

PHILIPS

Horticulture
LED Solutions

Case study
Siberia B.V.

Maasbree, The Netherlands



Philips GreenPower LED toplighting

Going indoors to deliver **great lettuce year-round**

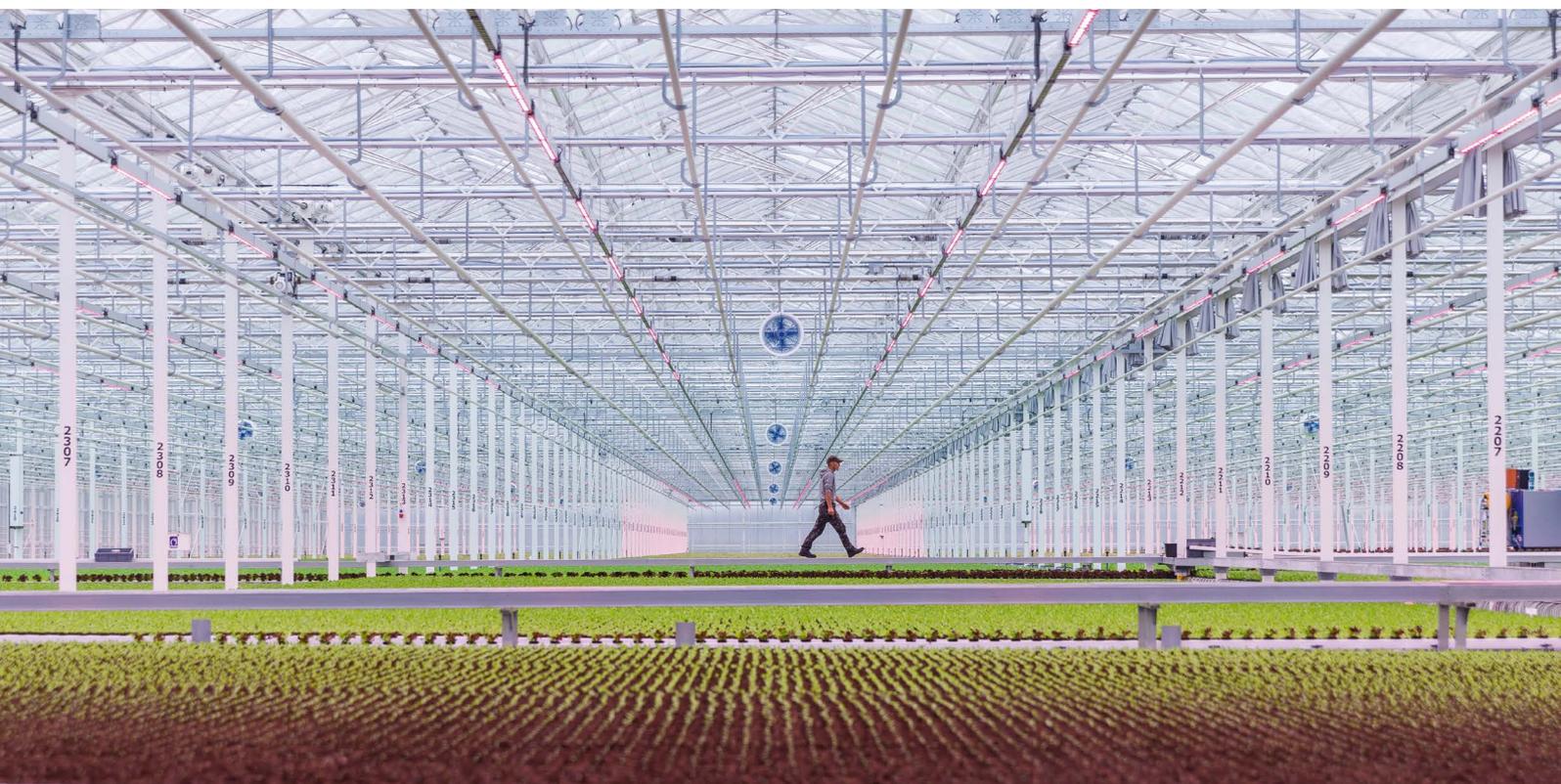
The winter grown crops immediately brought in orders for more



“

I had very high expectations, but the lettuce is growing even faster than I had expected.”

