BEVER INNOVATIONS

HORTI CULTURE

CASE STUDY

CLIENT: Vitro Plus

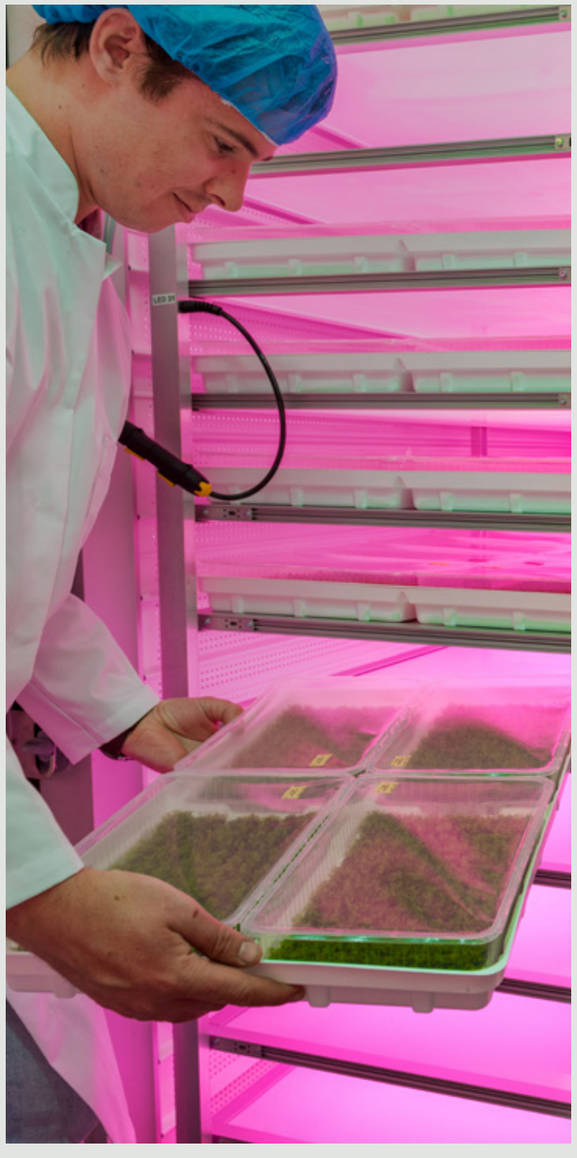
LOCATION: Burgh Haamstede – Zeeland, The Netherlands

PROJECT: Replacing LED bars with Horti Leaf Carrier

“Leaf Carrier gives Vitro Plus fern production a significant boost”

Vitro Plus has been growing a wide range of ferns at its location in Burgh-Haamstede, the Netherlands, since 1990. Every year, approximately 30 million cuttings from 200 different species are grown and subsequently exported to end growers all across the world. “This allows us to manage the process as a whole”, says John Bijl, Sales Director. “The process ranges from unravelling the genetic background (production) and collecting fern species to plant production, marketing and sales”. Vitro Plus has been using the Leaf Carrier cultivation trolleys by Bever Innovations, Horticulture division, for several years to help guarantee a stabilised growing process, a maximum cultivation area per square metre of growth cell, along with efficient logistics.

“We use plant tissue culture, in which the plants are propagated under sterile conditions and on a laboratory scale, to cultivate our ferns”, says Bijl. “Up until a decade ago, all cuttings were grown under fluorescent lighting, but with the introduction of LED lighting, we’ve been able to take a qualitative step forward in the cultivation process. This is because LED lighting not only has the right quantity of light and lighting properties - it also produces less heat. We only use those colours of the spectrum that are relevant for plant growth, namely red and blue. This results in significant energy savings together with firmer and larger cuttings. In addition, LED has allowed us to add a new process when it comes to producing plants, involving sowing fern spores. This makes use of the same methodology as tissue culture, but with slightly different technology. To cultivate our spore ferns, we added a totally new facility to our building, which has been fully equipped with Leaf Carriers. The LEDs have been smartly integrated into the plant trays within these mobile cultivation trolleys, which has given our production a renewed boost”.



MAXIMUM CULTIVATION AREA

“LED lights are of great value for plant cultivation, but also hold a number of disadvantages”, says Bijl. “A fair distance between the lights and the plant trays is required in order to ensure that all cuttings receive the same amount of light. This does not apply with the Leaf Carrier. Johan Katerberg, Business Development Manager at Bever Innovations, Horticulture Division, adds: “The Leaf Carrier distinguishes itself by minimising the thickness of its layers (9 mm) whilst maximising the load-bearing capacity of the plant trays. Integrating the LEDs into the trays that contain the seedlings has resulted in maximum cultivation surface per square metre of cultivation chamber. Up to 15 plant trays can be easily fitted into each cart measuring 2.27 metres in height. And because the red and blue light are already mixed at the source, all plants can be placed very close to the LEDs without running the risk of burning”. Bijl says “The Leaf Carrier means that we have twice as much cultivation surface available to us. A further advantage is that the LEDs in the carts give off natural heat. The minimal amount of heat that does escape comes from the side of the Leaf Carriers, and is efficiently and immediately removed. The heat does not reach the actual plants, meaning that they do not dry out”.

EFFICIENT LOGISTICS

A number of logistical benefits are achieved by selecting mobile cultivation trolleys rather than fixed installations. “We are now able to place our cultivation products directly in the racking and transport them to the growth cells in our production environment. This means that no work needs to take place in the growth cell”, says Bijl. “In addition, moving the cuttings to the processing/harvesting area is now much quicker and more efficient. The cultiv¬¬ation trolleys also mean that we can easily switch configurations as required by the cultivation process and/or quantities”.

CUSTOM-MADE SOLUTION

Vitro Plus is not only the Leaf Carrier ambassador, but has also been at the foundation of its development. Bijl says “I had been searching for some time for a solution that would enlarge my cultivation surface and configure the processes more efficiently. To do so, I looked for a mobile LED solution, but I got nowhere with the majority of LED manufacturers. They believed that working with plant trays would result in undesirable loss of light. To some extent, they were correct, but the minimum amount of light loss is easily rebalanced by the benefits of this solution. Bever Innovations was the only LED manufacturer that wanted to investigate the options available with me. They selected the right LEDs based on my requirements with regard to the light spectrum, light intensity and uniformity and worked out a customised solution. We tested the first plant tray in 2014 and two months later, I ordered the first fifty Leaf Carriers”.

Vitro Plus now has 150 cultivation trolleys in operation. This number will increase over the next few months as all existing installations are replaced. “Several companies have taken an interest in the Leaf Carrier and our cultivation process over the last few years” says Bijl. “They were curious to see whether other products could be cultivated besides ferns, and I took up this challenge. I have succes-

sfully grown small vegetable plants for a number of seed production companies. I also carried out research into whether the system could be used to cultivate end products, with promising results after the same carts, trays and light spectrum were used. The only difference was that the light intensity had to be increased. I have now cultivated fifty types of vegetable plants using this system, from mint and basil all the way to lettuce". He is conscious that there is a major emphasis on cultivating food in buildings on a global level. "The Leaf Carrier can play a significant role here. I recently founded a new limited company to increase market familiarity, and we work closely with Bever Innovations. Own Greens offers an all-in-one solution for the retail market, in which a Little Leaf cultivator and all plants, nutrients and specs can be supplied as required. This concept was presented at the GreenTech in Amsterdam last June and included a measure of automation for the cultivation trolleys. This allowed the products to be more easily packaged into and removed from the carts. Over the next 5 to 10 years, we see major in vertical farming of vegetables and herbs".

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