a game-changer for our company.”

Iwasaki Bros., Inc. experiences a “night and day difference” with Philips LED toplighting



Challenge

Iwasaki Bros., Inc., is situated in the Tualatin Valley of Oregon where the local climate is influenced by its proximity to the Pacific Ocean. The area is known for its cloudy and rainy climate, which is problematic for Iwasaki’s spring growing season.

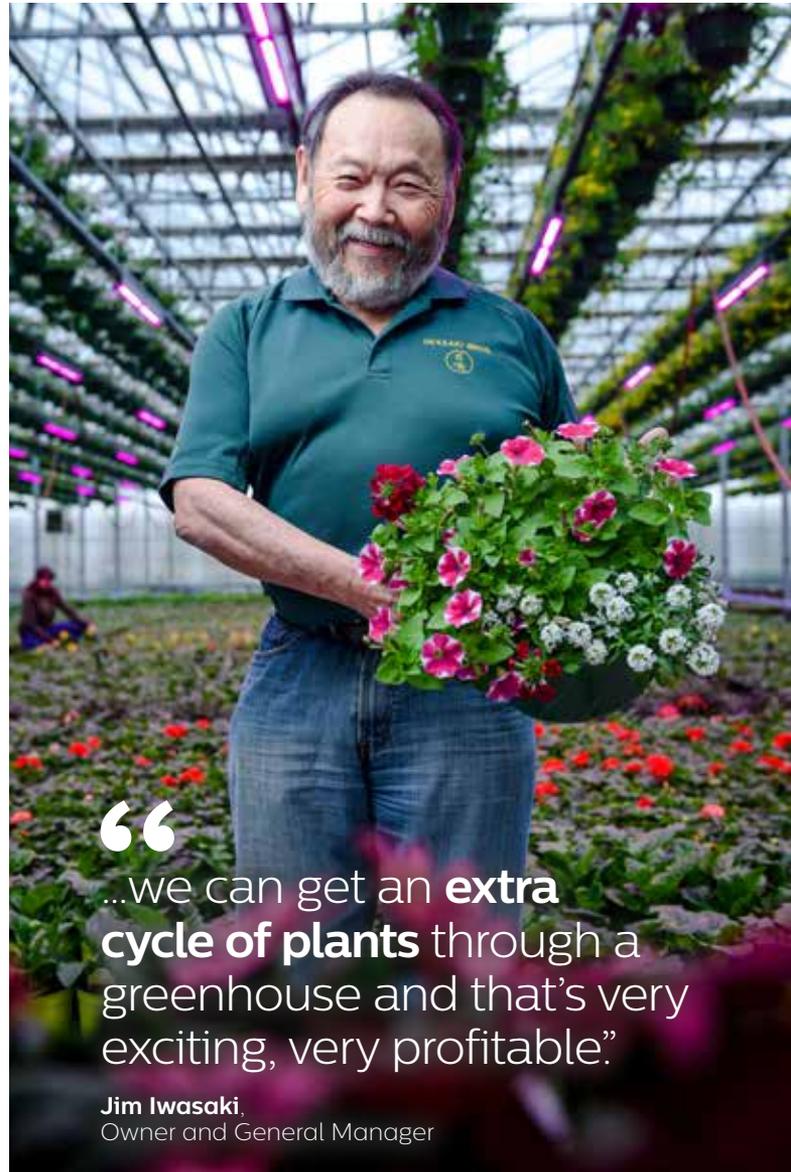
Iwasaki Bros. previously relied on HPS to provide the supplemental light needed for the growth of their light-loving crops. However, HPS fixtures consume considerable energy and the costs to operate the HPS lights cut into profits when compared to LED.

The solution

In 2016, Iwasaki decided to begin transitioning from energy-consuming HPS fixtures to more efficient LEDs. Owner and general manager, Jim Iwasaki admitted, the HPS lights require a “lot of power and a lot of dollars” to keep the lights running for the length of time needed to have plants ready to sell in April.

Through the support of teams at Fred C. Gloeckner and Philips Lighting, Iwasaki decided to proceed with a trial of more than 500 Philips LED toplights in a spectrum of Deep Red/Blue Medium Blue (DR/B MB) installed over three growing areas: unrooted cuttings, seed trays, and finishing.

When asked about the making the switch to LEDs, Iwasaki commented, “We’ve shortened our crop cycle by up to three weeks, which means we can get an extra cycle of plants through a greenhouse and that’s very exciting, very profitable.”



“...we can get an **extra cycle of plants** through a greenhouse and that’s very exciting, very profitable.”

Jim Iwasaki,
Owner and General Manager

Facts

Grower

Iwasaki Bros., Inc.

Location

Hillsboro, Oregon

Solution

Philips GreenPower LED toplighting DR/B MB

Philips LED Horti Partner

Fred C. Gloeckner

Results

- Faster rooting by 5–7 days
- Reduced pre-transplant and post-transplant losses
- Finish crops ready for market 1–3 weeks faster
- Roots grew faster than the tops



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