## **Cedarville University Plant Growth Laboratory** Growth Environmental Conditions

The data below provide a summary of lighting conditions available within the Plant Growth Laboratory and can serve as a basis for selecting a growing area suitable for your experimental design. Data were obtained beneath the respective light source at approximately the level of the plants being grown:

FLUORESCENT LIGHT ENVIRONMENT (outer light bank): Temperature = 26 C Photoperiod = generally set at 12.5-hour day/11.5-hour night Light Intensity = 140 umoles of photons/meter<sup>2</sup>/second in 400-700 nm wavelength range

VERY HIGH OUTPUT (VHO) FLUORESCENT ENVIRONMENT (rear growth environ.): Temperature = 28 C Photoperiod = 12.5-hour day/11.5-hour night Light Intensity = 600 umoles of photons/meter<sup>2</sup>/second in 400-700 nm wavelength range

## FILTERED LIGHT BOXES FOR SEED GERMINATION:

Blue Filter admits 1.4 umoles of photons/meter<sup>2</sup>/second Red Filter admits 2.5 umoles of photons/meter<sup>2</sup>/second

## "SUNBRELLAS":

Temperature = 27 C

Photoperiod = (see graphic below) 14 hours with a gradual "step-up" from incandescent-only for 45 min beginning at 7am then addition of High Pressure Sodium (7:45 to 20:15) and then finally metal halide (9:45 - 18:15) during mid-day hours; then "step down" in reverse ending in 45 min of incandescent (20:15-21:00).

Light Intensity = 500 umoles of photons/meter<sup>2</sup>/second in 400-700 nm wavelength range

## Day/Night Cycles of the "Sunbrella" Systems:

INCANDESCEN	Т			
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Midnight	7-7:45	12 noon	20:15-2100	
METAL HALIDE	2			
Midnight	7:45	12 Noon	20:15-2100	
HIGH PRESSUR	E SODIUM (HPS)	Lucalox®		
Midnight	7:45	12 Noon	20:15-2100	