LEDVANCE

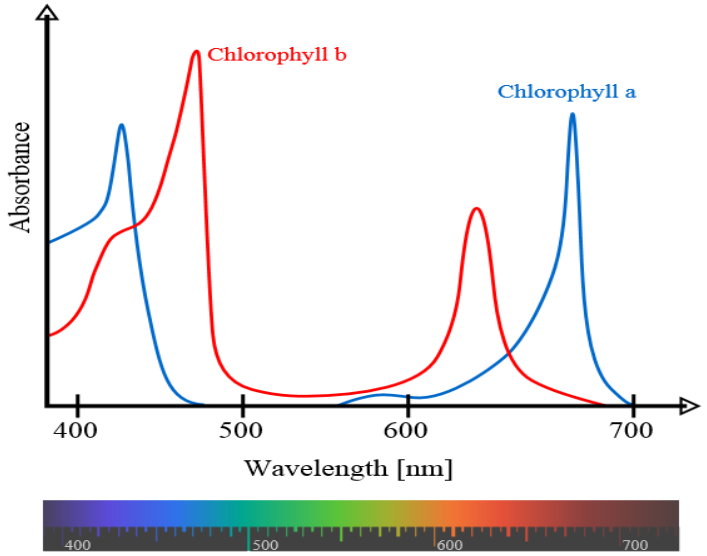
ULTRA LED™ GROW LAMPS

SYLVANIA

LEDVANCE

ULTRA LED™ Grow Lamps
Background on Plant Growth

- **The goal is to create a LED lamp that promotes plant growth by emitting a desirable spectrum**
- **Sunlight is absorbed by Chlorophyll a and Chlorophyll b pigments in the plant, in the red and blue regions of the visible spectrum.**



Light wavelength needed for plan growth

Lighting for Plants

Light	Wavelength (nanometer)	Effects on Plant
Blue Light	400-499	• Inhibits stem elongation • Influences chlorophyll synthesis • Assists in regulatory functions
Red Light	600-700	• Encourages stem growth • Influences the flowering and fruit production process • Influences seed germination • Influences chlorophyll process
Far Red Light	701-750	• Inhibits branching • Promotes stem elongation

"LEDs in Horticulture – The Current Reality," Eric Moody. Horticulture Lighting Conference, October 2016.

SYLVANIA

LEDVANCE

ULTRA LED™ Grow Lamps

Understanding Key Parameters Within Horticulture Lighting

PAR (Photosynthetic Active Radiation) -**the type of light** needed to support the photosynthesis process and plant growth by plant organisms. This parameter is essential to ensure that the supplemental light supports the wavelength required by the particular plant organism to support photosynthesis. This parameter is measured in (µmol/sq.m).

PPF (Photosynthetic Photon Flux) is a critical metric that tells us **how much** PAR a light-source emits. PPF does not measure PAR at a specific location (e.g. your crop canopy), but it tells you how many photons within the PAR region are coming out of the light-source every second. This parameter is measured in **µmol/s (micromoles per second)**

PPFD (Photosynthetic Photon Flux Density) -Measures the **light reaching the plant** or the photosynthetic active radiation (PAR) that is delivered to the surface of the plant. This parameter is measured in (µmol/m²/second).

Lumen output and wattage consumed are not as important as above parameters

SYLVANIA

LEDVANCE

ULTRA LED™ Grow Lamps
Key Features and Benefits

- **The right blend of light for plants**
  - Enhanced spectrum (red and blue)
  - Works for all stages of growth (germination, growth, reproduction, pollination, seed spreading)
  - Can be used for any plant species
- **Competitive grow light specifications**
  - 25 µmol/s (micromoles per second) – 25,000 hour life
  - Comparable or better output to a grow fixture or tube
- **Easy to use**
  - Can be installed in any UL approved fixture
  - Damp rated for high humidity use
  - Low heat emissions allow for placement close to plants- no leaf burn
  - More energy efficient then traditional grow lights

Application

- **Track and Recessed Lighting**
- **Clamp Lights**

Product Description	Power (Watts)	Rated Life
A21 Grow Lamp	17	25,000 hrs (22+ YR)
BR30 Grow Lamp	18	

SYLVANIA

LEDVANCE

ULTRA LED™ Grow Lamps
Product Offering

NAED	Description	SKU Size	Case Size	Wattage (W)	µmol/s	Rated Life (hrs)	Bulb Finish	Energy Star
40023	LED17A21GROB	1	6	17.00 W	25	25,000 HR	Frosted	No
40071	LED18BR30GROB	1	6	18.00 W	25	25,000 HR	Frosted	No

SYLVANIA

LEDVANCE

ULTRA LED™ Grow Lamps
Target Markets

- Small-scale nurseries, garden centers, and greenhouse applications

- Residential consumer/ Hobbyists and Gardening Enthusiasts
    - Ideal for growing herbs, vegetables, flowers, and other plants

- Consumers replacing old traditional grow lamps due to energy savings

SYLVANIA

LEDVANCE

ULTRA LED™ Grow Lamps
Key Takeaways

1. A21 and BR30 Grow Lamps provide full optimal spectrum and light output needed for plant growth

2. Consumers can grow plants indoors all year long with little to no sunlight

3. LED Grow Lamps provide energy savings and better performance than traditional grow lamps due to improved light spectrum (i.e all stages of growth)

SYLVANIA

LEDVANCE

THANK YOU