

# Indoor Agriculture

Green plants and energy

Consumers Energy

Count on Us®

Major technological improvements over the past decade have transformed LED lighting, making it ideal for indoor agriculture. LEDs are now one of the best forms of lighting to ensure crop success and reduce energy use. Switching from high pressure sodium (HPS) lights to LED grow lights can help lower your energy use and save you money. Your energy saving projects may even qualify for rebates.

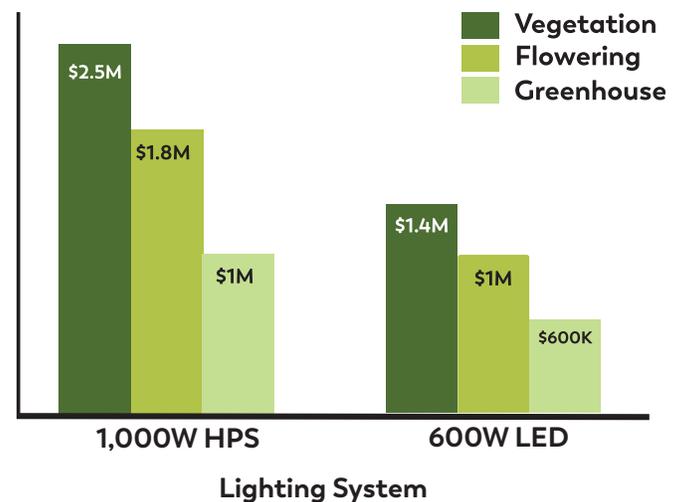
## Enjoy the Benefits

Efficient indoor agriculture lighting systems can mean lower electric bills and more energy savings for your business. LEDs cost less to run than the average HPS lighting system. Switching to an LED lighting system is better for your plants, your community and your wallet.

### LEDs:

- Require minimal maintenance.
- Have a longer life span.
- Do not require additional ventilation equipment since they emit less heat than HPS.
- Will not burn or damage plants when operating at the correct Photosynthetic Photon Flux Density (PPFD).
- Do not contain mercury and lead, while HPS systems do, making eventual disposal easier.

## Total Electric Bill (Over 8 Year Period)



Note: Above figures are an estimate of 100 fixtures running 365 days/year. Cost may vary depending on facility size. Data calculations are sourced from Consumers Energy engineers.



Ready to start saving?

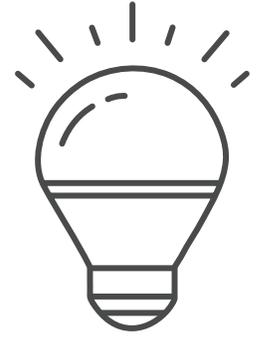
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## Light Matters

The Growth Cycle Stages chart below gives clearer insight into how many hours a day grow lights need to be operating. With an energy efficient lighting system your plants won't be the only thing prospering.

LEDs are more cost effective to operate and maintain the same amount of PPFD\* levels as a typical HPS or metal halide system. The levels of Photosynthetically Active Radiation (PAR) emitted are so similar that there is no notable difference in the quality of your plants. Not only do you get the same coverage, but you also save on your electric bill.



	Growth Cycle Stages*		
	Propagation	Vegetation	Flowering
PPFD levels ( $\mu\text{mol}/\text{m}^2/\text{s}$ )	150-200	400-600	800-1200
Lighting Schedules (hours/day)	18-24	16-24	12

\* These values are for HEMP plants.

### LED lighting measurements

- Photosynthetically Active Radiation (PAR) is the visible light used by plants in photosynthesis.
- Photosynthetic Photon Flux (PPF) measures the light output from a source within a second.
- \*Photosynthetic Photon Flux Density (PPFD) measures the light intensity at the canopy surface.

## We Are Here to Help

Saving energy and money for your business has never been easier. Our engineers are available to help you through every step of the process. Contact us today to begin the application process and secure your indoor agriculture rebate if your energy efficiency project qualifies.

Visit [ConsumersEnergy.com/agriculture](https://www.consumersenergy.com/agriculture) to download the application or call us at **877-607-0737** to learn more.

