

Potential is unleashed

Fotonica™ initial POC results

Initial results from Fotonica™, EVA3™ POC on cannabis, taken from around the US and Canada chosen cultivation companies are starting to appear and results are very positive, demonstrating very clearly the superiority of our technology. Our system gives the users full control over all light parameters inclusive of intensity, spectrum and other light parameters throughout all growth stages.

There are several benefits of having these flexibilities. In order to match the plant biological requirements an equation of three elements should be carefully created: Light intensity X Light spectrum X Light distribution. Only when the right combination of these three is created a guarantee for best cultivation results will be generated:

- **Light intensity** - Cannabis is known to be a plant with high light energy demand. Biomass yield increases linearly with light intensity up to at least 1500 $\mu\text{mol/s}$, yet one need to remember that this level of intensity is not necessarily economic (diminishing marginal utility) and the fact indoor conditions are accelerated to optimum (e.g. CO₂ enrichment 700 – 750 ppm) reaching this high intensity may cause photosynthetic saturation. EVA3™ system is able to exceed 1,400 $\mu\text{mol/s}$ and that is from 1.5 m high!
- **Light spectrum** – spectrum demand is changing along the growth. In practice it is known that at vegetative stage plant would favor higher portion of the blue wavelengths and during flowering the red wavelengths, however there is much more into it as the balance may influence the cannabinoids production, plant architecture and other plant functions. EVA3™ is occupied with 11 adjustable wavelengths including some unique ones like UVB, UVA, FR and IR.
- **Distribution** – after building the right intensity with the right spectrum we need to make sure these precious photons will reach the right place. Lighting the walls and/or the pathways between the tables will not serve our plants. Our EVA3™ system guarantee 1,100 PPFD, thanks to special lenses to focus the light where it's needed!

This flexibility is also beneficial in terms of cultivation practices: Reduction in energy consumption; better utilization of the growing space (possible dismissal of the two rooms practice); Reduction in human resources needs and overall higher biomass with higher cannabinoids content.

During 2019, Fotonica™ engaged with several leading cultivation facilities in north America in order to demonstrate its EVA3™ superiority over the current conventional lighting fixtures in use LED or bulb based (MH/HPS).

In Canada, Ontario site, several LED fixtures were compared to the EVA3™ system. We tested in demo plots our light recipes with and without the addition of UVB (Fig. 1). Results for the EVA3™ were higher than most fixtures and this is even more tremendous, when it supplied

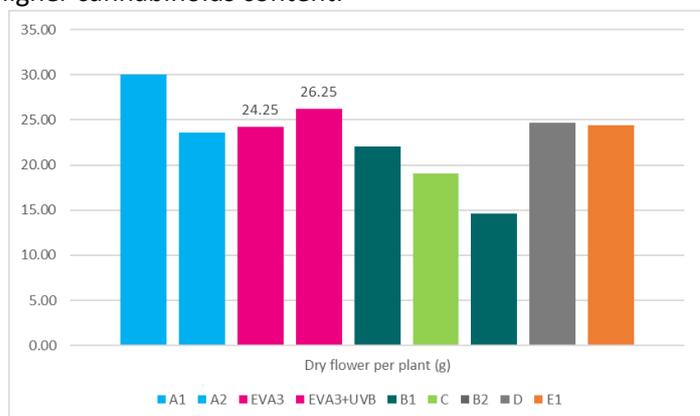


Fig. 1. Dry weight flower per plant; Fotonica POC, Ontario. CA Oct. 2019

between 41.6 – 44.6% less intensity compared with the other fixtures (Fig. 2).

Results demonstrated higher photon efficacy with the EVA3™ and better production than most of the other LED fixtures and that's with roughly half of the intensity (Fig. 3). The results of efficacy support the claim of better light spectrum with the EVA3™ compared with the fixed spectrum of all other light fixtures.

