PHILIPS

Horticulture
LED Solutions

Case study
Handelsträdgård
Martin Sigg Ab
Närpes, Finland

Philips GreenPower LED toplighting
Philips GreenPower LED interlighting

Higher yields of **better quality tomatoes**

100% LED is the efficient way to grow tomatoes in our climate

> **Tomatoes don't lie.** You can see immediately what's happening with the plants when they get more light"
>
> **Martin Sigg,** owner, Handelsträdgård Martin Sigg Ab

Background

Handelsträdgård Martin Sigg Ab is a family-owned company in the greenhouse vegetable-growing Närpes region of Finland. Martin Sigg specializes in growing tomatoes. He has been pioneering the use of grow lights since 2000, starting with high pressure sodium (HPS) lights. In 2013, he added LED interlighting to the HPS installation in his wide-span greenhouse covering an area of 1,500 m^2. With the help of his consultant and a Philips plant specialist, he monitored the crop results closely. He was growing tomatoes with LED lighting from another brand in a different greenhouse. Convinced by the results achieved under the Philips lighting, Martin decided to equip all his greenhouses with a double line of LED interlighting combined with his existing HPS systems. In 2016, he moved to 100% LED in one greenhouse, switching his HPS lighting with LED toplighting. This represents a real breakthrough for Martin, Philips and for Finnish tomato growing!

The challenge

In Finland it is only possible to grow tomatoes during the winter with supplementary lighting. The challenge is to grow tomato plants in an efficient way so that they deliver a high yield of top-quality tomatoes. In 2012, Martin learned about the growing experiences and the high yields achieved by Dutch tomato grower Jami in their 3 ha hybrid (HPS and LED) installation. The challenge was to find out if these great results achieved for the Komeett variety in a Venlo greenhouse in the Netherlands could be reproduced with the Encore variety in a wide-span greenhouse in the Finnish climate. "The climate and light levels in Finland can be challenging," says Sigg. "Now after working with LEDs for over 3 years, I can see that light is just light. With the low light levels in the winter, I am still able to give the crop the light it needs without the extra radiant heat of HPS. And there is not a big difference in working with HPS and LEDs. Light is light."

The solution

The Philips solution for Sigg's business consisted of lighting advice, business calculations, LED interlighting and toplighting modules, expert plant advice and follow-up, Philips Capital financing, and application engineering advice provided by Philips LED Horti Partner Electroteam. Sigg first installed a double row of LED interlighting in one climate zone (approximately 1,500 m^2) in the greenhouse. By doing this, he could fully control the climate to suit the new way of growing with the combined HPS/LED lighting system. With a more powerful and flexible hybrid lighting system it is usually necessary to adjust the water, nutrition, temperature, CO_2 and growth strategy. That is also why Sigg teamed up his growth consultant with the Philips Lighting plant expert, so they could jointly control and monitor the growth and results. After a very successful year, Sigg installed 2 lines of LED interlighting in his second and third greenhouse. In 2016, he replaced his HPS lighting with LED toplighting in the third greenhouse, producing a total light level of 320 µmol/m^2/s.

Benefits

Since the LED interlighting is mounted between the crop rows, the light can reach the plant and keep the leaves more photosynthetically active, while less light is lost to the ground or reflected upwards. LED-based lighting emits very little radiant heat, giving growers another way to control the climate to support the vegetative or generative crop phases. LED interlighting is an extremely energy-efficient technology, producing higher yields of tomatoes using the lowest amount of energy/kg. When the Encore variety was grown under LED and HPS lighting, adding just one mole of light from the LED interlighting had a very positive effect in stimulating efficient tomato growth. Sigg has seen a significant increase in the yield from his 1500 m^2 greenhouse over the past year, and this convinced him to equip his entire business with LED interlighting modules. In addition, it is very practical to work with LED toplighting because of its white color compared to HPS. Sigg says, "For judging the right color of the tomato, my workers prefer to work in the greenhouse with LED toplighting."

> Adding LED interlighting to our HPS lighting has **significantly increased our tomato yields."**

Martin Sigg, owner, Handelsträdgård Martin Sigg Ab

Facts

Grower
Martin Sigg of Handelsträdgård Martin Sigg Ab

Segment
Vegetables

Crop
Tomato, Merlice and Milaneza variety

Location
Närpes, Finland

Solution
Philips GreenPower LED toplighting
Philips GreenPower LED interlighting

Philips LED Horti Partner
Electroteam

Results
Higher crop yield, lower energy usage, more control over climate conditions

Document order number: 3222 635 70658
01/2017
Data subject to change

For more information about Philips Horticulture LED Solutions visit:
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