

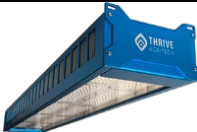
Lighting Designs for Flowering Cannabis



Products for Flowering Cannabis

Introduction

This guide describes lighting designs for the flowering stage of cannabis production using Thrive Agritech's Pinnacle HP, Pinnacle, and Apex LED grow lights. Contact Thrive Agritech for a customized lighting design if needed. An overview of Thrive Agritech's lighting products is shown below, as well as general guidelines of recommended products at varying light intensities and mounting heights.

	PINNACLE HP	PINNACLE	APEX
			
Input Power	840 Watts	610 Watts	300 Watts
Input Voltage	110-277V	110-277V or 347-480V	110-277V or 347-480V
Light Output	2,350 umols/sec	1,680 umols/sec	780 umols/sec
Efficiency	2.8 umols/joule	2.8 umols/joule	2.6 umols/joule
Driver	Internal	Internal or External	External
Dimming	Yes	Yes	Yes
IP66	Yes	Yes	Yes
UL / DLC Listed	Yes	Yes	Yes
Warranty	5 Years	5 Years	5 Years

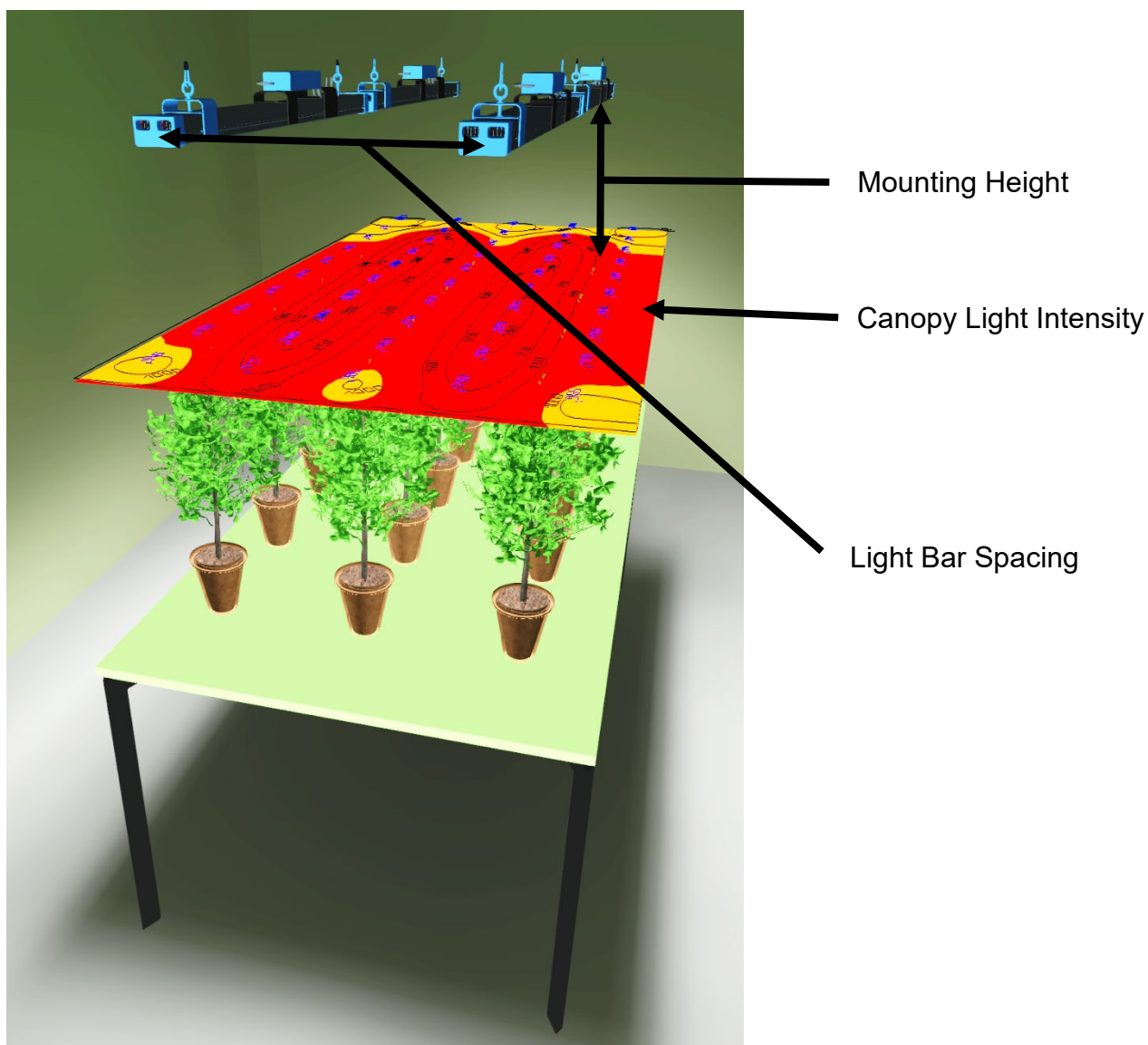
Light Intensity (PPFD)

	800	900	1,000	1,200	1,400	1,800	2,000	Application
Mounting Height	36" - 60"		840W Pinnacle HP					Single-tier Sea-of-Green
	30" - 48"	610W Pinnacle						Single-tier Sea-of-Green
	12" - 30"	300W Apex						Multi-tier Racks

Lighting Design Overview

Lighting designs in this guide provide the following information:

- Light Intensity on the canopy
- Canopy dimensions (length x width)
- Quantity of light bars
- Mounting height (bottom of light bar to canopy)
- Center spacing between light bars



Choosing a Lighting Design

How to choose a lighting design:

- 1) Select the size of your canopy
 - a) 20'x40' Single Tier Sea-of-Green / Rolling Benches
 - b) 4'x8' Bench for multi-tier racks
- 2) Select desired light intensity (PPFD) and mounting height.
- 3) Review the detailed lighting design on the page number specified in the far-right column.

20'x40' Sea-of-Green / Rolling Benches

<i>PPFD ($\mu\text{mols}/\text{m}^2/\text{sec}$)</i>	<i>Mounting Height</i>	<i>Product</i>	<i>Number of Lights</i>	<i>Page Number for Design</i>
800	36"	Pinnacle	40	4
900	36"	Pinnacle	40	5
1,000	32"	Pinnacle	45	6
	48"	Pinnacle HP	35	7
1,200	32"	Pinnacle	54	8
	48"	Pinnacle HP	42	9
1,500	42"	Pinnacle HP	48	10
1,700	42"	Pinnacle HP	56	11
2,000	36"	Pinnacle HP	63	12

4'x8' Multi-tier Racks

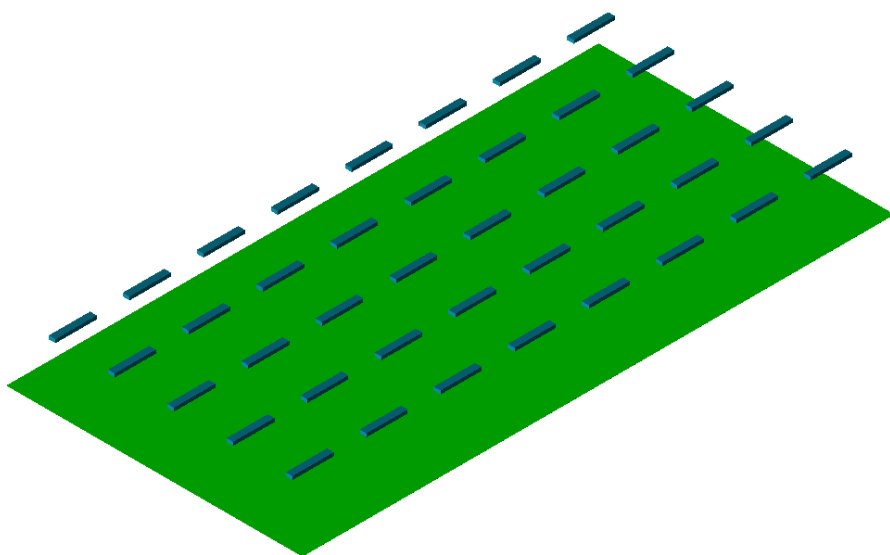
<i>PPFD ($\mu\text{mols}/\text{m}^2/\text{sec}$)</i>	<i>Mounting Height</i>	<i>Product</i>	<i>Number of Lights</i>	<i>Page Number for Design</i>
900	15"	Apex	4	13
1,200	15"	Apex	5	14
1,400	15"	Apex	6	15
1,800	15"	Apex	8	16
2,000	15"	Apex	9	17

20'x40' Sea-of-Green, 800 PPFD
36-inch Mounting Height, Pinnacle

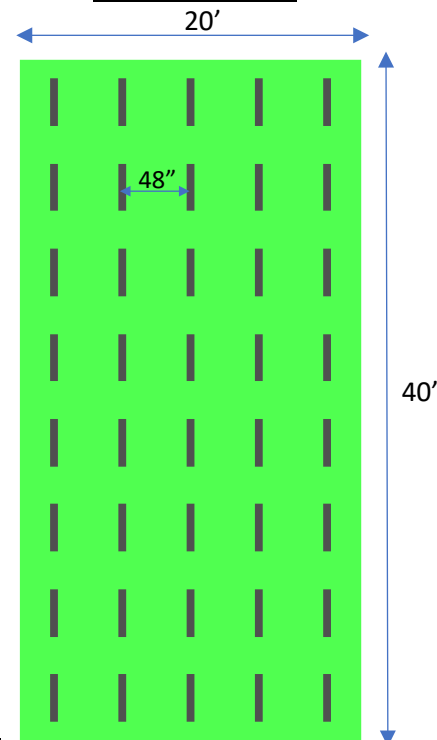
Lighting Design

- # of Pinnacle light bars: 40 (5 lines of 8 lights/line)
- Mounting Height: 36-inches over the canopy
- Light Bar Center Spacing: 48-inches

