

LIGHT AND TEMPERATURE

Plants respond to 3 different aspects of light (Quality, Duration and Intensity):

Light Quality - wavelengths or "colors" (ROY G BV) - mnemonic

Depending on specific light source, houseplants respond differently:

Sunlight –

Artificial light –

- Fluorescent -
- Fluorescent "Grow Lights" -
- Incandescent -

- Halogen -

Light Duration - the number of hours during the day (24-hour cycle) that a plant receives light.

Where most commercial houseplants are grown, duration varies throughout the year.

Photoperiodism is the ability of some plants to measure the light period and the dark period of the 24-hour cycle and respond physiologically. For many plants, the length of daylength vs. the dark period over a certain number of days determines the time maturity is reached, but the most prominent photoperiodic response is the "initiation of flower buds".

Some plants only initiate flower buds when daylengths are long (13-14 hours or more = "long-day plants"; other plants will develop flower buds when daylengths are short (no more than 13-14 hours = "short day plants")

Light Intensity - the amount of light striking a plant

Measured in units called "lux", or more commonly in "footcandles" (fc)

Natural light intensity received by indoor plants is not constant and is affected by:

- Season of the year -
- Location in the home -
- Window exposure (compass direction) – north vs. south vs. east vs. west

When a plant is exposed to a light level just sufficient to keep it alive, it is at its "**light compensation point**" (**LCP**). At this level, the amount of photosynthetic food production is equal to the amount used up in respiration (photosynthetic rate = respiration rate).

Plants near windowsills exposed to direct or indirect sunlight coming from one direction often tend to "bend" toward the light. This is called **phototropism** and can be remedied by periodically rotating the plants about 1/4 turn each time.

Light Intensity Definitions

In your handout in this lecture there is a diagram showing 3 types of light (***Direct, *Bright and *Limited**) defined by 2 seasons and window placement. We will use this terminology throughout the semester to describe optimal light intensity levels.

TEMPERATURE

Most houseplants are adaptable to wide temperature ranges, however the following situations should be avoided:

- Wide temperature fluctuations

- Placement of plants on top of heaters, microwave ovens or other heat generating appliances
- Cool or warm drafts, such as heating and air conditioning ducts
- High or low temperatures accompanied by poor air circulation
- Placement of plants between curtains and windows for long periods