Measurements taken for the growing bed on similar density showed the EVA3™ generated better results through higher flowers biomass (Fig. 4)

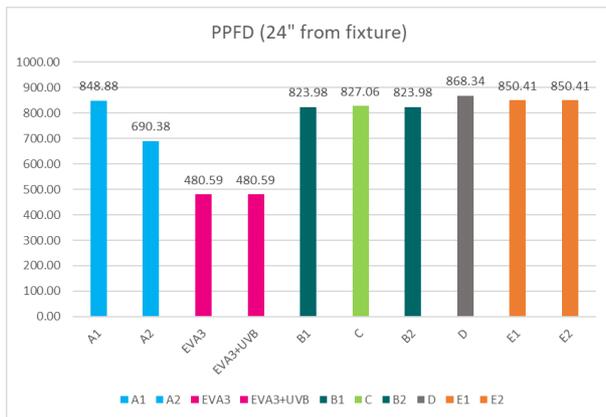


Fig. 2. Light intensity on area expressed by PPFD from 24"; Fotonica POC, Ontario, CA, Oct. 2019

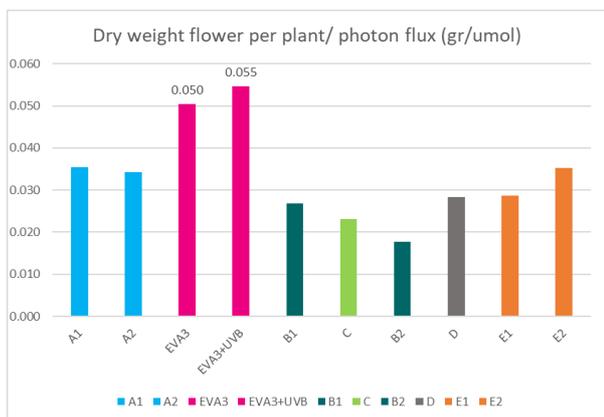


Fig. 3. Light efficacy expressed by productivity per photon; Fotonica POC, Ontario, CA Oct. 2019

With the same density and rack position EVA3™ showed up to 37.7% more yield per sqft.

On another site located in Washington State, USA, performance was evaluated for cannabinoids production in four different varieties characterized as high THC varieties. The EVA3™ technology was compared to the best practice used by this cultivator with MH/HPS lights.

Results in this demo plot were evaluated for both biomass productivity and secondary metabolites content. Similar in this plot, flower biomass generated by the EVA3™ system using our adjusted light spectrum, generated in our favor higher biomass in all four varieties (Fig. 5). The more dramatic effect was seen on the content of secondary metabolites: THC and Terpenes that were tested in this trial.

Almost all four varieties showed a dramatic increase on THC (Fig. 6 & 7) with the EVA3™ and increase in all four varieties for Terpenes (Fig. 8 & 9). In one of the varieties named 'AS' THC levels were inferior with our fixture yet what may have caused this was too early harvesting timing. CBGA levels were tested. CBGA being the "mother" molecule for THCA later on converted to Δ9-THC was found to be higher on our treatment by 7% with 1.37 % compared to 1.28 %. This may explain that a delayed harvesting

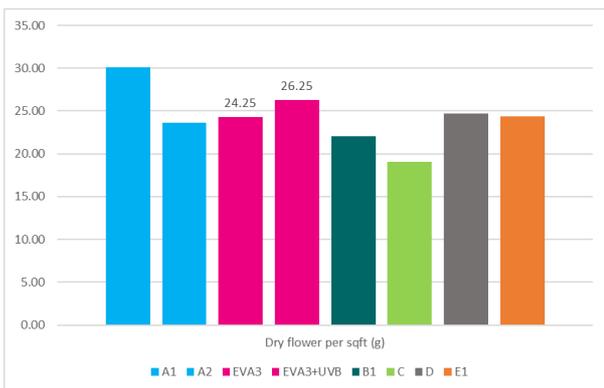


Fig. 4. Dry weight flower per sqft ; Fotonica POC, Ontario, CA Oct. 2019

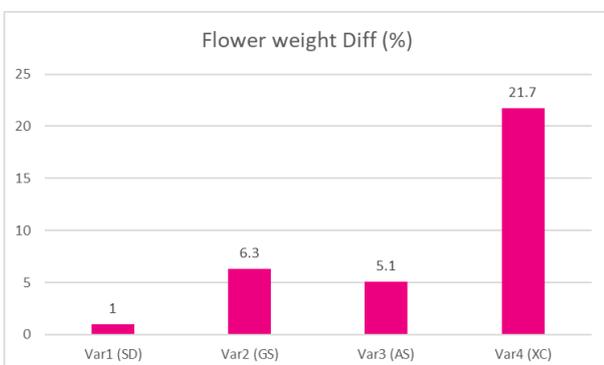


Fig. 5. Dry weight flower differences on 4 high THC varieties between HPS and EVA3™ light; Fotonica POC, Washington State, USA Oct. 2019

timing could have contributed to generation of higher THC levels in our treatment.

