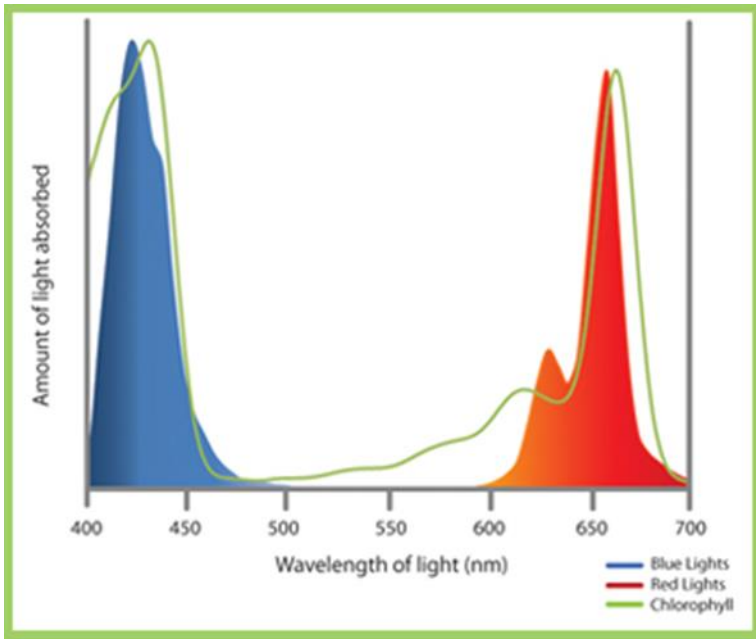


A large, multi-bay greenhouse structure is shown from an elevated perspective. The interior of each bay is filled with a dense grid of glowing yellow lights, creating a warm, golden glow. The structure is made of dark metal frames and translucent panels. The perspective is from a high angle, looking down into the bays.

how long should I run these lights?

