

Year round tomatoes in the UK?

'Yes!' say R&L Holt

When R&L Holt decided to modernise the Sandylands site where Rick started the family business from scratch over 35 years ago, there were no half measures. Three blocks of old glass, staff facilities and the boiler house were demolished to make way for a 1.13 MW Combined Heat and Power unit, modern staff facilities, offices and a state of the art 8,300 m2 structure fitted with diffused glass and lighting for year round production, all designed and built by turnkey specialists Certhon, who had previously completed greenfield projects for the Holts at their Hornsfield and Springhill sites.

All marketing for R&L Holt is handled by Evesham Vale Growers (EVG) whose packing operation is not far from the Sandylands site.



Rick Holt in the foreground, Willem Valstar StarGrow Consultancy.

Like most marketing companies, EVG struggle to source good quality premium

tomatoes during the winter. There's no shortage of supply from places like Spain and

Morocco, but lower production standards and long shipment times mean that it's not always possible to match the flavour and shelf life expected by retailers for their premium brands, never mind fulfil consumers' increasing preference for locally grown produce

So Rick and son Roly made up their minds that the renovation of the site where it had all started should give them the opportunity to supply EVG with specialist premium varieties like Piccolo and Elegance all year round. EVG work very closely with R&L Holt and were quick to establish that several retail customers were willing to commit to taking the product as long as quality met the required standard.

Some very big decisions had to be made. Mains electric is too expensive for lighting on this scale, so the Sandylands



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project had to include a CHP engine to provide affordable electrical power, as well as heat and CO₂. Rick and Roly were also very keen that the

investment should be as future proof as possible. In this case, that meant installing a hybrid system with HPS lighting overhead and

Philips GreenPower LED interlighting in the crop rows, even though LED technology is still in its infancy. In fact, Sandylands have one of the

biggest commercial areas of tomatoes using LED interlights anywhere in the UK.

For many years the Holts have grown their crops using NFT (Nutrient Film Technique) and they opted for an NFT system in the new glass too, even though this would be another layer of innovation that could be a potential headache for those advising them on winter production, since no-one had ever used NFT in a UK winter crop before.

Work started on the Project in November 2013 and was ready for planting the first short term crop in March 2014. That was a great success, with higher yield and quality than expected, but the main challenge still lay ahead and the winter crop of Piccolo and Elegance was planted in September last

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Now, after their first winter under lights, are the Holts satisfied that they made the right decision?

Rick knew that it was important to get the plants off to a fast start while natural light levels were still quite high and before the

September Equinox, so he ordered bigger plants than usual from his supplier and was picking Elegance only six weeks after planting. The plants were produced by Tony Mills at Plant Raisers who grew a 60 day plant just coming into flower. Rick is full of praise for Plant Raisers.

'Tony Mills did a great job for us. The plants were 'pinched' so we had four plants in a block. We had to double the staff to get the plants strung and twisted. The warm weather last September got the plants off to a fast start, but caused the blocks to dry out quickly, so I had to put

the NFT onto full flow earlier than I would have liked.' By the end of February, they had picked 20Kg/m², a full month ahead of their original yield target. 'Piccolo and Elegance both needed to hit yield targets for the winter production to be financially viable and they've exceeded those.' says Rick. 'NFT crops normally tend to be more vegetative than crops in rockwool, and that seems to be even more so in the winter. In fact, visitors not used to NFT are very surprised that our yields are so good, given the very vigorous growth and beefier plant we get.'

The 1.13MW CHP engine provides all the power required for the lights: 105 μmol from the HPS lights overhead and 110 μmol from the LED interlights. Allowing for a dark period of at least six hours a day, which is essential for the tomato plant, the lights are usually on from midnight to 5pm.

A Combimatic screen supplied and installed by CMW Horticulture prevents light pollution during the hours of darkness and is energy saving when required



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for the rest of the day.

'Ideally, the plant needs a minimum of 1300 joules of light daily from November to early January, rising to 1600 Joules after side shoots are taken for full summer density', says Rick. 'Our hybrid lighting system provides 1100 joules, so we have to rely on nature for the rest. In the darkest months, we might only reach 100 joules of natural light on a dull day, but overall we more or less achieved what was required, and the crop looked good.' The overhead HPS lights are installed over alternate rows and so far the yield in the rows which aren't directly under lights are yielding 10% lower than those that are. 'We want to discuss that with Phillips and our advisers. Maybe we would get a more uniform result with a different lighting pattern overhead.' says Rick.

Rick also attributes the impressive yield to the abundant CO₂ he has available from the CHP engine. Sandylands have 500m³ of heat buffer storage for 15,600 m² of production, giving them ample scope to store heat while the engine is producing CO₂ and electrical power. Through the winter Rick limited the CO₂ to 800 ppm, venting a little in the morning and evening because, although the flue gasses are cleaned and tested, he didn't want even the slightest risk of the build-up of noxious fumes. In summer, when the vents are open most of the time, CO₂ is dosed pretty much continuously for 12 hours a day. The extra CO₂ capacity has lifted yields by 10% on average throughout the nursery, including in the one remaining conventional block, with an even higher yield



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under the diffused glass and LED interlighting in the new Certhon block.

However, winter tomato production in the UK is not just about yield. In fact, there would be no point at all unless the end product is significantly better quality than imported fruit. Judging by the positive feedback received so far, the winter product has reached every standard they had set for colour, shelf life and flavour. R&L Holt supply many local farm shops and farmers markets as well as the big retailers. The local outlets tend to have deliveries only weekly, so good shelf life is particularly important for them. 'They've been telling us that our winter grown product is keeping really well, so that's a big plus' according to Rick. And flavour? 'It's been excellent!'

With any new venture, there can be unexpected problems. At Sandylands this turned out not to be with the lighting or CHP, but with the

pest Tuta Absoluta, which, since first appearing in the UK on Spanish imports in 2009, has become a major issue for UK growers. Robust IPM regimes have been developed since then, but Rick has found that those don't appear to work in winter on tomatoes. 'We've been forced to employ insect traps, some chemicals and we've had to remove all crop debris from de-leafing straight away to keep on top of the problem, otherwise the crop could have been overrun'.

So, with the first winter of production under their belt, are the Holts happy with their investment? Rick and Roly both smile when that question is asked: 'It was expensive!', they both say, but EVG and UK retailers have supported them with a price premium and their forecasts for yield and quality have been achieved, so it looks like winter production in Evesham might be here to stay! ♦

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