Ben van den Beuken, Grower Siberia B.V.



Background

Siberia BV is an innovative enterprise that grows greenhouse vegetables in Maasbree. It was established in early 2016 by Peter van Dijck and Luc Willemsen who also own Van Dijck Groenteproducties, one of the largest suppliers of outdoor grown leafy greens to the retail and processing sectors in The Netherlands. The partners established Siberia BV to meet the increasing demand for fresh produce in the winter. Lettuce and leafy vegetables are grown in a mobile gutter system in a new, hypermodern greenhouse. Siberia's innovative and unique cultivation strategy means that a virtually identical volume of produce can be grown on 9 hectares compared to the 90 hectares that would be required to grow the same amount of lettuce outdoors.

The challenge

When they began building the Siberia BV facilities, Van Dijck and Willemsen were committed to creating an efficient and eco-friendly greenhouse. They consulted Cogas Zuid, a specialist in ultra-modern greenhouse installations and certified Philips LED Horti partner. Advisors from Philips Lighting's Horticulture department provided input on the best light recipe to use and calculated potential yields and return on investment for the crops grown.

Siberia BV's 9 hectare greenhouse would be used to grow lettuce and leafy greens like bok choy. The co-owners first considered using HPS (high pressure sodium) lighting, but Philips proposed using LED instead. With LEDs, growers can go to higher light levels, which are really needed for growing lettuce and they can produce more in the winter. LEDs also produce less radiant heat, so there are fewer quality issues with tip burn and inconsistent growth.

The solution

The first lettuce and bok choy crops were sown in the new greenhouse in January 2016. It is equipped with a mobile hydroponic gutter system that can be adjusted as the plants grow. The entire process - from sowing to harvesting - takes place under controlled conditions under one roof. A rainwater irrigation system minimizes water usage, and less crop protection products and fertilizers are used compared to outdoors.

The total growing area is 9 hectare. The greenhouse is 6 meters high with 4 meters of space between the LED grow lights and crops. Philips GreenPower LED toplighting modules are used to deliver a light level of 104 $\mu\text{mol}/\text{m}^2/\text{s}$. According to Philips, these LEDs provide twice as much light output as HPS lights and the entire installation has an efficiency of 2.6 $\mu\text{mol}/\text{J}$. Siberia BV's customers were so enthusiastic about the locally grown crops available in the winter that they immediately increased their orders. As a result, Siberia BV expanded their operations with another 4 hectares of greenhouse with LED grow lights which opened in June 2017 and has been running at full capacity since.

“

Our customers are impressed with **the high quality and longer shelf life of the greenhouse crops”**

Benefits

“Our customers are impressed with the high quality and longer shelf life of the greenhouse crops,” says Grower Tom Willemsen. “The red lettuce has a beautiful dark red color and we are getting heavier and more uniform plants thanks to the controlled growing environment which is what our customers want.” The high light output of the LEDs promotes very fast growth of the plants, shortening the growth cycles. “We can harvest excellent quality crops in about 7 weeks and they are not damaged by the weather compared to those grown outside,” Willemsen.

In the beginning of the project, plant specialists from Philips Lighting supported Siberia BV in choosing the right lighting set-up and the right light recipe for their crops. Willemsen says, “We know everything about growing crops but we are not experts on lighting so we really appreciated the advice that Philips Lighting gave us. All of their prognoses for yields and length of crop cycles have proved accurate.”



Facts

Horticulturalist / grower

Siberia BV

Segment

Vegetables

Crop

Lettuce and leafy greens

Location

Maasbree, The Netherlands

Solution

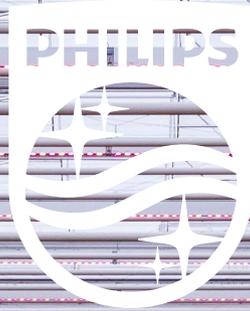
Philips GreenPower LED toplighting

Philips LED Horti Partner

Cogas Zuid B.V.

Results

Much faster growth with LED's than on open ground, higher quality, heavier and more uniform plants



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