Isometric View



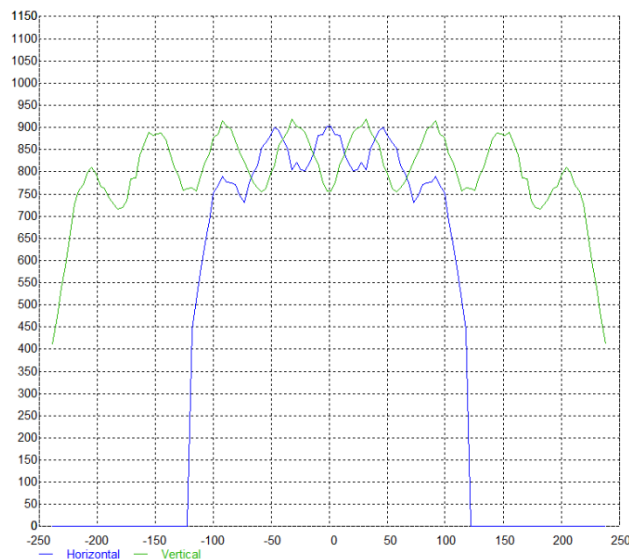
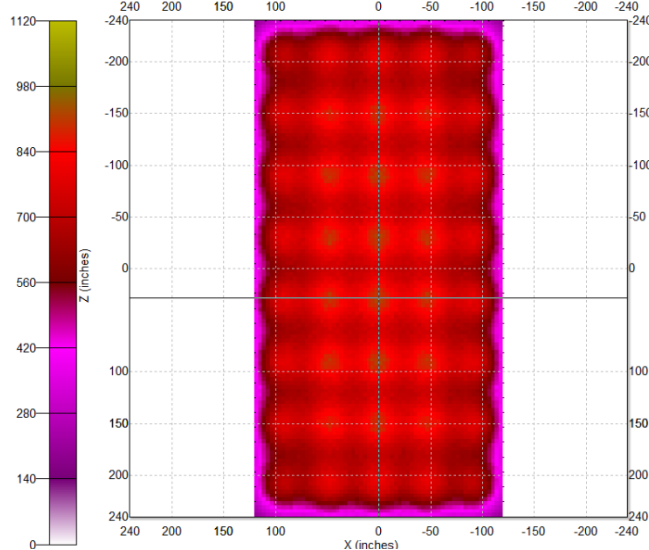
Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 800 $\mu\text{mol}/\text{m}^2/\text{sec}$

$\mu\text{mol}/\text{m}^2/\text{sec}$



www.thriveagritech.com

info@thriveagritech.com

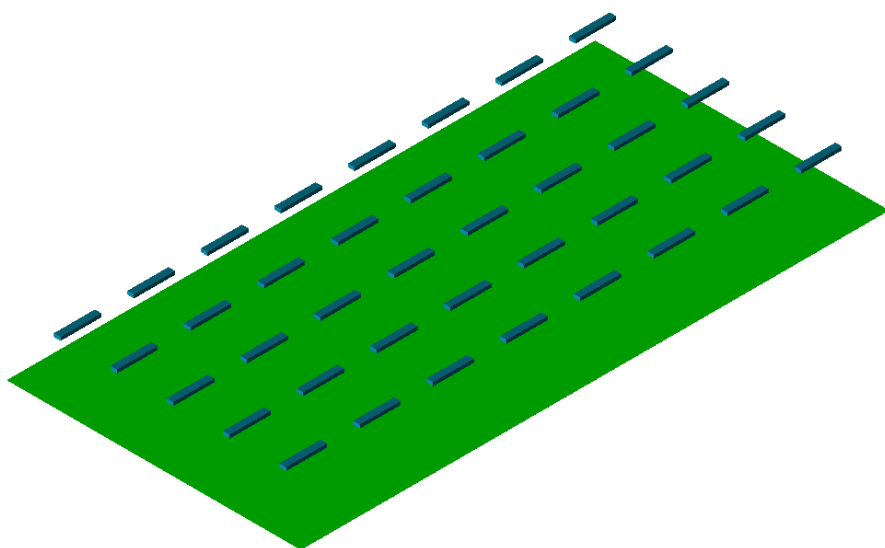
800-205-7216

20'x40' Sea-of-Green, 900 PPFD
36-inch Mounting Height, Pinnacle

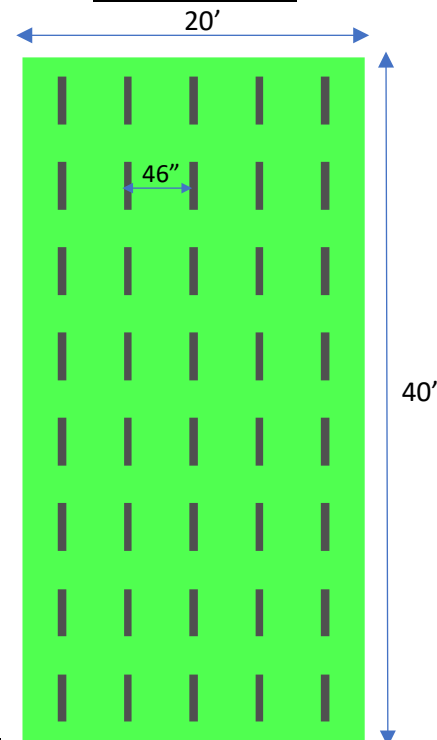
Lighting Design

- # of Pinnacle light bars: 40 (5 lines of 8 lights/line)
- Mounting Height: 36-inches over the canopy
- Light Bar Center Spacing: 46-inches

Isometric View

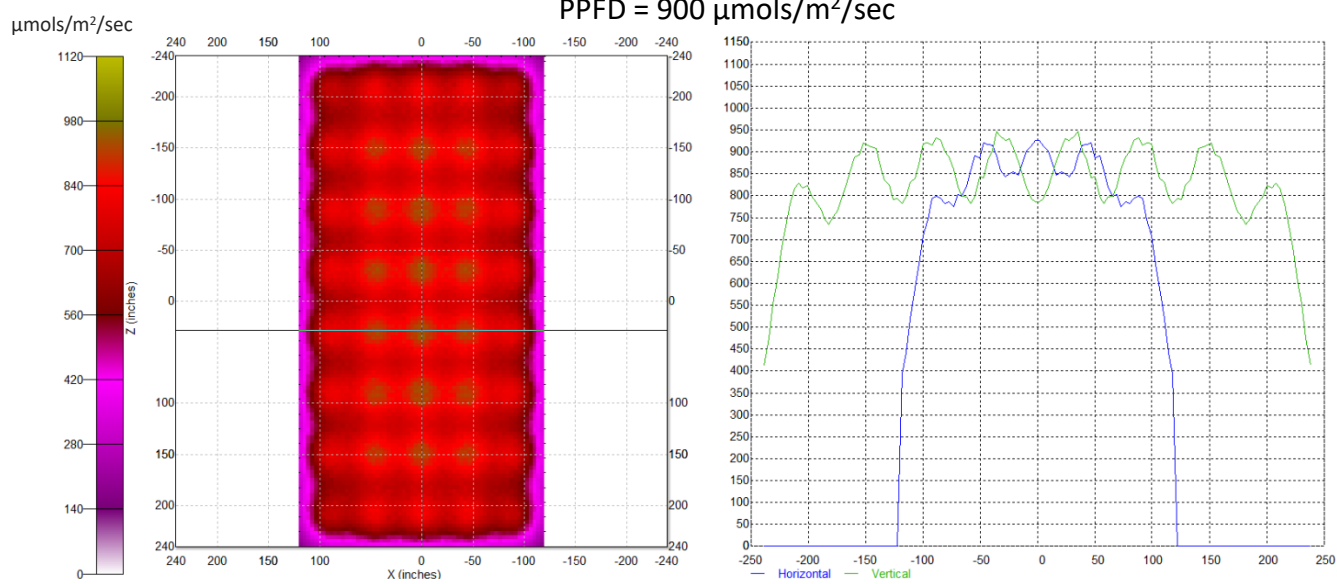


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 900 $\mu\text{mol}/\text{m}^2/\text{sec}$

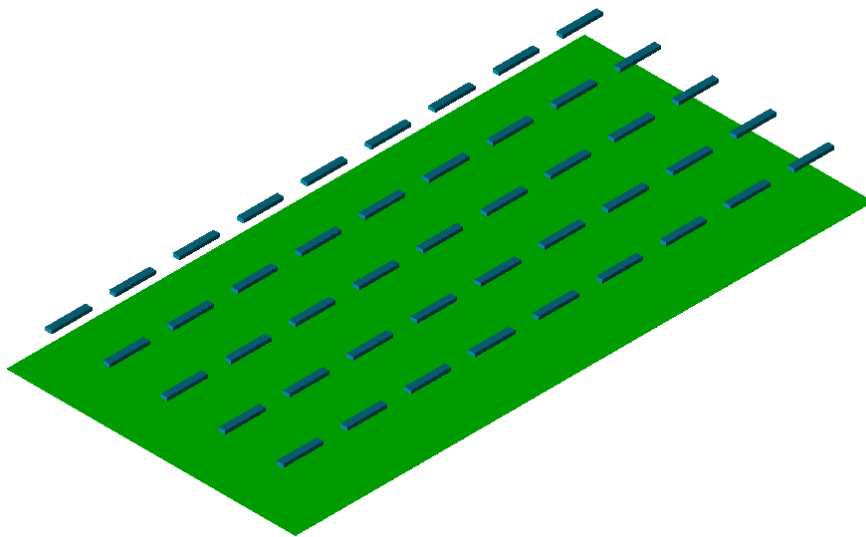


20'x40' Sea-of-Green, 1,000 PPFD
32-inch Mounting Height, Pinnacle

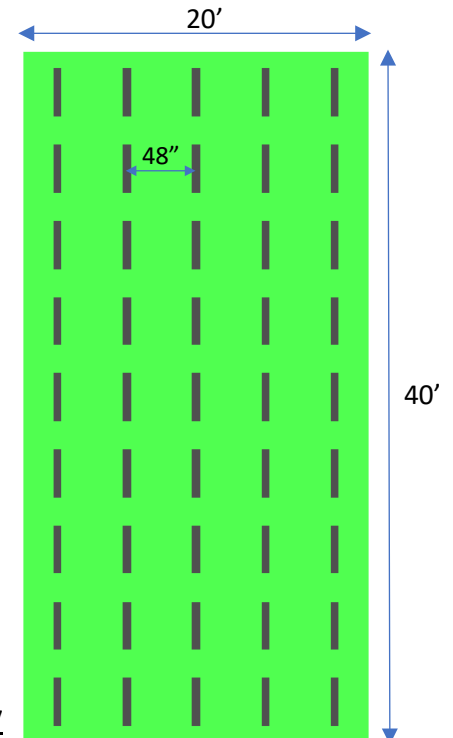
Lighting Design

- # of Pinnacle light bars: 45 (5 lines of 9 lights/line)
- Mounting Height: 32-inches over the canopy
- Light Bar Center Spacing: 48-inches

