

# THE LIGHT OPTION

Using LED lighting in tomato production is a new technique that has only been introduced to commercial sites in the past two years. But does it work? **Guy Whitmore** finds out

I say I say I say, what do you get when you put tomato plants in a nightclub? Okay, while it sounds like a joke, as you walk into award winning grower Roly Holt's state of the art glasshouse, you can't help thinking of loud music, flashing dance floors and disco balls.

Perhaps suggesting the glasshouse resembles a nightclub is taking things a bit far, but as soon as you walk into his 8,500 m<sup>2</sup> – or two and a half acre –

glasshouse you can't help but notice the red and blue LED lights sitting alongside the tomato plants.

While many onlookers may wonder if Roly is moonlighting as a nightclub owner, when the jokes about *Saturday Night Fever* and dancing are over, the 35 year old quickly points out the lights have a very serious purpose – and one that could change the face of tomato growing in the UK.

"Because of the lights, we have produced

in 2014 close to a year's harvest in around six months," he explained.

"And when you consider the technology also allows us to grow tomatoes all year round, it has the potential dramatically increase our annual harvest."

The LED lighting is a key component to raising yields by a whopping 25 per cent a week.

The reason for this is that red and blue are either side of the electro-magnetic





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spectrum, providing the optimum light  
for photosynthesis.

As the lights sit alongside the top and  
bottom of the plants, it allows lower hanging  
tomatoes to finish their growth cycle even  
when they are shielded from the light by the  
plant’s canopy.

Add to that the glasshouse’s taller  
structure to improve ventilation, its  
‘hanging gutters’ to maximise the growing  
environment, the hydroponic feeding system  
and special ‘diffuse’ glass that allows light  
to fall equally over the plant’s canopy,  
and you have a glasshouse capable of  
dramatically increasing yields. On top of  
that, it also makes the management of the  
crops easier and more efficient.

All this may sound good, but to what  
aim? When you ask Roly he replies  
enthusiastically that increasing yields is a  
massive opportunity for British growers like  
him, who currently supply a quarter of the  
tomatoes sold on retailers’ shelves.

“British tomato growers are simply not  
producing enough, which is why only a

quarter of tomatoes are supplied by us,”  
continued Roly, who runs R&L Holt  
with parents Rick and Laura, as well as  
sister, Felicity.

“There is massive demand that is not  
being fulfilled, but this sort of technology  
can really help address this. The technology  
is out there, and perhaps the only question is  
‘does it work?’ And from what we have seen,  
it does.”

This is not only good for growers, Roly goes  
on to say, it’s great news for consumers.

“The majority of tomatoes on shelves in  
Britain are Dutch, Sicilian, Moroccan or from  
other parts of the world,” he added.

“British tomatoes can be on the shelves  
within 24 hours so are fresher and better  
quality, however produce transported from  
the continent Sicily, for example, takes three  
days. During this time the quality of the  
tomato changes dramatically.

“This technology means consumers can  
have fresher tomatoes all year round.”

The glasshouse is one of a number on  
three sites used by the family to grow

tomatoes in the Vale of Evesham. Inside  
the sites, specialist varieties are grown,  
including large vine, cherry on the vine,  
cocktail, baby plum tomatoes and medium  
-sized plum tomatoes are grown.

While Roly says that growing under LED  
lighting brings new challenges, such as  
maximising taste, adjustments have been  
made to nutrient recipes to optimise the  
flavour. Customers have commented on  
how consistent the fruit is during the winter  
months, which is the most challenging part  
of the season.

“On the whole, the difference between  
naturally grown and LED grown tomatoes is  
small,” he said.





So will LED become commonplace for the tomato growers of tomorrow?

Very probably, says Roly, who won the Young Grower of the Year award in 2009.

Being LED, the lights are far less money to run than high pressure sodium lighting, meaning the financial gain from increased harvests are not simply eaten up by the cost of running the lights.

But Roly stresses swapping to LED won't happen overnight, primarily because of cost and challenges of installation.

While the lights can be retro-fitted to glasshouses, Roly explains the amount of cable needed would make it an extremely fiddly job. For that reason, it makes more sense to fit the lights in new glasshouses as they are being built.

The Holt family fitted its lighting system to their latest glasshouse – which they call Freda – when they built it last year on a site previously occupied by the family's three glasshouses, called Tom, Dick and Harry.

The lights cost around £1m to install, just under one third of the total cost of the site's expansions and improvements. Another third went into the installation of a Combined Heat and Power (CHP) system, which is used to provide electricity and heat to the glasshouse, and to enrich the growing environment with Co2.

However there's another very good reason why Roly believes the lights will become far more commonplace in the UK.

While Roly's Worcestershire-based glasshouse was the third commercial-sized glasshouse to use the LED lighting in the

world, there are a number of projects looking at this technology around Europe. It is commonplace in Holland, where growers have used it to great effect for many years. Trials were running for five years in Holland before growers took the plunge.

"It's a tried and tested technology," he explained.

"While there was an element of risk, we didn't see it as being particularly high, and thought it was something we had to do."

But with planning and light pollution becoming an increasing obstacle for growers wanting to expand their business, could public perception of glasshouses with LED lighting stop them being installed?

Will it, for want of a better expression, turn the lights out for growers wanting to use the technology to expand?

Very unlikely, believes Roly, who uses double blinds to stop light pollution. The blinds are now a legal requirement in Holland, and as Roly points out, extremely effective.

Since switching his LED lighting on last year, he points out, there has not been a single objection from villagers living near to Freda.

"As long as every measure is taken to ensure the lights do not impact on those living nearby through light pollution, then I see no reason why it is likely to be an issue."