Jonathan Ebba
TriState IPM Seminar
2020



quality



duration

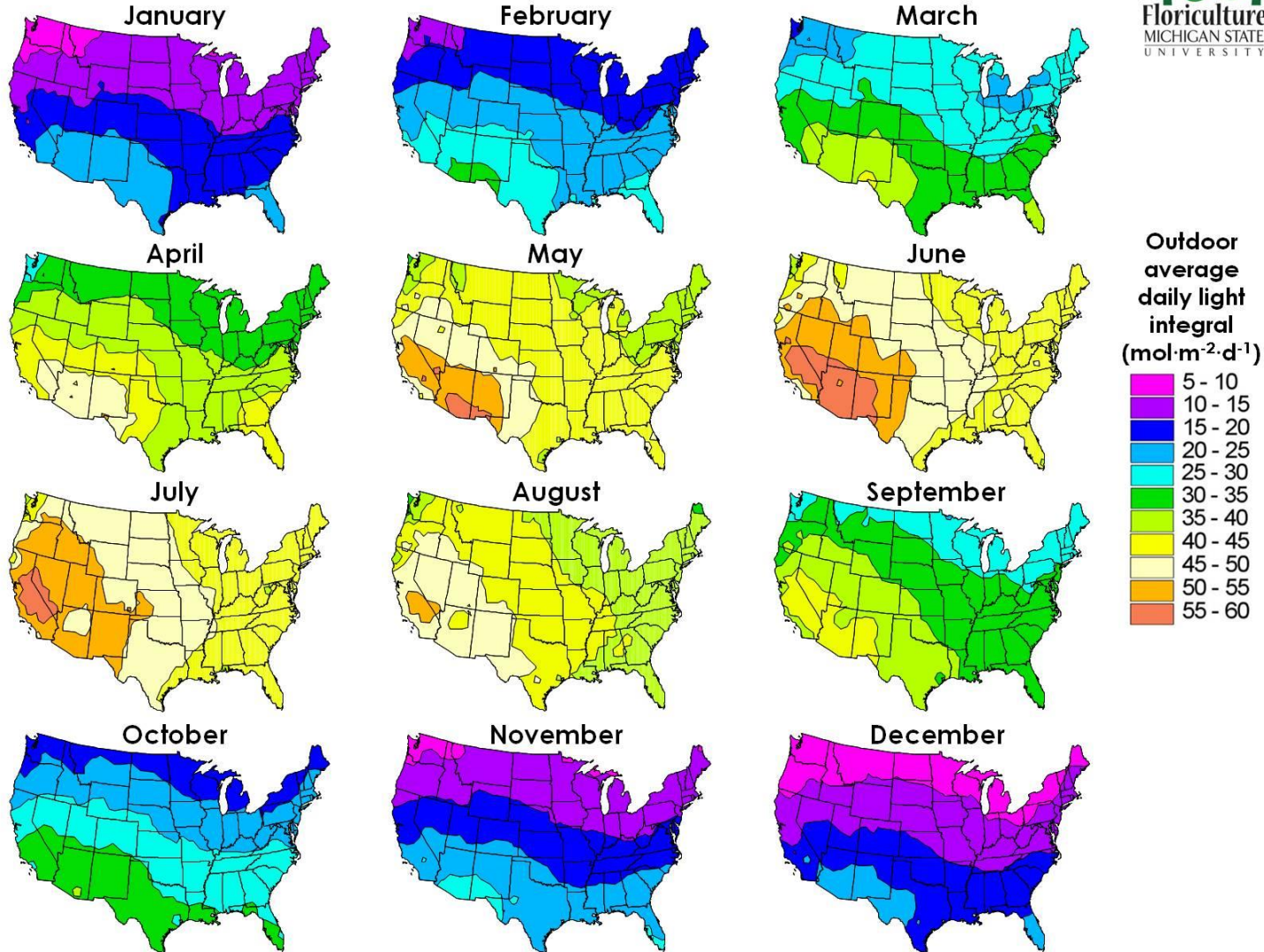
intensity



accumulated

Outdoor Daily Light Integral (DLI) Maps

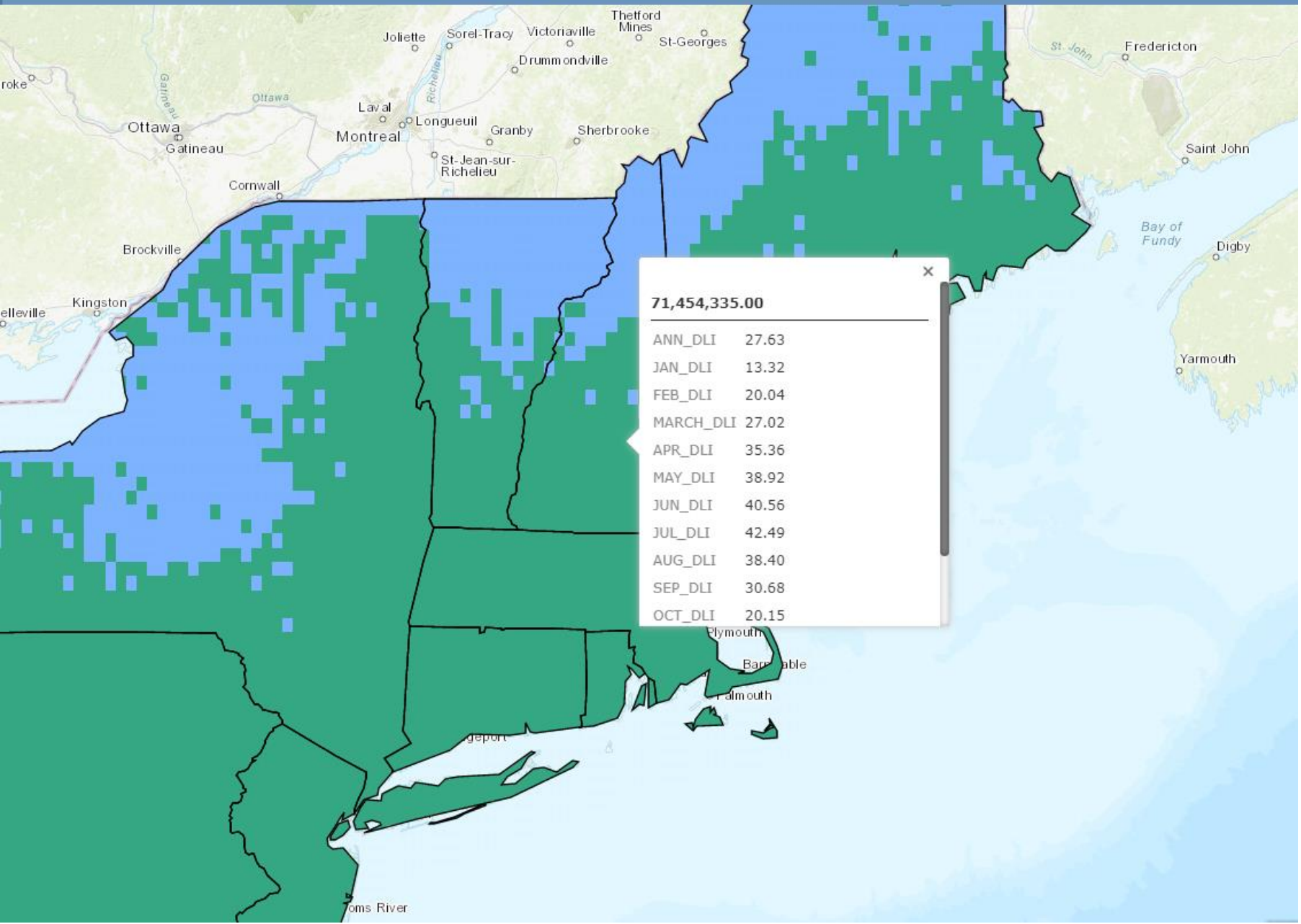
developed by Jim Faust, Clemson University