Isometric View

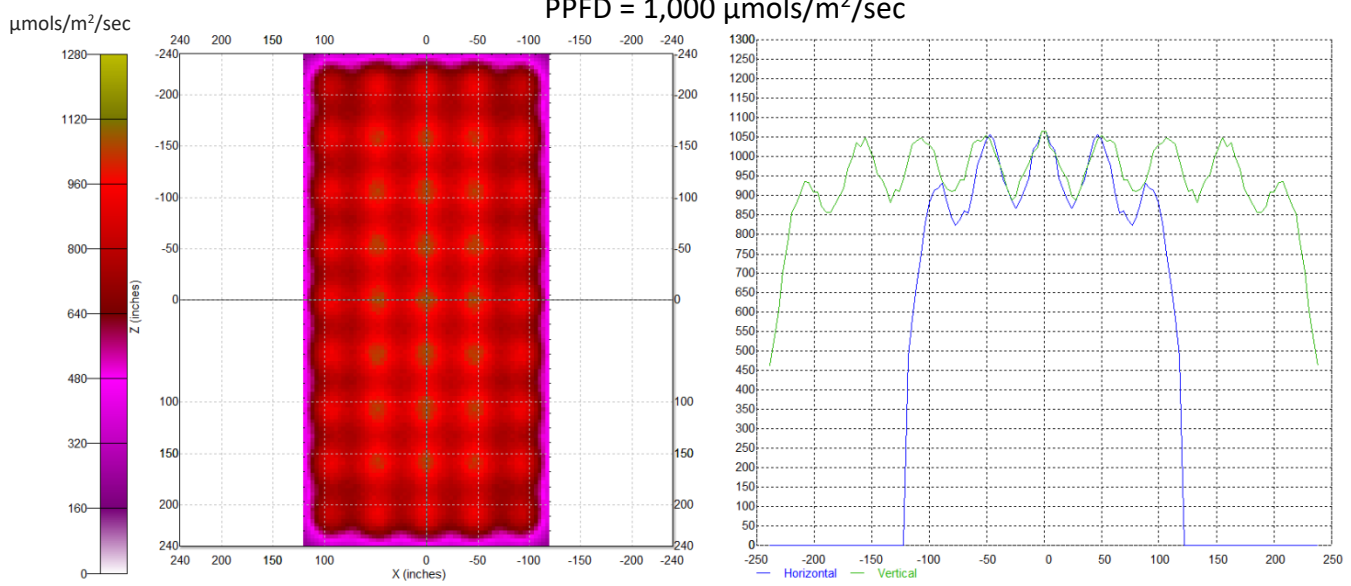


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 1,000 $\mu\text{mol}/\text{m}^2/\text{sec}$



www.thriveagritech.com

info@thriveagritech.com

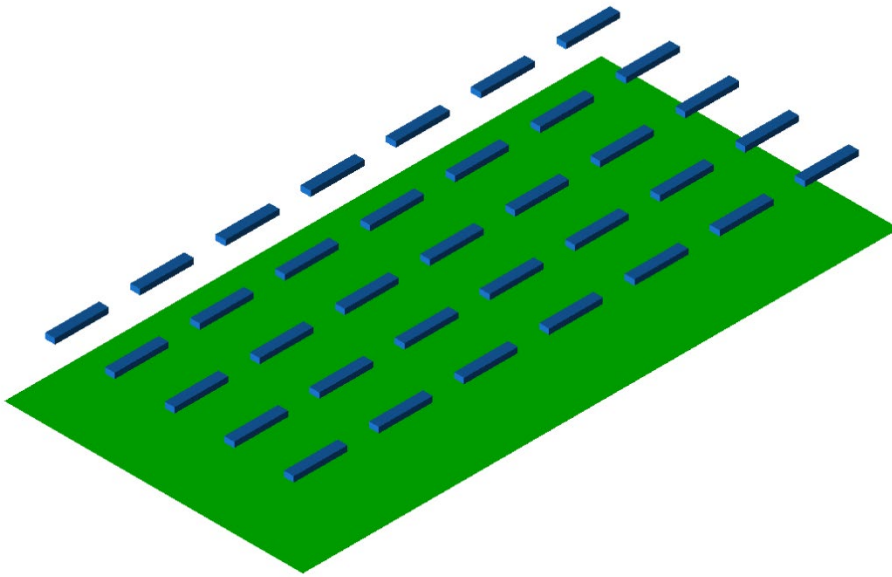
800-205-7216

20'x40' Sea-of-Green, 1,000 PPFD
48-inch Mounting Height, Pinnacle HP

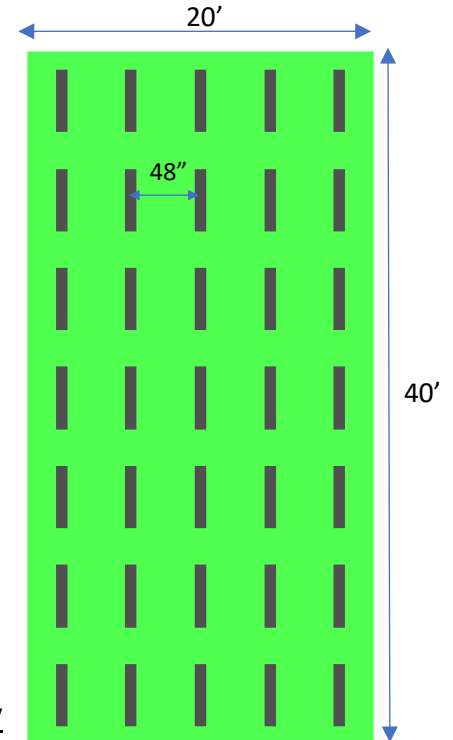
Lighting Design

- # of Pinnacle HP light bars: 35 (5 lines of 7 lights/line)
- Mounting Height: 48-inches over the canopy
- Light Bar Center Spacing: 48-inches

Isometric View

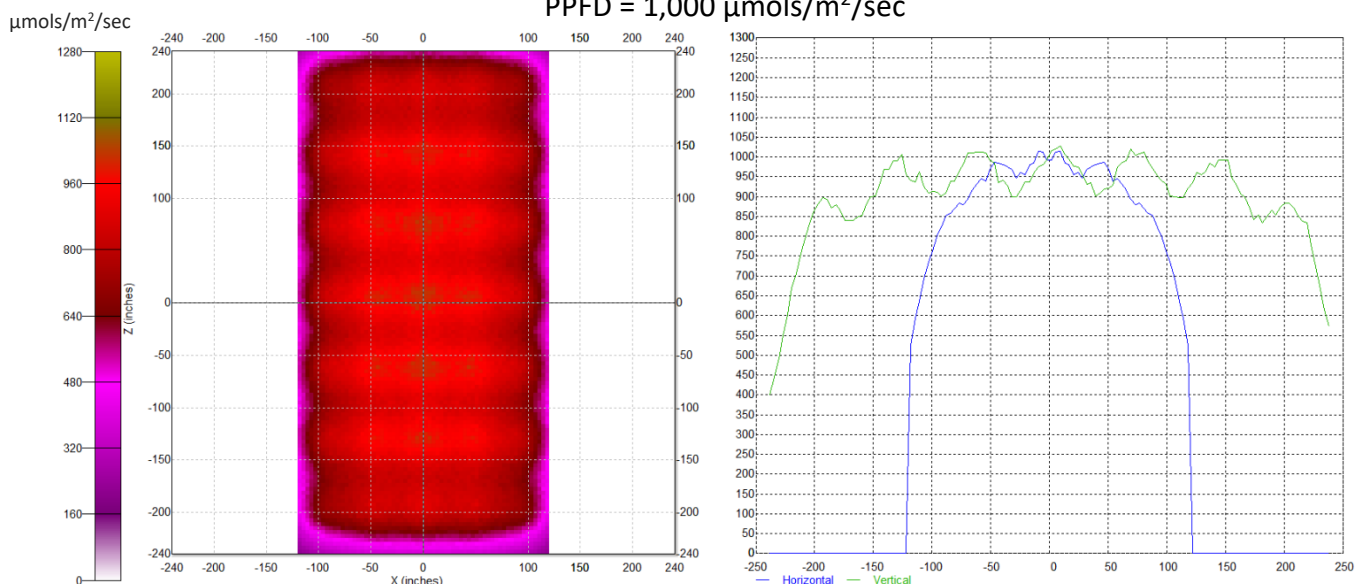


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 1,000 $\mu\text{mol}/\text{m}^2/\text{sec}$



