

TREEGERS

GROW LIGHT TACTICS



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What is the Treegers Grow Tactics?

A concise and practical guide to maximizing and getting the most out of your Treegers LED Grow fixtures. Unlock essential tips and insights to elevate your plant growth journey with precision and efficiency.

PPFD, DLI, Photoperiod & CO2 Recommendations

Plant Grow Stage	PPFD ($\mu\text{mol}/\text{m}^2/\text{s}$) Target		DLI ($\text{mol}/\text{m}^2/\text{d}$) Target		Photoperiod (Light Duration)	CO2 Supplementation Level (ppm) - At Canopy
	No CO2 Supplementation	With CO2 Supplementation	No CO2 Supplementation	With CO2 Supplementation		
Seedling	100-300	500-800	12 - 16	12 - 16	24H On / 0H Off Until cotyledons open; 18/6H onwards	500 - 800
Clone	75-150	500-600	16-20	20-25	18H On / 6H Off	500 - 700
Mother	400-500	500-800	20-45	25-55	18H On / 6H Off	500 - 800
Vegetative	450-650	800-1000	20 - 45	25 - 55	18H On / 6H Off	800 - 1100
Flowering	800-1000	1000-1400	45	55	12H On / 12H Off	1000 - 1600

Treegers LED Fixtures Grow Tactics

Product			No CO2 Supplementation		With CO2 Supplementation	
	Grow Stage	Coverage	Canopy to Light distance	Dimming (Watt Consumption)	Canopy to Light distance	Dimming (Watt Consumption)
GL300W	Seedling	1.0x1.0m	0,5m	20% (57W)	0,4m	70% (208W)
	Clone	1.0x1.0m	0,5m	20% (57W)	0,4m	70% (208W)
	Mother	1.0x1.0m	0,5m	70% (208W)	0,4m	80% (238W)
	Vegetative	1.0x1.0m	0,4m	70% (208W)	0,3m	90% (268W)
	Flowering	0.8x0.8m	0,4m	100% (304W)	0,3m	100% (304W)
GL420W	Seedling	1.2x1.2m	0,8m	30% (148W)	0,5m	70% (301W)
	Clone	1.2x1.2m	0,8m	30% (148W)	0,5m	70% (301W)
	Mother	1.2x1.2m	0,6m	60% (258W)	0,5m	80% (333W)
	Vegetative	1.2x1.2m	0,6m	80% (333W)	0,5m	90% (378W)
	Flowering	1.0x1.0m	0,3m	100% (420W)	0,3m	100% (420W)
GL650W+	Seedling	1.5x1.5m	0,8m	20% (164W)	0,5m	70% (480W)
	Clone	1.5x1.5m	0,8m	20% (164W)	0,5m	60% (410W)
	Mother	1.5x1.5m	0,5m	50% (345W)	0,5m	80% (550W)
	Vegetative	1.5x1.5m	0,5m	60% (410W)	0,3m	80% (550W)
	Flowering	1.2x1.2m	0,5m	100% (650W)	0,3m	100% (650W)
GL1000W+	Seedling	1.5x1.8m	1,2m	20% (293W)	0,5m	50% (611W)
	Clone	1.5x1.8m	1,2m	20% (293W)	0,5m	40% (524W)
	Mother	1.5x1.8m	0,6m	30% (405W)	0,5m	50% (611W)
	Vegetative	1.5x1.8m	0,6m	50% (611W)	0,4m	90% (934W)
	Flowering	1.2x1.5m	0,6m	100% (1016W)	0,4m	100% (1016W)

What is PPF?

A crucial statistic in horticultural lighting, photosynthetic photon flux density, or PPF, represents the intensity of light available for photosynthesis within the PAR (photosynthesis-active radiation) range. Micromoles per square metre per second, or $\mu\text{mol}/\text{m}^2/\text{s}$, is a unit of measurement used to quantify the amount of photons that reach a given area in a second. Photons are essential for the growth and development of plants. Optimising plant growth, crop output, and energy efficiency in indoor cultivation systems, such as vertical farms and greenhouses, requires measuring and managing PPF. Optimising lighting conditions to enhance photosynthesis and general plant health can be achieved by modifying light intensity levels according to PPF readings.

What is DLI?

The Daily Light Integral, or DLI, calculates the total PAR (photosynthetically active radiation) that plants receive in a given day ($\text{mol}/\text{m}^2/\text{day}$) by summing up the time and intensity of light. It is essential for maximising production and plant growth in a variety of farming systems. Horticulturists make sure plants receive enough light energy for photosynthesis, which affects growth and flowering, by modifying light duration or intensity depending on DLI readings.

What are the 3 dimensions of light?

The 3 dimensions of light on the horticulture world are Light Intensity, Light Quality and Photoperiod. Light Intensity: Refers to the brightness or amount of light reaching a specific area, measured in units like lux or PPF ($\mu\text{mol}/\text{m}^2/\text{s}$). It directly influences photosynthesis and thus affects plant growth, development and production (yield).

Light Quality: Refers to the spectral distribution of light or the composition of different wavelengths within the light spectrum. Plants respond differently to various wavelengths, impacting processes like photomorphogenesis, photoperiodism & also crop quality.

Photoperiod: Refers to the duration of light exposure within a 24-hour period, including both light and dark periods. It regulates physiological processes such as flowering, dormancy, and growth cessation, serving as a signal for seasonal changes in plants.

Why CO2 Supplementation?

CO2 supplementation when cultivating indoors, enhances photosynthesis, which in turn allows the plant to absorb and utilize more photons. When CO2 levels are elevated, plants can more efficiently convert light energy into chemical energy through the process of photosynthesis. This increased efficiency enables the plant to absorb and utilize a greater number of photons, ultimately leading to faster growth rates and increased yields. However, it requires careful and precise monitoring to prevent potential drawbacks such as CO2 toxicity or excessive resource consumption.

Possible Variations

While all due care has been made in compiling these recommendations, other contributing factors should be considered, such as plant varieties, plant densities, environment, nutrient strength, VPD and assimilation lighting. Please adjust lighting distances and CO2 Supplementation accordingly.



TACTICAL GROW GEAR

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