

Spectrum and PAR Reading



When it comes to measuring the amount of effective light an LED, HID, and fluorescent light fixture emits for a plant to use, there are two primary measurements that should be read and examined together.

First, PAR or Photosynthetic Active Radiation needs to be measured. PAR is essentially a measurement of light emission within the photosynthetic range of 400-700nm. This represents the area of light that plants use for

photosynthesis, or to grow. PAR is measured by the amount of micro moles of light per square meter per second. Although PAR is a key measurement, it only tells one part of the story. There are many areas within the PAR scale which plants absorb only in small quantities, such as in the green range (560 nm). Thus, a reading of a light's spectrum must be used in conjunction with the PAR reading to determine from what bandwidths those micromoles are being generated, and in what amounts. A spectrum reading is obtained by using a piece of equipment called a spectrometer. These two readings together will give a complete picture of a light's effectiveness; PAR showing strength, and spectrum showing that this strength is in the proper wavelength proportion for what the plant can actually utilize, and not just wasted energy. These two measurement tools produce a reading that shows not only what wavelength or color is being emitted, but also the absorption value of that particular wavelength. By looking at this graph, one can determine if the light is emitting the proper wavelengths used by the plant for photosynthesis and at the correct absorption peaks required for robust and quality plant growth. HID lights are a classic example for why considering both of these readings is so important. These traditional lights have decent PAR readings, but when their spectrum is revealed, it becomes evident that they emit most of their energy in the wrong areas, making them an inefficient lighting option. Kind LED Grow Lights on the other hand, compared to HID lighting, as well as to other LED lighting options, show extremely high PAR readings with an efficient and accurate distribution of strength across your plants' desired spectrum.

PAR Reading Comparison at Various Footprint Intervals



KIND LED Light Spectrum At Twelve Inches

w/ Plant Absorption Percentage by Nano-meter Overlay

