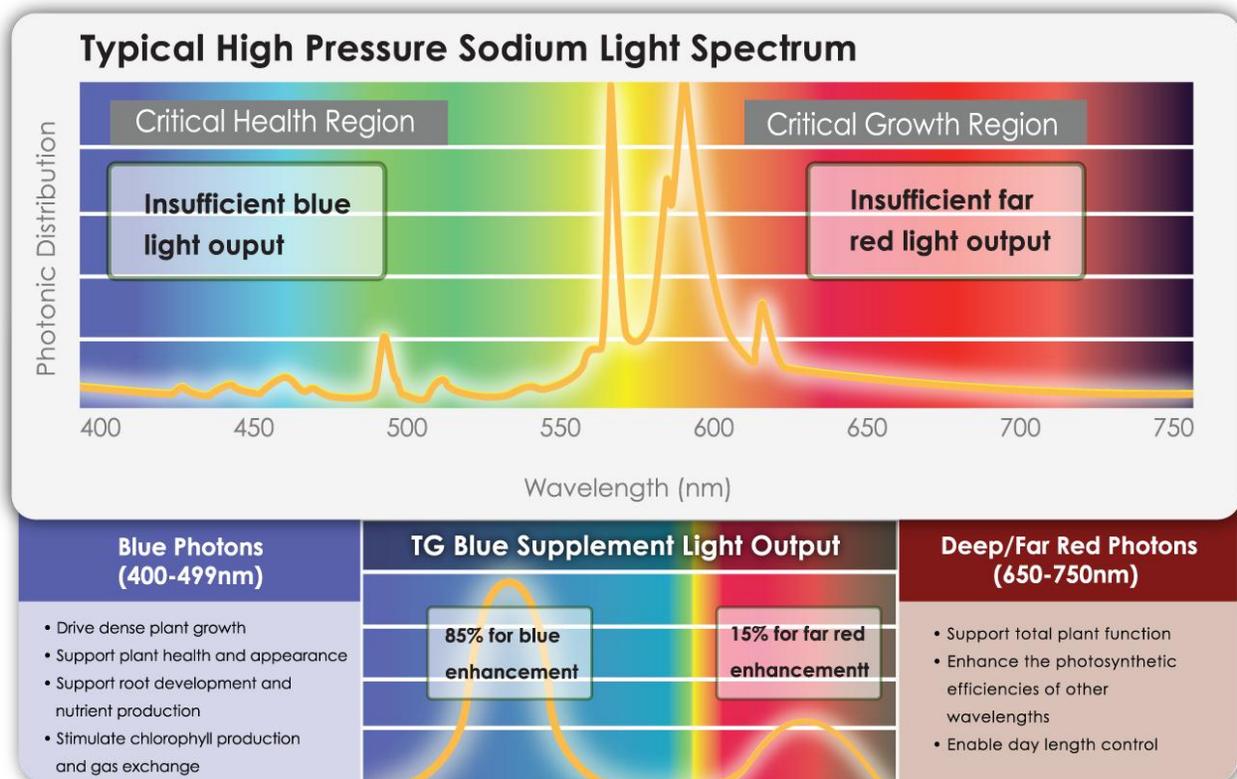


TotalGrow™ Blue Supplement Light (TG Blue)



The most efficient and effective solution for enhancing the limited light spectrum of high pressure sodium (HPS) grow lights.

- Peak blue light output for compact, vibrant, well-rooted, nutrient-rich growth.
- Sufficient deep red and far red light to improve total plant growth and aid in flowering control.
- Creates more uniform light coverage for consistent growth.



The HPS Problem: Lack of light output in the blue and deep/far red spectral regions results in inefficient and inferior growth.

The TotalGrow™ Solution: Provides 85% of its light output in the blue region and 15% in the deep/far red region for improved growing efficiency and plant health – dense, vibrant, nutrient-rich growth.

TotalGrow™ Blue Supplement Light Applications

Applications

- Add TG Blue light bulbs wherever compact, vibrant growth is most important or where growth under HPS is unsatisfactory.
- Optimized Example: Add one 11W TG Blue light bulb for every 100W of high pressure sodium (HPS) light used.
- Economical Example: Add one cluster of 2-4 TG Blue light bulbs between each 400-1000W HPS light.
- Hang TG Blue light bulbs at heights at least 2/3 of the distance between light bulbs or light bulb clusters, e.g. at least 6' high with 9' spacing; up to 12' spacing at 8' high.



TG Blue Supplementation Rates (TG Blue Lights per HPS Fixture)			
Enhancement Level	400W HPS	600W HPS	1000W HPS
Minimum	2	3	4
Recommended	3	4	6
Super Charge	4	6	10

Additional Benefits

- **Significantly enhanced growth efficiency**
- **Increased uniformity and control of growth and flowering timing.**
- **Long, low-maintenance lifetime with no toxic heavy metals or breakable glass.**
- **Extremely low energy costs.**

TotalGrow™ Blue Supplement Light Science

- Blue light (400-499nm) absorption in plants triggers several critical effects for healthy plant growth. Blue photoreceptors prevent stretching, increase nutrient and chlorophyll concentrations for vibrancy and health, support root development, stimulate gas exchange and regulate transition to flowering.¹
- Red light (600-700nm) has maximal photosynthetic efficiency² and is vital for influencing day length perception.³
- Far red light (700-800nm) works with deep red light to trigger or inhibit flowering based on day length perception.³ It also enhances the photosynthetic efficiency of the full PAR spectrum.⁴
- Green-yellow light (500-600nm), which constitutes the majority of high pressure sodium light output, is the least photosynthetically efficient region of the PAR spectrum,⁵ and can increase stretching.²

¹ Folta, K. M., & Childers, K. S. (2008). Light as a growth regulator: controlling plant biology with narrow-bandwidth solid-state lighting systems. *HortScience*, 43(7), 1957-1964.

² Folta, K. M., & Maruhnich, S. A. (2007). Green light: a signal to slow down or stop. *Journal of Experimental Botany*, 58(12), 3099-3111.

³ Craig, D. S., & Runkle, E. S. (2013). A Moderate to High Red to Far-red Light Ratio from Light-emitting Diodes Controls Flowering of Short-day Plants. *JASHS*, 138(3), 167-172.

⁴ Hogewoning, S. W., et al. (2012). Photosynthetic quantum yield dynamics: from photosystems to leaves. *The Plant Cell Online*, 24(5), 1921-1935.

⁵ Massa, G. D., Kim, H. H., Wheeler, R. M., & Mitchell, C. A. (2008). Plant productivity in response to LED lighting. *HortScience*, 43(7), 1951-1956.

Item	TG1A	
Product Type	Light Bulb	
Power Consumption	11W	
Projected Service Life	50,000 hours	
Output Efficiency	1.3 µmole/J	

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