PHILIPS

Horticulture
LED Solutions

Case study
APS Salads

Isle of Wight, United Kingdom

Philips GreenPower LED toplighting
Philips GreenPower LED interlighting

Year-round tomatoes **with 100% LED lighting**

You can almost watch the plants growing as you look at them.

Philips has sent me down a new path. **I have had to re-think how we are growing tomato crops, and I'm really impressed with the results."**

Phil Pearson, Group Development Director, APS Salads

Background

Established in 1949, APS Salads is a family-run tomato business based in Cheshire, UK. It began by growing vegetables and focused on tomatoes in the early 70's. They acquired Wight Salads in 2015, which essentially doubled their operations. Today, the company is the biggest producer of tomatoes in the UK, and supplies tomatoes to many of the UK's leading food retailers. Right from the start APS Salads had a mission; to grow and source delicious and grow these tomatoes in the most environmentally friendly way possible. Phil Pearson is Group Development Director of APS Salads and Chair of the British Tomato Growers' Technical Committee. In both these roles he has implemented many innovations; including ground source cooling, motorized harvesting systems and anaerobic digestion systems. Back in 1998 APS Salads pioneered Combined Heat & Power (CHP) in UK horticulture, using the waste heat and carbon dioxide from power generation to enrich the glasshouses and feed the tomato plants.

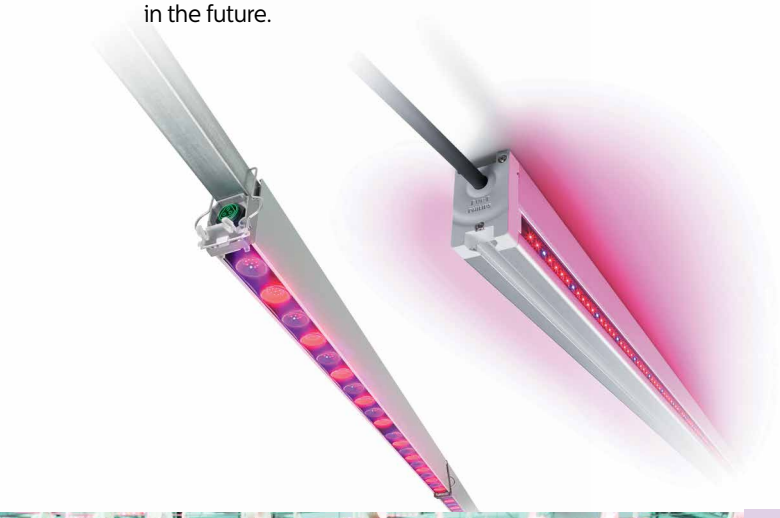
The challenge

"There is a high demand for British tomatoes," says Pearson. "Our customers don't just want British tomatoes in the summer, they also want them in the winter. Moving to year-round production of tomatoes presents a number of challenges. One big challenge was to improve the light the crops were receiving. But because of our strong environmental credentials, we did not want to do that in a wasteful way."

Pearson adds, "Growing in a protected environment in winter requires both heat and light. The use of conventional high pressure sodium (HPS) lighting produces heat, but it is heat you cannot control so that is not ideal. We have been looking at LEDs for the past ten years, but we were just not prepared to install them at the expense of the environment."

The solution

"This year changed my mind. I went to the launch of GrowWise Center, the Philips research facility in Eindhoven where light recipes are optimized, and saw that LED technology had taken an enormous leap. I knew that this was what we needed," says Pearson. He became convinced that a full LED installation was the future. From the moment the decision was made to go ahead it took Philips LED horti partner CambridgeHOK only eight weeks from the order being placed to the lights being switched on, including the installation of the lighting, light pollution screens, and panel manufacture. A one hectare block of glass on the main site at Wight Salads, Arreton Valley has had screens and adjustable height grow pipes installed to complement the LED installation. Using a combination of Philips GreenPower Toplights and double row Interlighting the facility has a total of 220 µmols/s/m^2. The Toplights are the latest generation from Philips providing 2.7 µmols/Watt, therefore out-performing other manufacturers in terms of efficiency. The Interlighting installation can be lifted and lowered to satisfy the needs of the crop and differing varieties in the future.



Benefits

"The LEDs make a huge difference. You can almost watch the plants growing as you look at them. If you normally grow in December, due to of the lack of light you would only get about half a flower a day and half a truss of tomatoes a week. Now we are getting almost one flower a day and over one truss per week." "We are using roughly 0.8 Mega Watts, which is two-thirds the power we use in another greenhouse where we are running HPS lighting. Plus, we can better control the crop balance because we have total control over the heating and lighting including the ability to reverse the follow down of each grow pipe to ensure uniformity between flow and return pipes. We can also adjust the height of the grow pipes as the crop develops, which gives us interesting possibilities." Pearson adds, "This has been one of the warmest winters I've ever experienced, at 13 °C or 14 °C. This is giving us major headaches in our HPS crop, where the temperature control within the LED crop is much easier to manage." "A lot of people have been trying year-round production of tomatoes in the UK for years but the economics have just not made sense. We are expecting a five-year payback on our investment and we are keeping our customers happy. That's going to give us a big competitive advantage in our market."

> "**We switched on the LED lights on the 21st of October** and had our first crop in the shops before Christmas."
>
> **Phil Pearson,** Group Development Director, APS Salads

Facts

Horticulturalist / grower
APS Salads (Isle of Wight location)

Segment
Vegetables

Crop
Tomatoes

Location
Isle of Wight, UK

Solution
Philips GreenPower LED toplighting and LED interlighting

Philips LED Horti Partner
CambridgeHOK

Results
LED greenhouse uses two-thirds the power of an HPS greenhouse and growers have more control over the climate and crops. Have increased yields from half a flower a day and half a truss of tomatoes a week to one flower a day and over one truss per week.

Document order number: 3222 635 70306
01/2016
Data subject to change

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