www.thriveagritech.com

info@thriveagritech.com

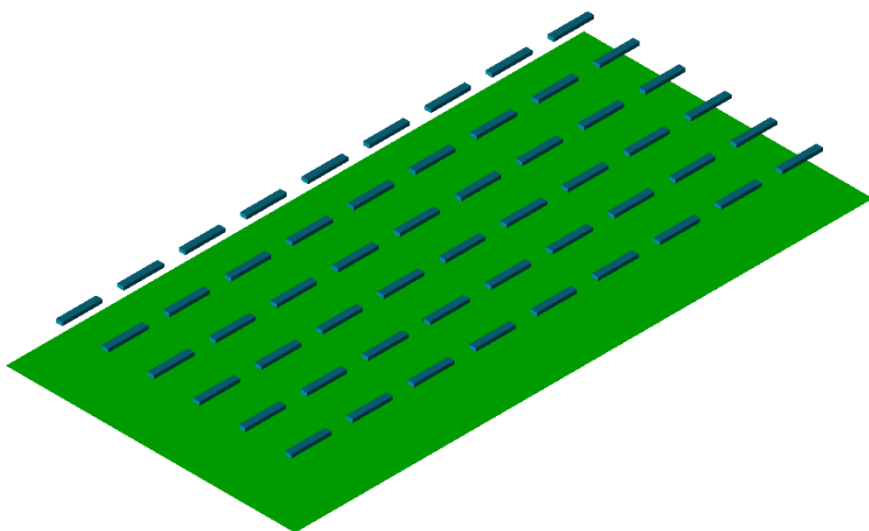
800-205-7216

20'x40' Sea-of-Green, 1,200 PPFD
32-inch Mounting Height, Pinnacle

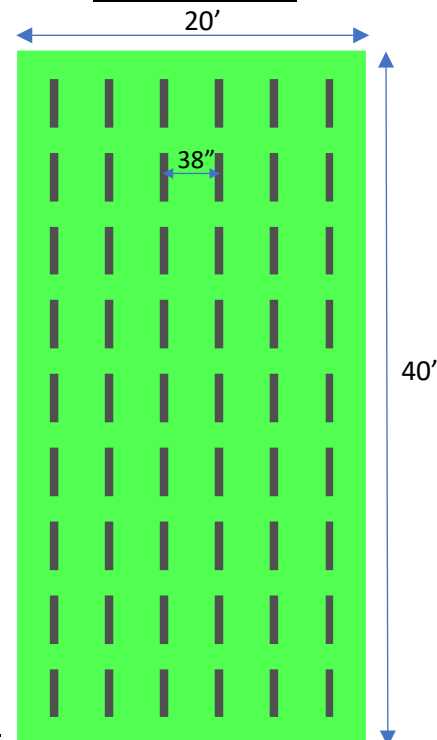
Lighting Design

- # of Pinnacle light bars: 54 (6 lines of 9 lights/line)
- Mounting Height: 32-inches over the canopy
- Light Bar Center Spacing: 38-inches

Isometric View

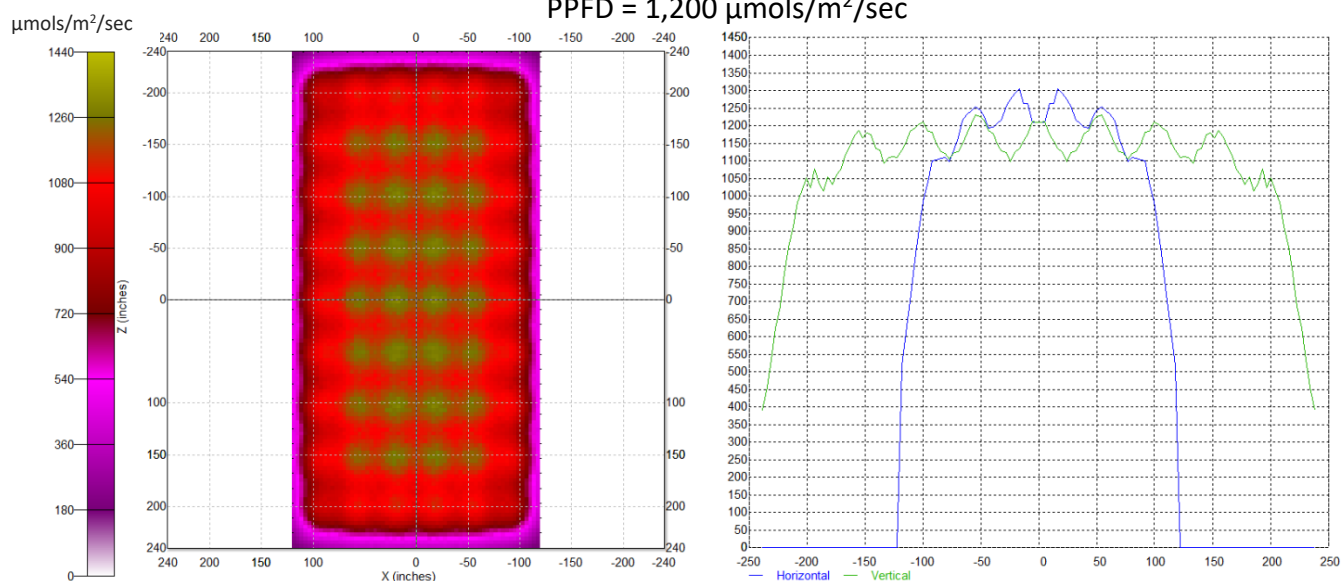


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 1,200 $\mu\text{mol}/\text{m}^2/\text{sec}$

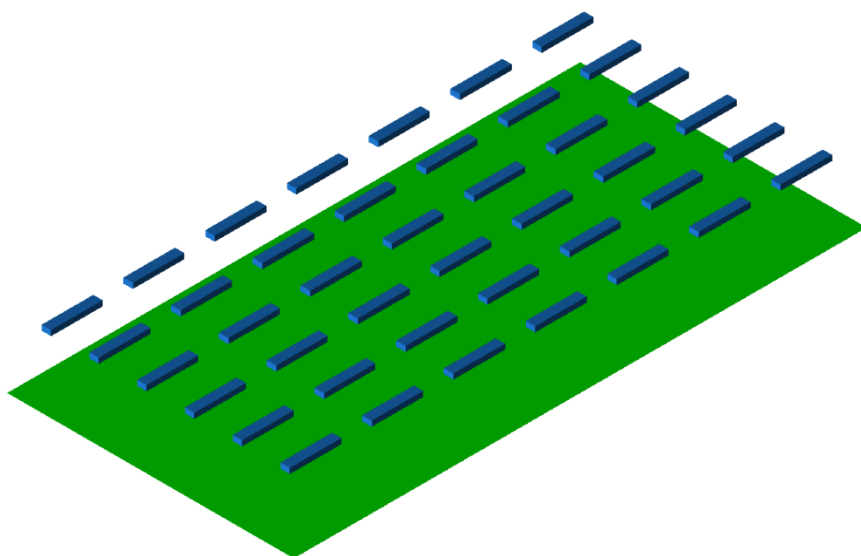


20'x40' Sea-of-Green, 1,200 PPFD
48-inch Mounting Height, Pinnacle HP

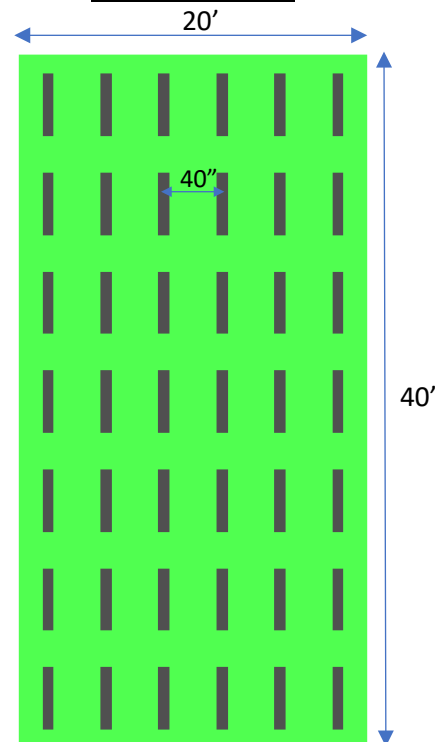
Lighting Design

- # of Pinnacle HP light bars: 42 (6 lines of 7 lights/line)
- Mounting Height: 48-inches over the canopy
- Light Bar Center Spacing: 40-inches

Isometric View

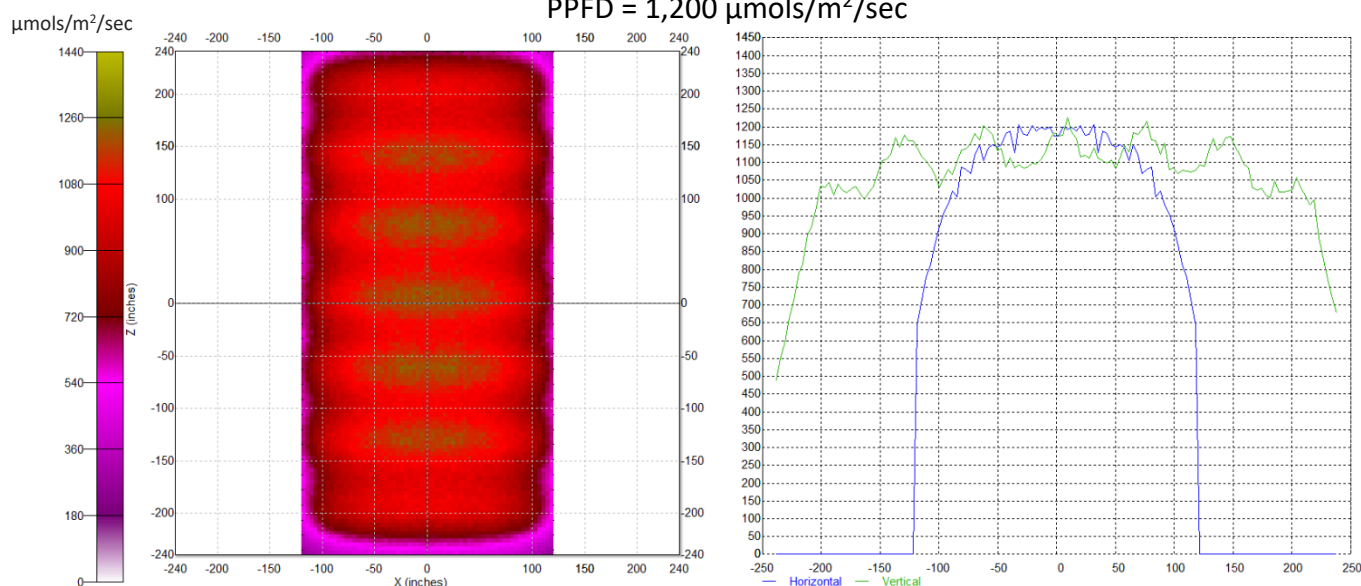


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 1,200 $\mu\text{mol}/\text{m}^2/\text{sec}$

