This is a small, mobile sensor without data logging capabilities.

How Can You Measure DLI?

There are different ways to measure DLI in your greenhouse, but the two most common methods use:

- Mobile quantum (photosynthetic light) sensors (with or without data loggers)
- Quantum sensors that are connected to the greenhouse environmental control system

Here are a few tips for using DLI sensors:

- Place sensors at plant height and adjust the sensor height as the crop grows
- Use a level to make sure the sensor is level
- Keep the sensor clear of dust and debris by periodically washing with distilled water and a tissue
- If possible, return your sensors to the manufacturer every few years for re-calibration

DLI requirements differ between greenhouse crops as outlined in the table inside this brochure.

This is a mobile, self-contained data logger with a quantum sensor.

More DLI information is available in Commercial Greenhouse Production: *Measuring Daily Light Integral in a Greenhouse*, Purdue Extension publication HO-238-W (also in Spanish as HO-238-SW). Available from the Purdue Extension Education Store, www.the-education-store.com.

This is a quantum sensor that connects to a greenhouse environmental control system.

7/10

PURDUE UNIVERSITY

PURDUE EXTENSION

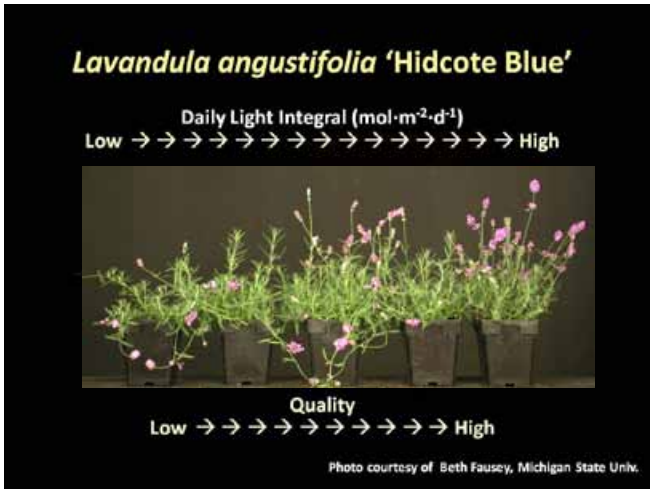
HO-238-B-W

Measuring Daily Light Integral (DLI)

Ariana P. Torres, Christopher J. Currey, and Roberto G. Lopez, Purdue University; and James E. Faust, Clemson University

The daily light integral (DLI) concept measures the total amount of photosynthetic light plants receive during the day — not just the intensity of sunlight at a given moment.

Conceptually, DLI is similar to how we measure rainfall. To measure DLI, we "collect" light throughout the day similar to a rain gauge.



How Does DLI Affect Growth?

Increasing DLI can:

- Increase plant mass (roots, shoots and flowers)
- Increase branching
- Reduce time to flower
- Increase flower size and number

DLI Requirements for Various Greenhouse Crops

PURDUE EXTENSION
HO-238-B-W

Minimum aceptable quality
Good quality
High quality

1=Requires ample water to perform well at high-light levels.
2=Requires cool or moderate temperatures to perform well at high-light levels.
3=Stock plants perform well under higher light levels than finished plants.

Species	Average Daily Light Integral (Moles/Day) Greenhouse														
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
Ferns (Pteris Adiantum)															
Maranta															
Phalaenopsis (orchid)															
Saintpaulia															
Spathiphyllum															
Forced hyacinth															
Forced narcissus															
Forced tulip															
Aglaonema															
Bromeliads															
Caladium													1	1	1
Dieffenbachia															
Dracaena															
Nephrolepsis															
Streptocarpus															
Hosta													1	1	1
Hedera (English ivy)															
Begonia (heimalis)															
Sinningia															
Schlumbergera									2	2	2	2	2	2	2
Cyclamen															
Exacum															
Heuchera															
Coleus (shade)															
Impatiens, New Guinea															
Iris, Dutch (cut flowers)															
Kalanchoe															
Lobelia												2	2	2	2
Primula															
Impatiens															
Pelargonium peltatum (Ivy geranium)															
Begonia (fibrous)															
Senecia (dusty miller)															
Fuchsia												2	2	2	2
Euphorbia (poinsettia)													3	3	3
Hydrangea															
Lilium (asiatic and oriental)															
Lilium longiflorum (easter lily)															
Ageratum															
Antirrhinum															
Chrysanthemum (potted)															
Dianthus															
Gazania															
Gerbera															

Species	Average Daily Light Integral (Moles/Day) Greenhouse														
	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30
Hibiscus rosa-siniensis															
Lobularia															
Pelargonium hororum (zonal geranium)															
Rose (miniature potted)															
Salvia splendens															
Schefflera															
Angelonia															
Aster															
Salvia farinacea															
Iberis															
Catharanthus (vinca)															
Celosia															
Chrysanthemum (garden)															
Coleus (sun)															
Coreopsis															
Cosmos															
Croton															
Dahlia															
Echinacea															
Ficus bejaminia															
Gaura															
Gomphrena															
Hemerocallis															
Lantana															
Lavendula (lavender)															
Tagetes (marigold)															
Petunia															
Phlox (creeping)															
Rudbeckia															
Scaevola															
Sedum															
Thymus															
Verbena															
Viola (pansy)														2	2
Zinnia															
Alstroemeria (cut flower)															
Capsicum (pepper)															
Chrysanthemum (cut flower)															
Dianthus (carnation)															
Gladiolus (cut flower)															
Lycopersicon (tomato)															
Rose (cut flower)															

Source: James E. Faust, *Ball Red Book*.