



HORTICULTURE ARTICLE

Optimizing Your Lighting for Clones

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When you are striving for optimal quality and plant yield from your operation, you need to dig down into every detail of your growing process. One of the most crucial stages that is sometimes overlooked is the very beginning of your plants' life cycle. Depending on the crop, growers start their plants from propagating other plants (cloning) or from seed. For this post, let's focus on cloning.

Getting a jump on your plant's health from the beginning can pay off with increased plant health for the rest of the grow cycle and can result in increased quality and yield when it's time to harvest. But how do you produce the healthiest clones?

First off, it is important to maintain healthy "mother" plants to ensure that the cuttings are as also healthy. If you use cuttings from a stressed or nutrient-deficient source plant, you decrease the chance of the clone successfully surviving and thriving throughout maturity.

As you prepare your healthy cuttings, it is important to provide optimal lighting conditions right away. Pay careful attention to three important lighting issues: light intensity, uniform coverage and spectrum.

Balancing light intensity is essential at the cloning stage. Providing too much light can cause the plants to deplete their resources before they develop a root system strong enough to replenish their nutrients. On the other hand, too little light can cause stretching, which can delay growth and create weaker plants down the road. A one-size-fits-all formula doesn't exist because different crops and crop varieties can have different spectral quality and quantity needs. The best



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Even light levels are critical for uniform growth

solution is to vigilantly observe your specific varieties and note how they react to different light levels.



Illumitex light uniformity, left, vs. HID “uniformity”.

Supplying your clones with even light levels is also vital to uniform growth. This is achieved through our fixtures, which are designed to deliver appropriate light levels to the entire plant canopy. It also ensures that clones near the edge of your propagation area grow at the same rate as plants near the middle, which eliminates growth rate differences as a variable that could alter your yield potential.

Another part of the lighting equation is the spectrum that you provide your clones. We recommend our Surexi LED arrays containing our F6 spectra comprised of two parts 450nm (blue) and two parts 660nm (red). The 450nm wavelength is well-suited to provide plants with a tight internodal spacing (insert picture to explain), which ensures that the plant does not need to expend unnecessary energy in stem growth to obtain light energy. This allows the plant to divert energy into producing roots. Both 450nm and 660nm are tuned to the absorption spectrum of chlorophyll, and therefore are the primary drivers of photosynthesis within the chloroplast.

Together the combination of these wavelengths produces compact, vigorous clones that are quick to develop vibrant root systems that will assist in the quick transition to vegetative growth. This method produces plants that are robust, healthy and have the ability to sustain plant development more effectively, thus leading to increased yields. To sum it all up, start strong to finish strong.