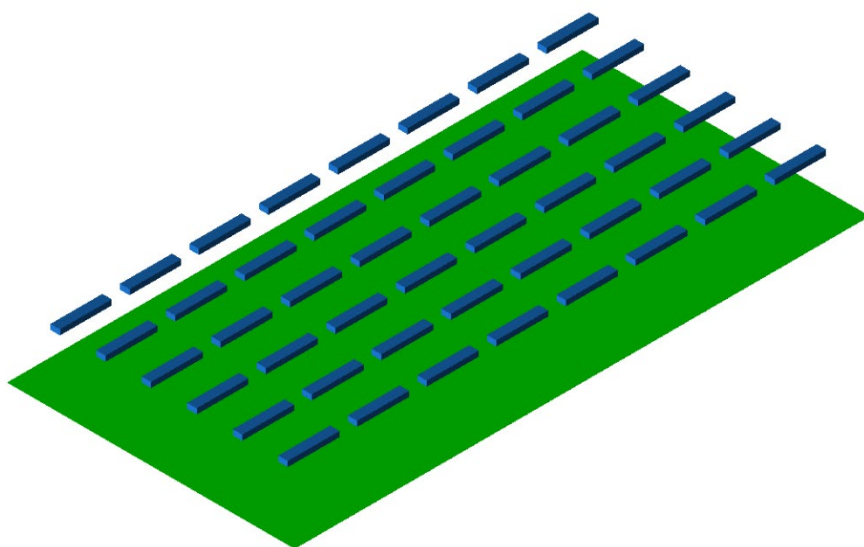


20'x40' Sea-of-Green, 1,500 PPFD
42-inch Mounting Height, Pinnacle HP

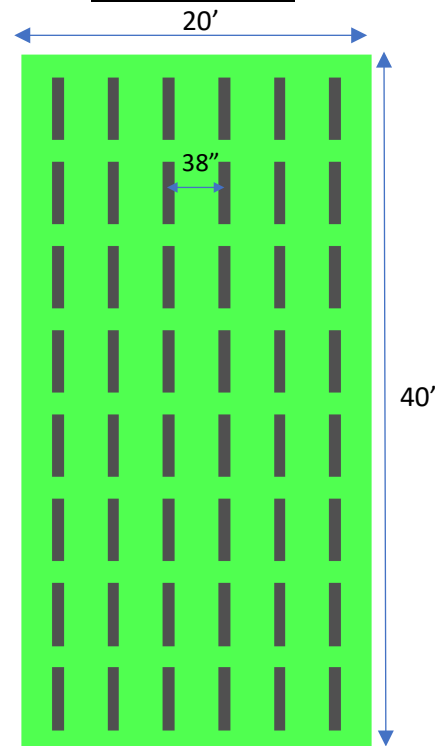
Lighting Design

- # of Pinnacle HP light bars: 48 (6 lines of 8 lights/line)
- Mounting Height: 42-inches over the canopy
- Light Bar Center Spacing: 38-inches

Isometric View

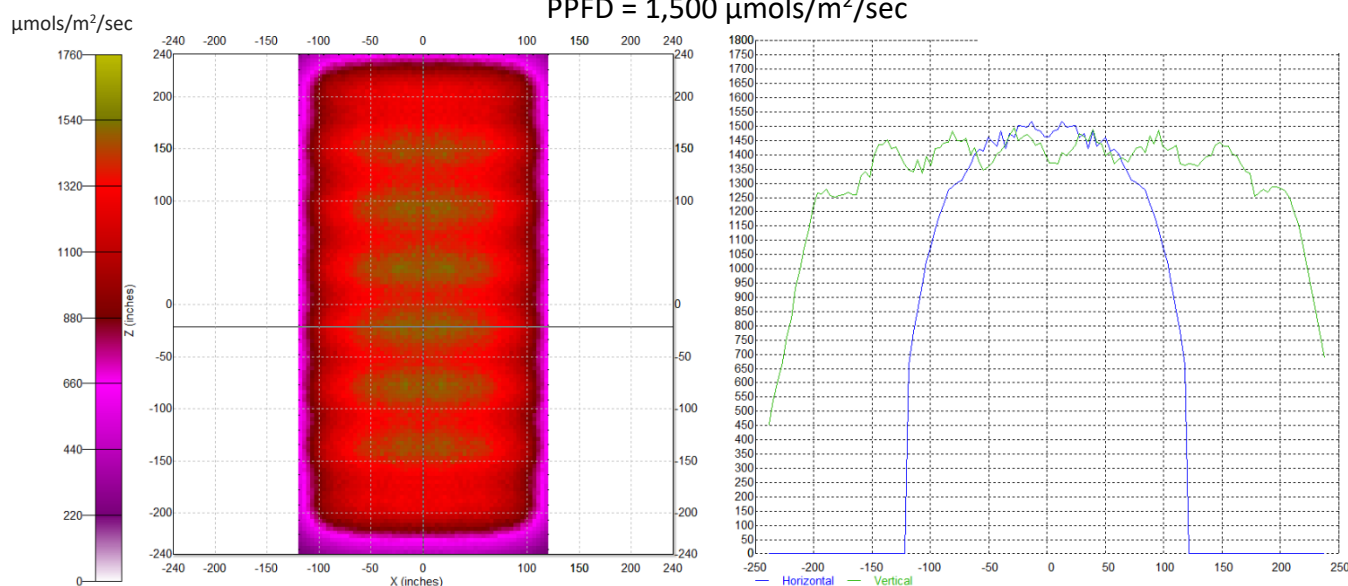


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 1,500 $\mu\text{mol}/\text{m}^2/\text{sec}$



www.thriveagritech.com

info@thriveagritech.com

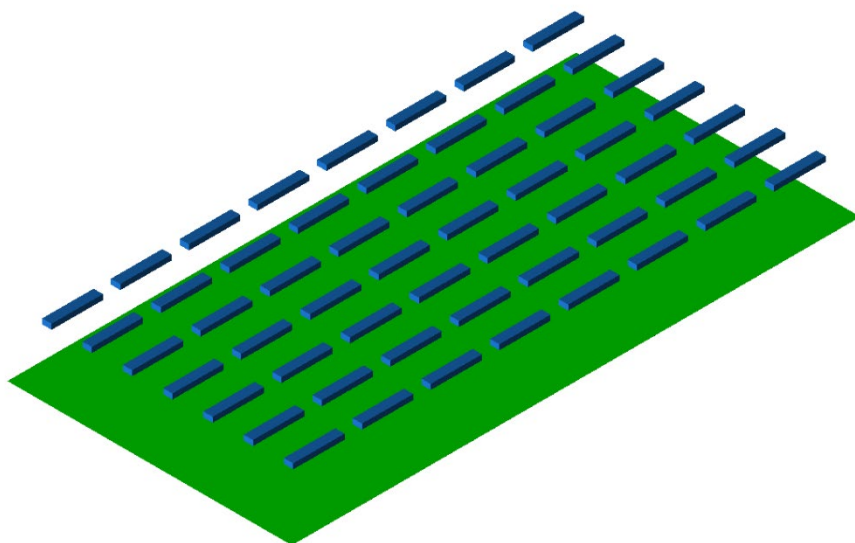
800-205-7216

20'x40' Sea-of-Green, 1,700 PPFD
42-inch Mounting Height, Pinnacle HP

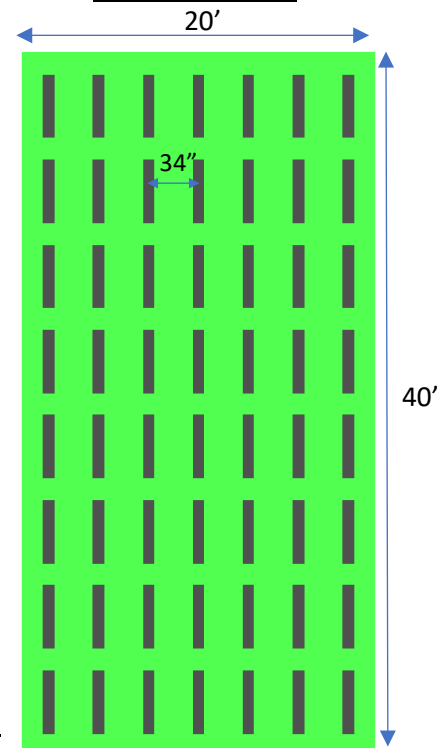
Lighting Design

- # of Pinnacle HP light bars: 56 (7 lines of 8 lights/line)
- Mounting Height: 42-inches over the canopy
- Light Bar Center Spacing: 34-inches

