



PHILIPS

Horticulture
LED Solutions

Case study
Nurmitarhat Oy

Lepsämä, Finland



Philips GreenPower LED toplighting

Growing better herbs, more
efficiently **with a hybrid
lighting solution**

LEDs give us better quality and consistency, using less energy



“

The first LED lighting solution was so profitable **we decided to install it in our new greenhouse as well.**”

Erno Laukkarinen, Owner



Background

Erno Laukkarinen has a true entrepreneurial spirit. Trained as an electrician, he completely switched careers when he bought the Nurmitarhat Oy greenhouse nursery in 2005. The company was established in 1990, and supplies lettuce and 20 varieties of herbs, like basil, dill, coriander and thyme, to the main retail chains in Finland. The willingness to try new things combined with a sound technical training have allowed Laukkarinen to achieve one success after another. He was the first grower in Finland to use a humidifier to take moisture out of the greenhouse environment. He has worked with Philips Lighting for several years, and speaks regularly with Philips plant specialist Andris Stuks to learn more about how to improve his operations. Nurmitarhat Oy has its own trademark, Tätivihreä, and private labels, Pirkka and Kotimaista. The facilities span over 5,000 m² of greenhouse area, including a newly built high-tech 1,000 m² greenhouse, which was constructed in 2016 to meet the growing demand for basil from retailers.

The challenge

It's no surprise that when it came time to upgrade the outdated high pressure sodium (HPS) lighting in his greenhouse in 2015, Laukkarinen once again looked for the most innovative lighting technology. After seeing a trial with LED toplighting in Sweden, he was totally convinced that the quality of the crop grown under LED lighting was better than crops he had seen grown with HPS lighting only. Based on what he had seen in Sweden, he once again came with a new approach. He decided to combine new Philips LED toplighting with HPS toplighting modules to create a hybrid installation.

At Nurmitarhat Oy plants are grown from seed in the germination room and then placed in a mobile gutter system to grow on. Laukkarinen's biggest challenge was improving the quality of his crops during the grow on phase by preventing them from stretching too much. Doing this would keep the crops compact. He also wanted to get more uniformly sized leaves on the plants. Besides steering these plant characteristics, Laukkarinen wanted to use LED lighting to help him increase production and decrease energy usage.

The solution

Rather than throwing out HPS technology completely, Laukkarinen worked with Philips LED Horti Partner Schetelig to implement a novel combination of 80 $\mu\text{mol}/\text{m}^2/\text{s}$ HPS toplighting and 80 $\mu\text{mol}/\text{m}^2/\text{s}$ LED toplighting, for a total light level of 160 $\mu\text{mol}/\text{m}^2/\text{s}$. Philips application engineers made a light plan to apply the most uniform level of micromoles possible to the herbs. In the germination stage, LED toplighting alone is used. In the young plant stage, both LED and HPS toplighting are used. The HPS toplighting gives the crop leaves some radiant heat, and is switched off when it gets too warm. The LEDs can stay on longer because they are cooler. Combining the best of LED and HPS provides the best results. In the last two rows of the final growing stage, LED toplighting Vision modules are used for harvesting. They have white LEDs that make it easier to see the color and quality of the plant to decide when it can be harvested. Philips LED toplighting at Nurmitarhat is used to improve quality, increase production and reduce energy usage.

Benefits

After using the hybrid lighting system (LED + HPS) for one year, Laukkarinen and his team are very happy with the results, as they have seen exactly the benefits they were looking for. The quality and consistency of the crops throughout the year are much better. Before with HPS only, the leaves at the top were bigger than the ones at the bottom. With the LEDs, the crops remain more compact and do not stretch too much. The company is producing higher yields of better quality crops in the same amount of space, while reducing the energy consumption for each crop at the same time. LEDs have also allowed them to shorten the growing cycle for basil by four days, so they can do more growth cycles in a year. This project just goes to show what can be achieved when you build on what you know and dare to try something new.

“

I also chose Philips lighting for our packing and service area **because they are our most reliable partner in lighting.**”

Erno Laukkarinen, Owner



Facts

Grower

Erno Laukkarinen

Segment

Vegetables

Crop

20 varieties of herbs and lettuce

Location

Lepsämä, Finland

Solution

Philips GreenPower LED toplighting

Philips LED Horti Partner

Schetelig

Results

Better quality and consistency of crops. Higher yields per square meter, shorter growing cycles and lower energy consumption for every crop.



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Document order number: 3222 635 70646
01/2017
Data subject to change

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