

BALANCE PLATFORM AT

Hortiherttua

Increasing PPFD on the Vertical Face of Vine Growing Crops
With no Extra Energy Use

Hortiherttua, a leading greenhouse grower based in Finland, faced the challenge of how to increase crop yield without increasing energy consumption. Understanding that a 1% increment in PPFD results in a 1% increase in yield of fruiting crops, they sought innovative lighting solutions that could provide the increased light intensity without increasing energy usage. In partnership with Helle-Tech & Bloem, a pioneering provider of adjustable light engine technology, Hortiherttua embarked on a journey to revolutionise their greenhouse operations.



Tomatoes, cucumbers, leafy greens and herbs supplied to regional supermarkets



Hyperlocal - the produce picked today arrives to retail outlets by the morning



Focus on sustainability - Hortiherttua uses renewable fuel and recyclable packaging



The Challenge

Hortiherttua faced several challenges in their quest to increase light levels without increasing energy consumption:

- » As an early adopter of LED top-lights, they were already benefiting from an improved energy consumption vs. HPS.
- » Top-light fixtures struggle to penetrate beyond the upper crop canopy, below the primary leaf layers, resulting in insufficient PAR light being absorbed for use in photosynthesis lower down the plants.
- » Inter-canopy LED replacements are cost-prohibitive to acquire and install, and awkward for employees to work within.

“The energy price is the biggest problem for growers in recent years. We should use less energy but we should have at least the same yield” says Toni Tanner, CEO of Hortiherttua.

“Growers & academics agree that as a rule of thumb, a 1% increment in PPFD results in a 1% increase in yield,” commented James Fleet, Co-Founder of Bloem. **“We are looking forward to seeing how the significant increase in PPFD translates to enhanced yields.”**



The Bloem Solution

To address these challenges, Hortiherttua partnered with Helle-Tech and Bloem to implement their patent-pending adjustable light engine technology for Top Lighting and Inter-Canopy applications. Designed specifically for High Wire and Leafy Green growers, the Balance Platform enables growers to customise every aspect of the lighting solution to their unique needs:

1

Custom spectra configurations for accelerated plant growth & increase in crop yields.

2

High power, high efficiency modules delivering up to 3540 $\mu\text{mol/s}$ @ 3.5 $\mu\text{mol/J}$.

3

Standard dim-to-off control over the selected spectra with optional separately addressable blue or far-red wavelength channels.

4

50,000 hour rated life at L90 backed by a 5-year performance guarantee vs. product warranty.

5

Enabling growers to future-proof their investment by changing the spectra and/or upgrading to the latest LED chip efficiencies without replacing the fixture.

The Results

Helle-Tech & Bloem's close collaboration with Hortiherttua from audit and design have resulted in a significant PPFD increase on both the vertical & horizontal face of vine growing crops:

Balance Maxi-A B8 vs. HPS		PPFD Improvement vs. Vertical Face of Vine Growing Crop	PPFD Improvement vs. Horizontal Face of Vine Growing Crop	Energy Consumption
Measurement Height AFFL (m)	3	51%	57%	-35%
	2.5	37%	52%	-35%
	2	37%	42%	-35%
	1.5	59%	95%	-35%
	1	31%	93%	-35%
		43%	68%	-35%
Balance Maxi-A B8 vs. Industry-Renown LED		PPFD Improvement vs. Vertical Face of Vine Growing Crop	PPFD Improvement vs. Horizontal Face of Vine Growing Crop	Energy Consumption
Measurement Height AFFL (m)	3	42%	50%	0%
	2.5	29%	45%	0%
	2	42%	46%	0%
	1.5	68%	93%	0%
	1	30%	77%	0%
		42%	68%	0%

Inter-canopy Results

250W HPS 1-to-1 replacement for quick and simple installation • 35% energy reduction • 7.5% PPF increase



BALANCE PLATFORM

Adjust Your Thinking

Thanks to the modular design of our products, we are able to customize every aspect of the solution according to individual customer needs or preferences.

Modular LED grow lights are faster and more cost-effective to design, assemble and release resulting in a quicker market introduction and delivery time to customers.



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