Isometric View

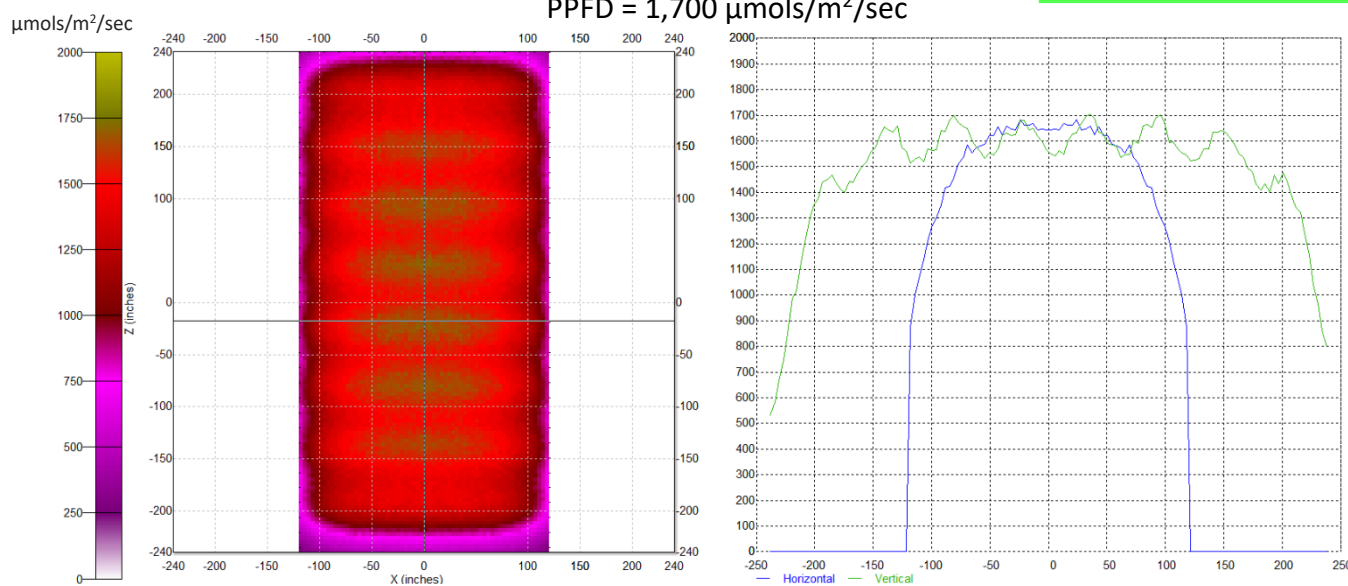


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 1,700 $\mu\text{mol}/\text{m}^2/\text{sec}$

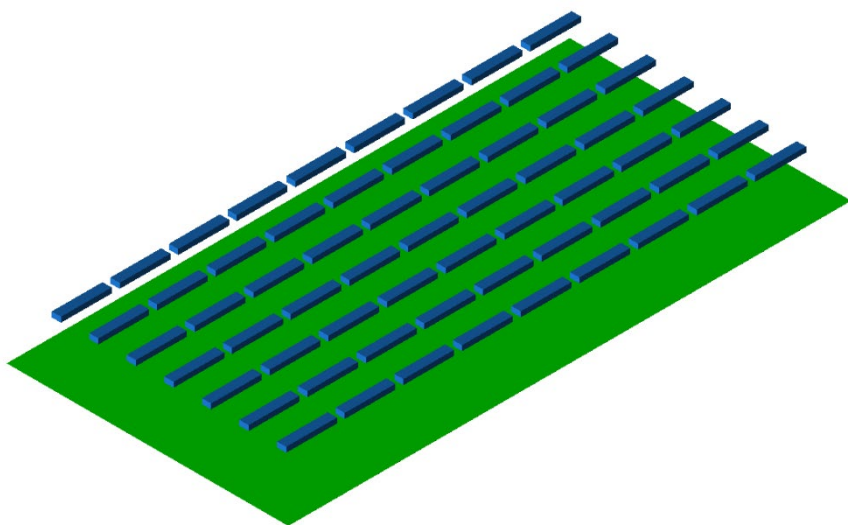


20'x40' Sea-of-Green, 2,000 PPFD
36-inch Mounting Height, Pinnacle HP

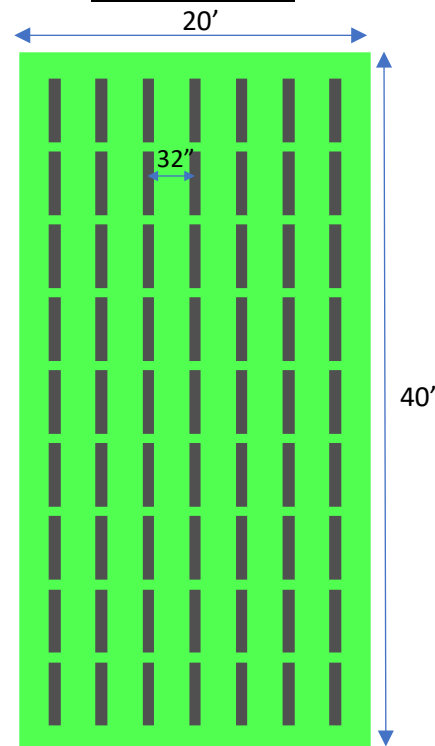
Lighting Design

- # of Pinnacle HP light bars: 63 (7 lines of 9 lights/line)
- Mounting Height: 36-inches over the canopy
- Light Bar Center Spacing: 32-inches

Isometric View

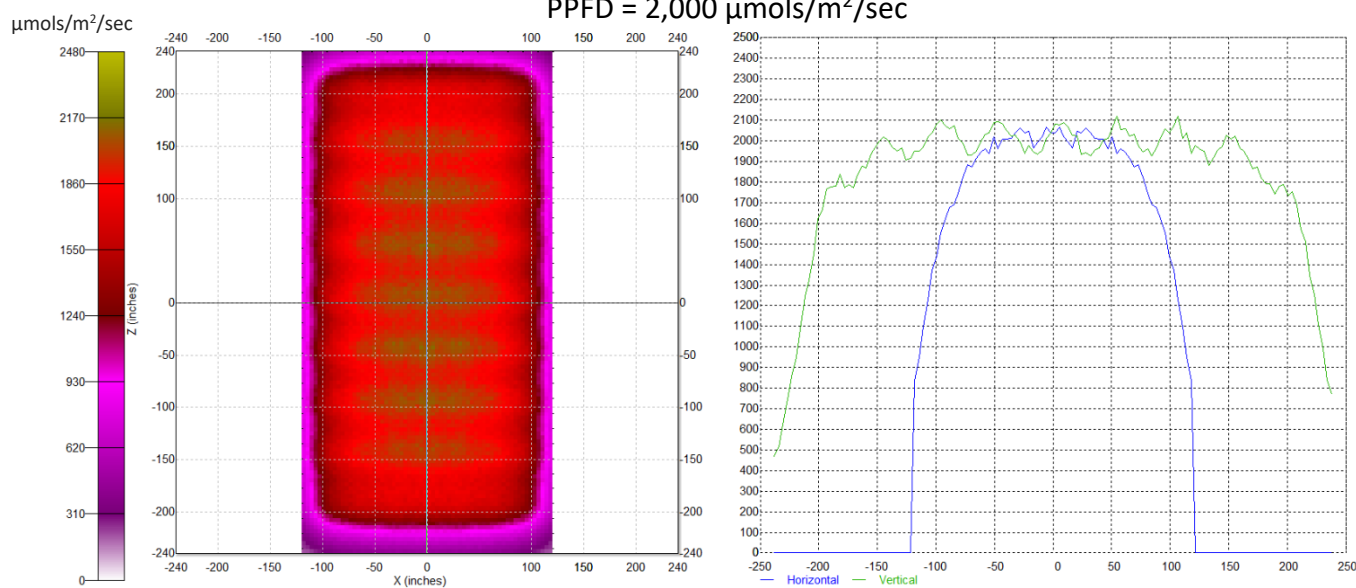


Top Down View



Light Intensity Map on 20'x40' Canopy

PPFD = 2,000 $\mu\text{mol}/\text{m}^2/\text{sec}$

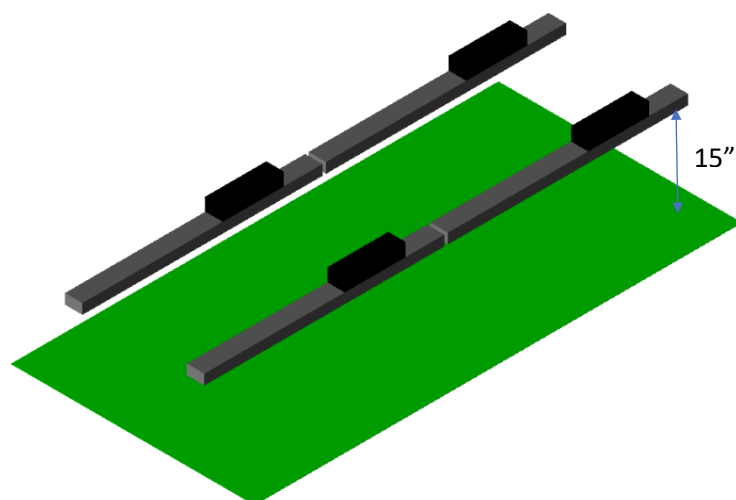


4'x8' Multi-tier Rack, 900 PPFD 15-inch Mounting Height, Apex

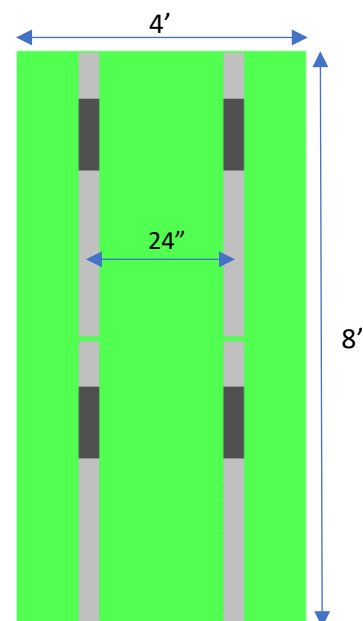
Lighting Design

- # of Apex light bars: 4 (2 lines of 2 lights/line)
- Mounting Height: 15-inches over the canopy
- Light Bar Center Spacing: 24-inches

