

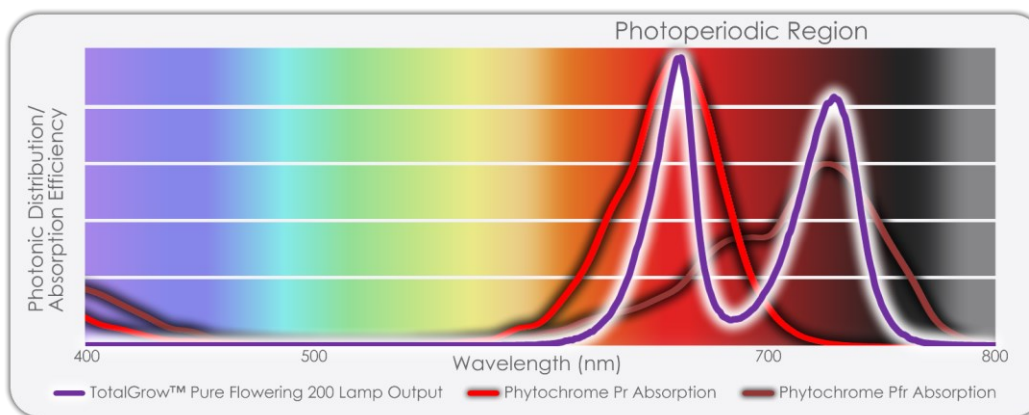
## TotalGrow™ Pure Flowering 200 Lamp



The most efficient and effective solution for photoperiodic lighting to control the timing of flowering.

- Perfect spectrum to ensure long-day responses with night interruption/day length extension
- Does not attract insects
- Minimal power consumption and electrical infrastructure needs with simple installations

### The Science of Photoperiodic Lighting



- Long or short day perception often triggers or prevents key behaviors, especially flowering vs. vegetative growth.
- Long days require the appropriate lighting spectrum extending the day before sunrise/after sunset or interrupting the night, e.g. 10pm – 2am, to keep dark periods less than 10 hours.
- The spectrum must properly activate the photoreceptor phytochrome with red (esp. 620-690nm) and far-red (esp. 690-750nm) light as shown above. A ratio of approx. 1:1 for red : far-red light is the only universally effective ratio for photoperiodic lighting.<sup>1</sup>
- While usually still effective, higher far-red proportions induce stretching and lower quality crops.<sup>2</sup>

Item	TG1B-3A-1104
Product Type	Light Bulb
Power Consumption	17W
Projected Service Life	50,000 hours
Photon Flux Output	37 $\mu\text{mol/s}$
Output Efficiency	2.2 $\mu\text{mole/J}$
Typical Coverage	200 sq. ft.
Waterproof	IP65
Warranty	5 years



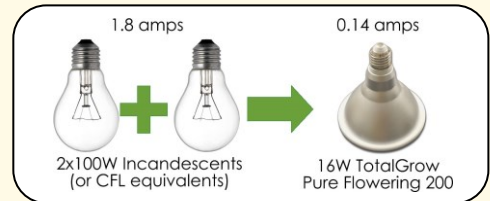
contact: [info@venntis.com](mailto:info@venntis.com)

<sup>1</sup> 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.

<sup>2</sup> Cerdán, P. D., & Chory, J. (2003). Regulation of flowering time by light quality. *Nature*, 423(6942), 881-885.

## TotalGrow™ Pure Flowering 200 Lamp Usage Guidelines

1. Replace 200W of incandescent lights or their CFL equivalents per Lamp.
2. For new installations, install lights on 10-15' centers with the first light 2-5' from the grow area edge. Contact [info@totalgrowlight.com](mailto:info@totalgrowlight.com) for variations.
3. Hang at heights approximately 50% - 75% of the distance between bulbs (e.g. 7-11' high for 15' lamp spacing).
  - a. For small installations (e.g. 1-2 lines of lights) keep heights around 7-8' for improved light localization
  - b. For large installations (e.g. 6+ lines of lights) use higher heights of 9'+ for maximum uniformity.



## Competition Analysis

### Incandescent

- High energy costs and electrical infrastructure costs
- Excessive far-red light causes undesirable stretching
- Burns out quickly & easily broken

### Compact Fluorescent/White LEDs

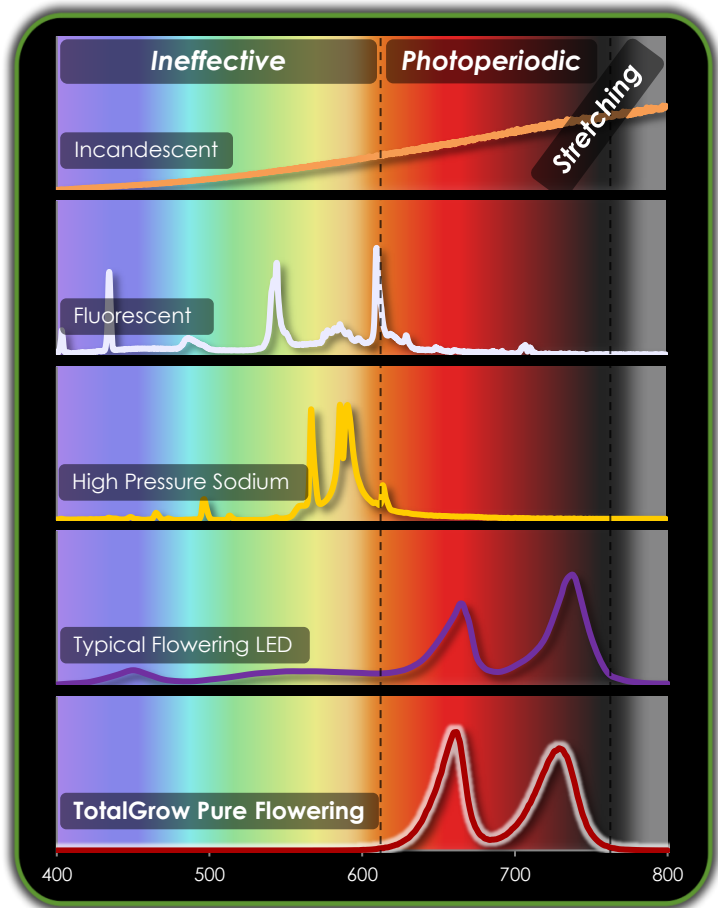
- Insufficient red and especially far-red light output for effective day length control
- Limited efficiency and lifetime
- CFL's have toxic mercury vapors in easily broken glass

### High Pressure Sodium

- Insufficient red and especially far-red light output for efficient, effective day length control
- High powered bulbs waste light in high-intensity hot spots

### Competitor LEDs

- Less precise spectra waste output in blue and green regions and/or miss ideal red : far-red ratios for universal effectiveness with minimized stretching
- Less rugged designs may degrade or break long before LED lifespans
- Usually not waterproof
- Typically ½ the coverage of Pure Flowering 200 Lamps



### Features

- Ideal spectrum for photoperiodic flowering control
- Best efficiencies available
- Excellent uniformity potential
- No toxic heavy metals or thin glass
- Long, high durability, waterproof lifetime

### Benefits

- Typically over 90% power savings
- Huge electrical infrastructure savings
- Consistent flowering and growth control
- Environmentally friendly; no safety risks
- Little or no maintenance
- Peace of mind from extreme reliability