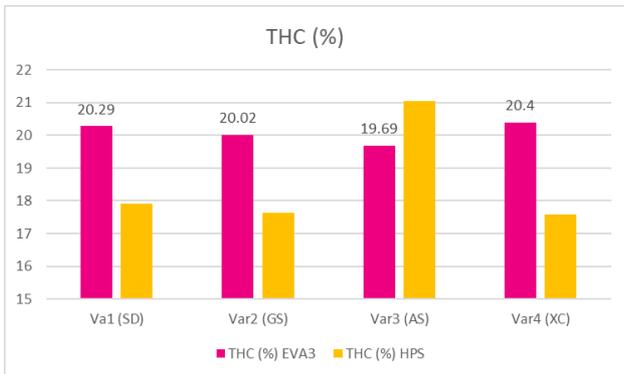


Fig. 6. THC content in 4 high THC varieties as effected by different lighting fixtures; Fotonica POC, Washington State. USA Oct. 2019

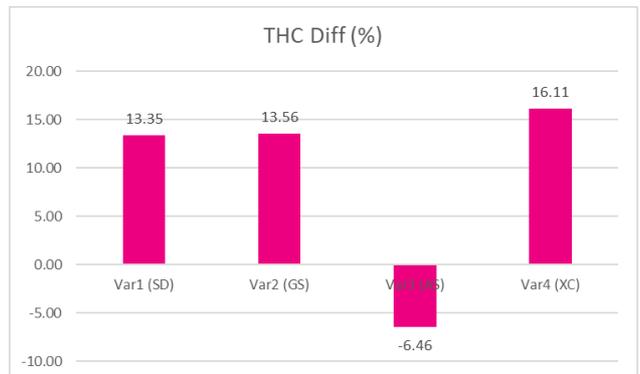


Fig. 7. THC levels difference between different lighting fixtures in 4 high THC varieties; Fotonica POC, Washington State. USA Oct. 2019

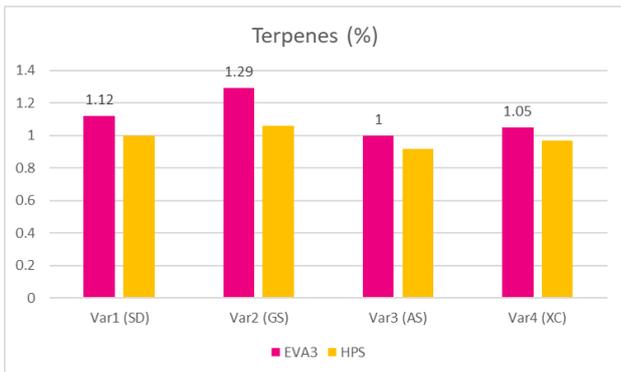


Fig. 8. Terpenes content in 4 high THC varieties as effected by different lighting fixtures; Fotonica POC, Washington State. USA Oct. 2019

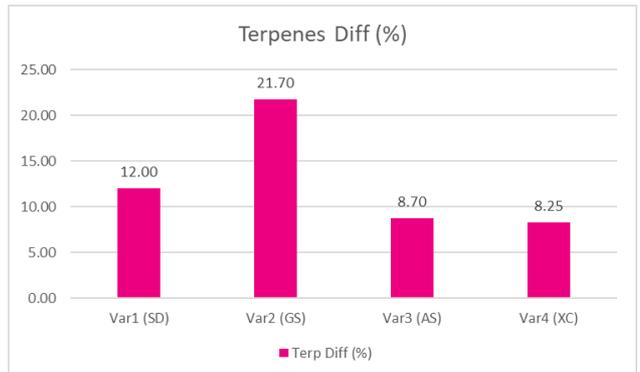


Fig. 9. Terpenes difference between different lighting fixtures in 4 high THC varieties; Fotonica POC, Washington State. USA Oct. 2019

Fotonica™ philosophy is wrapped in the term ‘Bio illumination™’. We aim to revolutionize the lighting market! this is leaning on profound knowledge of electronics, optics communication and IT technologies combined with deep knowhow and understanding of plant biology.

If you aim to squeeze much more from your plant don’t compromise on less, ‘Unleash your plants potential’ maximize your profitability, join our revolution, the Fotonica revolution.

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