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 Hoft's state of the art glasshouse, you can't help thinking of 'old 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 m² — 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...
WILDLIFE LINKS WITH JOHNE’S

Groundbreaking research has expanded the known host range for sararacterus, the cause of Johne’s disease in cattle, to a notoriously difficult disease to control and a £27m problem annually in the UK.

A significant challenge to livestock production across the globe and with large, being driven between it and Crohn’s disease in humans, interest in control is increasing. The presence of similar hosts of livestock, disease pose significant challenges when it comes to disease control. Crohn’s to the extent of the impact by wildlife to livestock is whether the disease will persist in as wildlife area, as there is a route of transmission back into the livestock – SRUC’s research finds both.

The dairy industry is joining forces to launch the Action Johne’s initiative, which will help manage and reduce the incidence of Johne’s disease in dairy cattle. The initiative, developed by the ActionGroup on Johne’s, aims at involving 80 per cent of dairy farmers in Great Britain in cattle and reduces Johne’s management activities by October 2015.

Rob Ranson, NFF DairyBoard Chairman said: “It is vitally important that as an industry, we manage Johne’s disease and are able to remain competitive and have a sustainable future for the dairy sector. There are huge potential cost benefits to be had by getting on top of this disease and we welcome the introduction of this initiative.”

LAMB ‘GET UP AND GO’

Research by Scotland’s Rural College (SRUC) has led to the development of a number of genetic tools to improve lamb survival. Behavioural traits that are important for lamb survival, such as lamb ‘get up and go’, can now be measured quickly and simply by farmers, using scores based on lamb behaviour. These scores are under genetic control, so farmers will now have the option to select rams for better lamb survivability, based on improved lamb vigour.

Lamb mortality averages 15 per cent of lambs born across all sheep producing countries, but lamb survival is not only good for growers, Roly goes on to say, it’s great news for consumers.

All this may sound good, but to what extent? 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.

“The technology is out there, and perhaps the only question is ‘does it work?’ And from what we have seen, it does.”

Roly Holt

The technology is out there, and perhaps the only question is ‘does it work?’ And from what we have seen, it does.

Tomatoes in the Vale of Evesham. Inside the sites, specialist varieties are grown, including large-fruit, 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.

Q&A WITH MARCUS MEADOWS-SMITH FROM BIOCONSORTIA

What does this mean for farming, and perhaps more importantly, for farmers on the ground?

A Plants need access to rich root food to survive and prosper. BiocConsorsia uses science and the latest genetic tools to identify beneficial bacterial and fungi within the soil, known as microbes — that helps plants grow stronger and increase crop yields. The simplest way to describe this is being like good bacteria in probiotic yoghurt, and how that benefits our digestive system.

Using this, and by growing plants under various stress conditions such as drought, cold and wet to identify key traits in plants that perform well, we create a seed treatment to enhance those traits.

Fusing these two things then ensures high yields of future generations of plants. It is similar to the way that plant breeders generate new hybrids, but using the genetic potential of the microbes and their influence over the plant.

The dairy industry is joining forces to launch the Action Johne’s initiative, which will help manage and reduce the incidence of Johne’s disease in dairy cattle. The initiative, developed by the ActionGroup on Johne’s, aims at involving 80 per cent of dairy farmers in Great Britain in cattle and reduces Johne’s management activities by October 2015.

Rob Ranson, NFF DairyBoard Chairman said: “It is vitally important that as an industry, we manage Johne’s disease and are able to remain competitive and have a sustainable future for the dairy sector. There are huge potential cost benefits to be had by getting on top of this disease and we welcome the introduction of this initiative.”

SRUC’s research finds both.

Q: Bioconsorsia has developed a natural selection that identifies a plant’s most desirable characteristics, then fuses them with microbes from the soil to create better plants and higher yields. How does this work?

A: Plants need access to rich root food to survive and prosper. BiocConsorsia uses science and the latest genetic tools to identify beneficial bacterial and fungi within the soil, known as microbes — that helps plants grow stronger and increase crop yields. The simplest way to describe this is being like good bacteria in probiotic yoghurt, and how that benefits our digestive system.

Using this, and by growing plants under various stress conditions such as drought, cold and wet to identify key traits in plants that perform well, we create a seed treatment to enhance those traits.

Fusing these two things then ensures high yields of future generations of plants. It is similar to the way that plant breeders generate new hybrids, but using the genetic potential of the microbes and their influence over the plant.

Q: What does this mean for farming, and perhaps more importantly, for farmers on the ground?

A: Our advanced microbial selection process described above means we can discover new, useful bacteria that work together to increase crop yields. Microbes are naturally found in soil and plants and can be used as an additive or alternative to chemical pesticides and fertilisers are becoming tough, farmers need different options for fighting pests, diseases, stresses and production demands.

Q: How soon before it will be widely available in Europe and the UK?

A: While we’re planning field trials in Europe in 2015 on wheat and tomatoes and new products could be available by 2017.
The national flower of Wales, the daffodil, could provide upland farmers in the Black Mountains - and other parts of the UK - with additional income streams. That's according to Kevin Stephens, founder of Agroceuticals Products, a company set up to harvest galanthamine from the flower. Galanthamine has proven to slow the progression of Alzheimers disease within sufferers, and in the past has been mainly extracted from wild flowers grown in Bulgaria and China.

However, despite an acceleration of the government's £790m roll-out of superfast broadband, large swathes of the British countryside fall far short of the UK average. The Holt family fitted its lighting system under one third of the total cost of the site's CHP system, large swaths of the British countryside fall far short of 22.8 mega-bits per second UK average. "Farming is a modern and progressive industry which requires truly supertant broadband so our farmers and growers can comply with regulatory reform, run effective businesses and maintain a family life," said our senior planning and rural affairs adviser, Suzanne Clear, in response to an Efra Select Committee report in February.

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. "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 Roly stresses swapping over 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 Roly 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 Wrecsam-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?