Isometric View

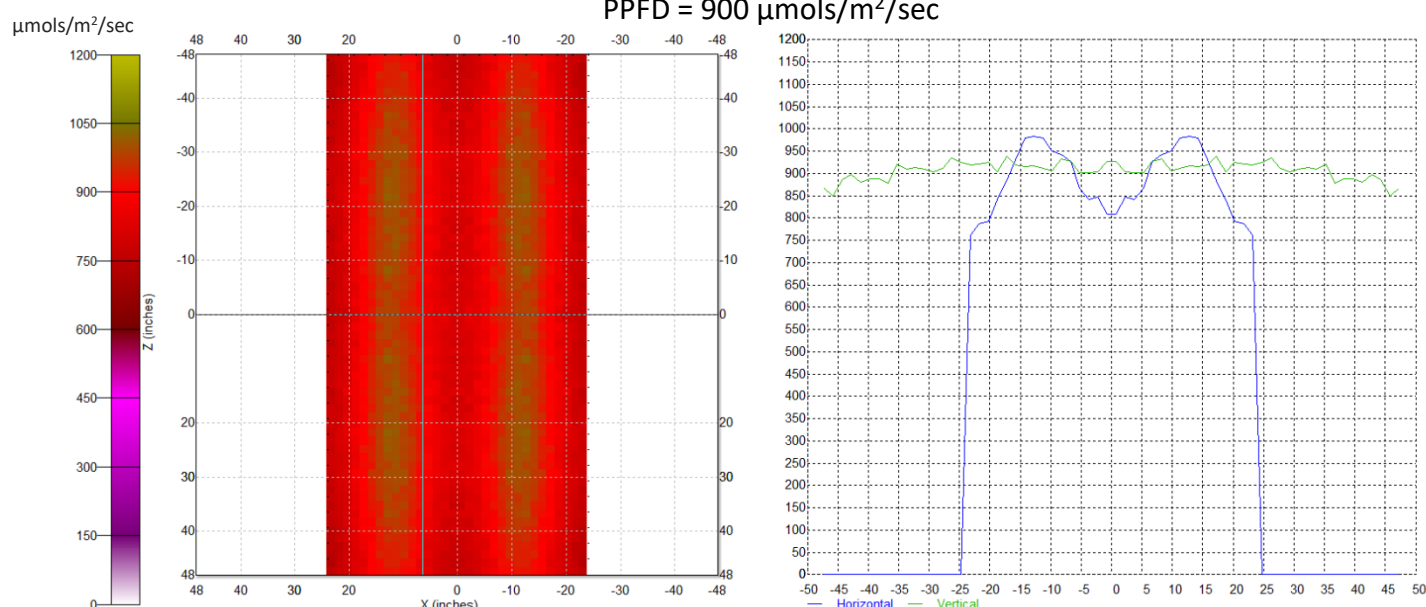


Top Down View



Light Intensity Map on 4'x8' Canopy

PPFD = 900 $\mu\text{mol}/\text{m}^2/\text{sec}$



www.thriveagritech.com

info@thriveagritech.com

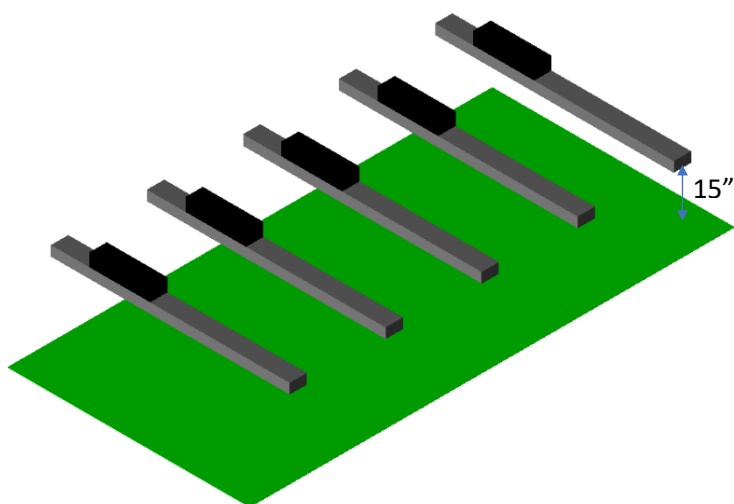
800-205-7216

4'x8' Multi-tier Rack, 1,200 PPFD 15-inch Mounting Height, Apex

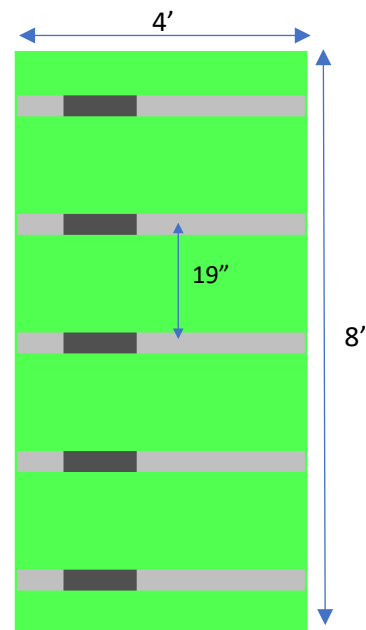
Lighting Design

- # of Apex light bars: 5
- Mounting Height: 15-inches over the canopy
- Light Bar Center Spacing: 19-inches

Isometric View



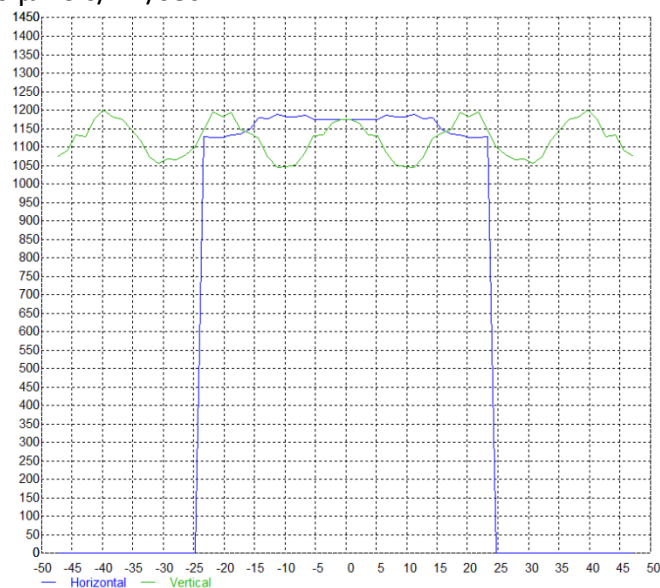
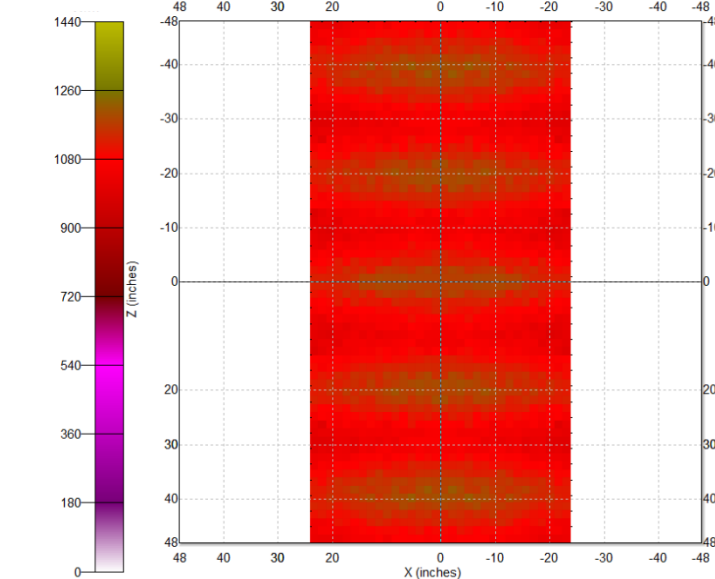
Top Down View



Light Intensity Map on 4'x8' Canopy

PPFD = 1,200 $\mu\text{mol}/\text{m}^2/\text{sec}$

$\mu\text{mol}/\text{m}^2/\text{sec}$



www.thriveagritech.com

info@thriveagritech.com

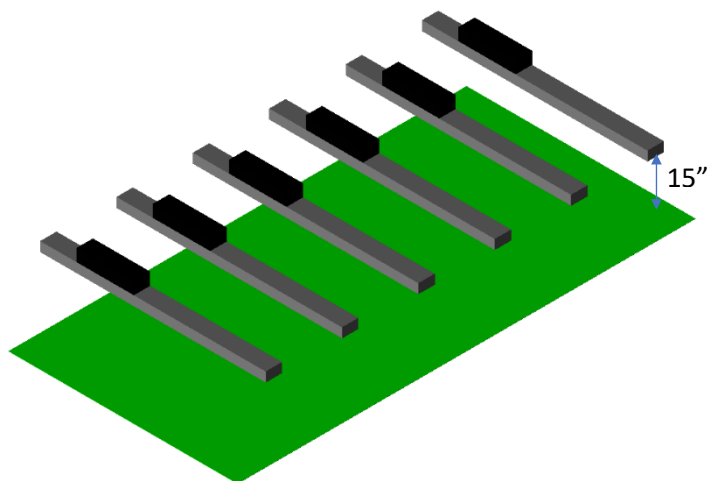
800-205-7216

4'x8' Multi-tier Rack, 1,400 PPFD 15-inch Mounting Height, Apex

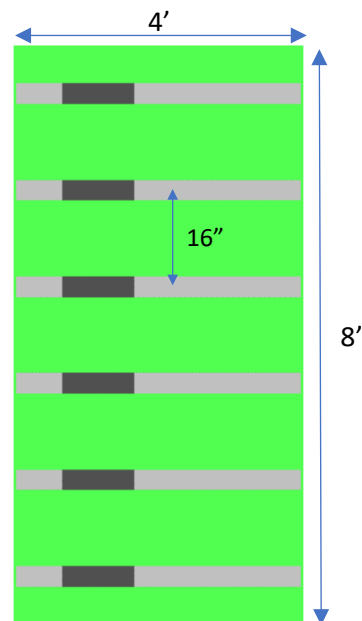
Lighting Design

- # of Apex light bars: 6
- Mounting Height: 15-inches over the canopy
- Light Bar Center Spacing: 16-inches

