

Starting last December 22, daylight hours increased by minutes every day. Here we are in February and it's light at 5pm. Just think what March will give us! Light is an essential requirement of plants to grow, to bloom, to make seed and there are three specific characteristics of light that affect all plant growth: quantity, quality, and duration.

Quantity refers to the intensity or concentration of light. The Earth remains tipped on her axis in winter causing the light we receive to be indirect, weaker. As the planet rotates back come spring and especially summer, the light becomes more intense because it shines on the Northern Hemisphere more directly. More light in summer enables plants to photosynthesize food and energy. As light intensity wanes, the plant is less able to photosynthesize food and it goes dormant.

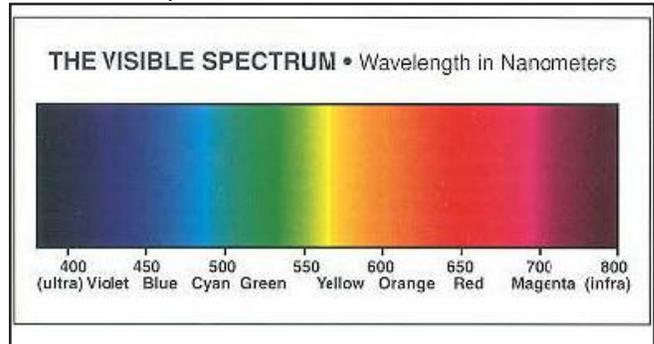
Gardeners can moderate light intensity by increasing it with reflective materials surrounding the plant. For examples: aluminum pie plates, white stones or white plastic used as a mulch, white fence or house behind the plant all reflect light onto the foliage. So, too, does artificial lighting. Light intensity can be reduced by the use of burlap, cheesecloth, lath shading, and taller structures that surround the plant.

Light quality refers to the wavelength of light. When a prism breaks light into wavelengths, you see a rainbow. Each color is a different length. Red and blue have the most dominant effects on plant growth because they provide the best quality of light for photosynthesis. Additionally, red light affects flowering. Think about the recent research regarding red plastic mulch spread around tomato plants!

For artificial light used to start seeds, use warm white and cool white fluorescent tubes that provide an excellent quality of light. Florescent "grow lights" provide a mixture of red and blue light that imitates sunlight closely. Incandescent bulbs produce lots of red light but produce too much heat to be a useful source for plants.

Light duration is called the photoperiod, or amount of light a given plant requires per day. This photoperiod affects flowering. Research in the 1920s hypothesized that the duration of light impacted the flowering. More recently it was determined that the

length of uninterrupted darkness is what controls flower development.



There are three types of plant responses to light. **Short-day plants** are really long darkness plants. They form flowers with about 12 hours of light, 12 hours of darkness. As you would imagine, the earliest spring bloomers and the latest autumnal bloomers fall into this category: tulips, daffodils, other spring and fall bulbs, chrysanthemums, and poinsettias.

Long day plants [short darkness plants] require more than 12 hours of light in order to bloom. These are certainly the summer bloomers including rudbeckia, poppy, beets, radish, lettuce, and potato amongst others.

Day neutral plants form flowers regardless of the amount of sun or darkness. An example is the petunia, though it does flower earlier and more profusely under short nights/long days. Also, cucumbers, tomatoes, and roses are day neutral plants.

The amount of light/darkness a plant requires is important if you start seeds indoors, force bulbs indoors, or want to prolong poinsettia blooms around the holidays. It is also relevant when the gardener pinches back plant growth to make a plant bushier. Since mums don't set flowers until the fall, pinching them back in June to early July encourages fuller growth without compromising future bloom.