To estimate the DLI inside your greenhouse for a particular month:

- (1) Use a light sensor to determine light intensity outdoors at noon on a clear day.
- (2) Go into your greenhouse and take light intensity measurements at plant level.
- (3) Use these values to determine the percentage of light outdoors that reaches your crops. For example, if you measure 6,300 footcandles outside the greenhouse and an average value of 4,100 footcandles inside, your light transmission value is about 65%.
- (4) Multiply the DLI value indicated in the maps above by the transmission value to obtain the average DLI inside your greenhouse. For example, if your transmission value is 65% and the DLI for your location is $20\text{ mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$, then your average DLI that month is $13\text{ mol}\cdot\text{m}^{-2}\cdot\text{d}^{-1}$.

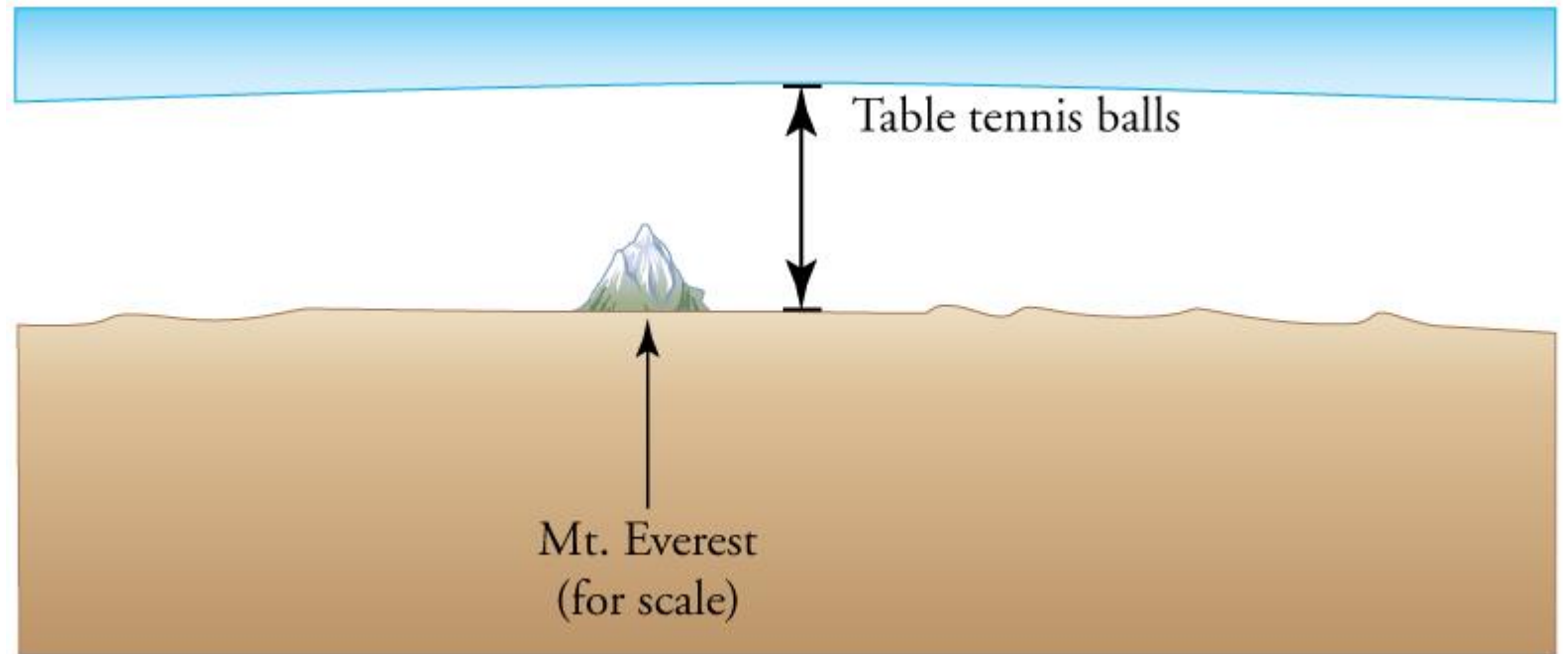
<https://www.canr.msu.edu/uploads/resources/pdfs/dli-maps.jpg>



counting
donuts...



counting light...



602,200,000,000,000,000,000,000,000,000,000,000

quintillions
sextillions quadrillions trillions billions millions

1 mole

A young boy with light brown hair, wearing a white school shirt and a black tie, is sitting at a desk. He has his hands pressed against his head, looking down with a stressed or frustrated expression. The desk is cluttered with stacks of books on both sides and an open notebook with a purple pen lying on it. The background is plain white.

let's do one...