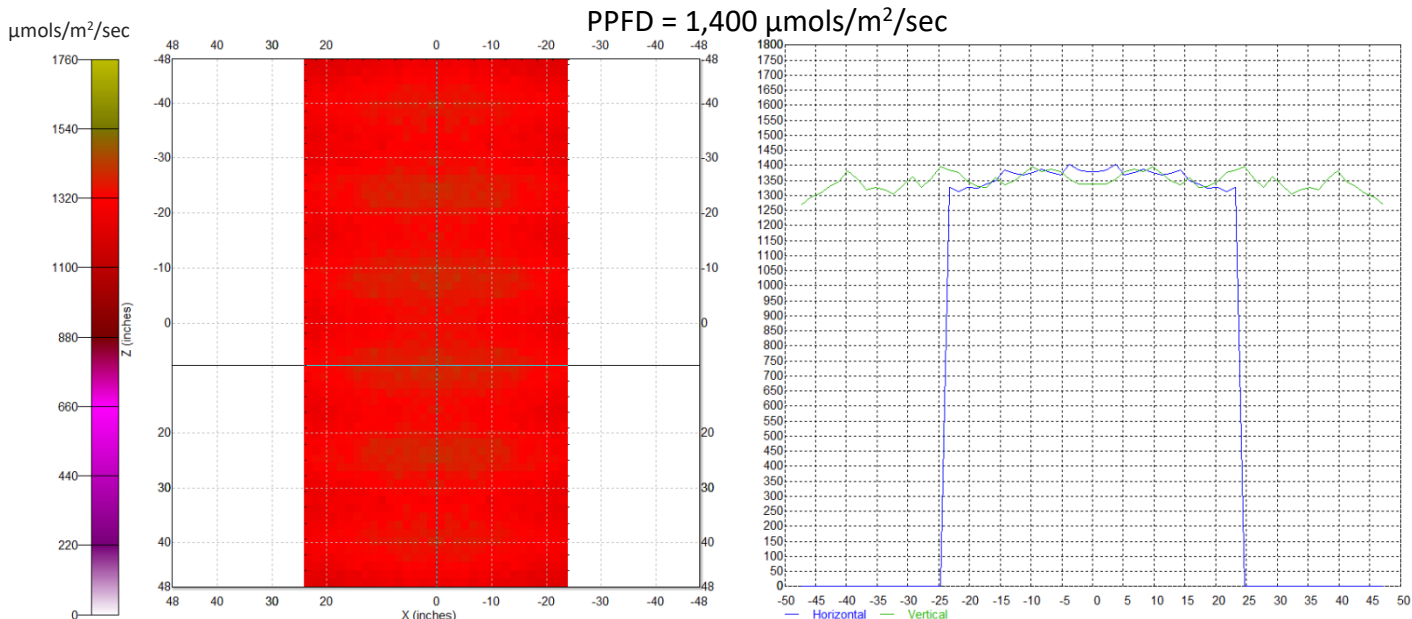
Isometric View



Top Down View



Light Intensity Map on 4'x8' Canopy



www.thriveagritech.com

info@thriveagritech.com

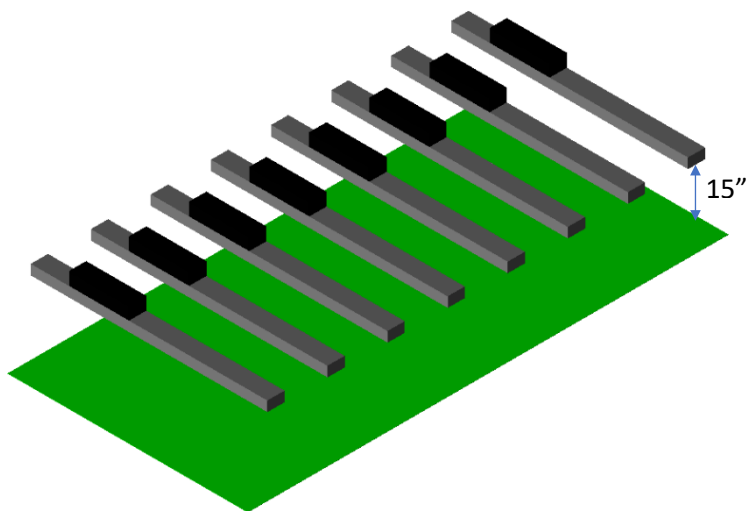
800-205-7216

4'x8' Multi-tier Rack, 1,800 PPFD 15-inch Mounting Height, Apex

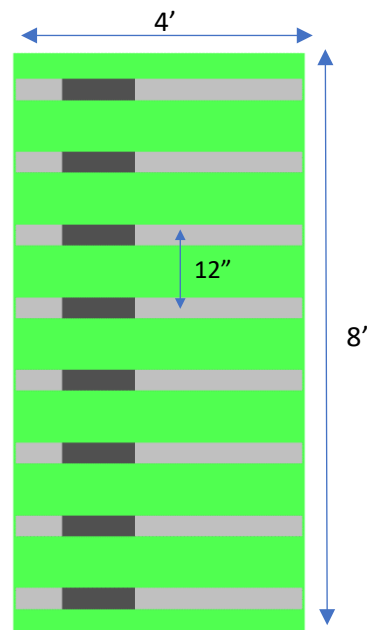
Lighting Design

- # of Apex light bars: 8
- Mounting Height: 15-inches over the canopy
- Light Bar Center Spacing: 12-inches

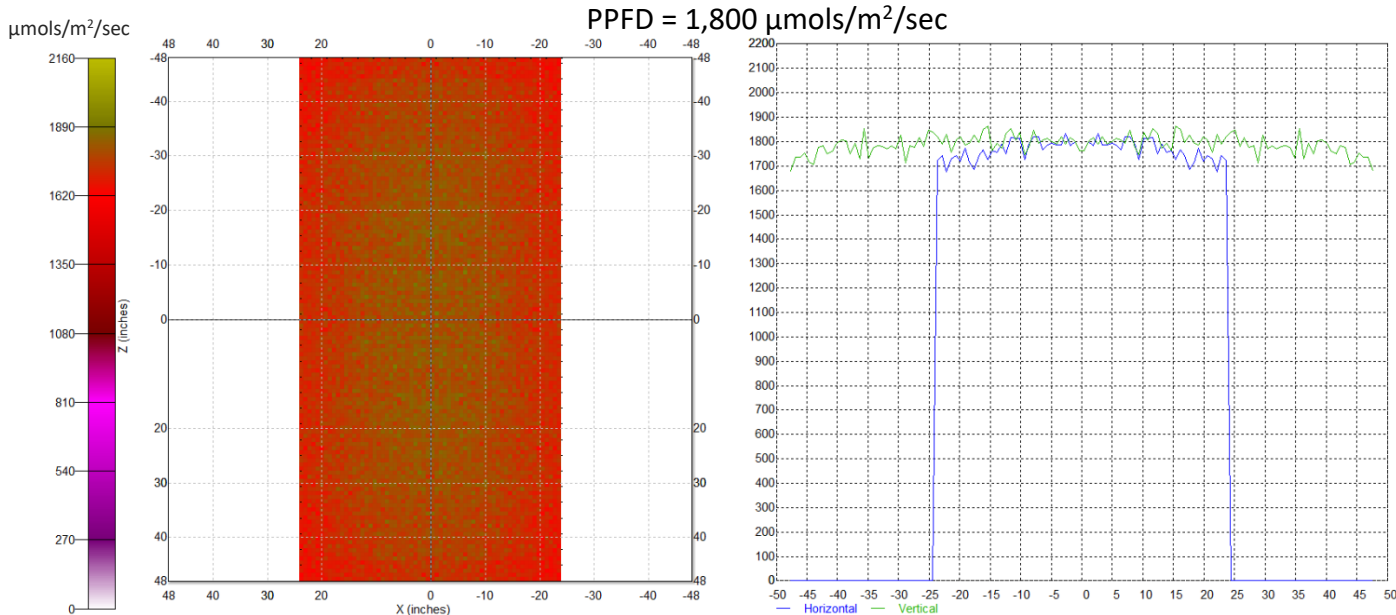
Isometric View



Top Down View



Light Intensity Map on 4'x8' Canopy



www.thriveagritech.com

info@thriveagritech.com

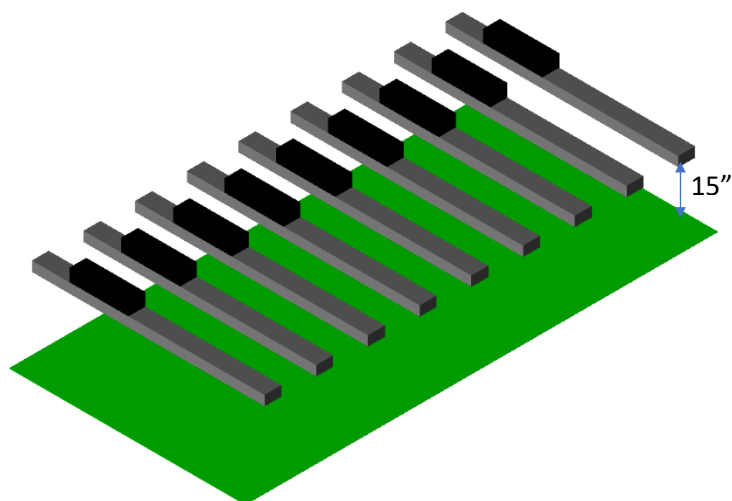
800-205-7216

4'x8' Multi-tier Rack, 2,000 PPFD 15-inch Mounting Height, Apex

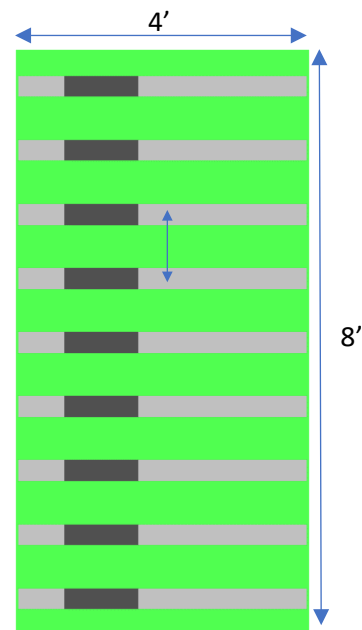
Lighting Design

- # of Apex light bars: 9
- Mounting Height: 15-inches over the canopy
- Light Bar Center Spacing: 10.5-inches

Isometric View



Top Down View



Light Intensity Map on 4'x8' Canopy

