

# Lighting Your Garden

There are four basic building blocks on which plant life is based: Light, Water, Nutrition, and Climate. The most common factor that limits plant growth is the light source. Gardening outdoors, this obviously is not a problem; Mother Nature has seen to proper light balance and intensity for healthy plant growth. The responsibility for proper indoor lighting falls on the gardener. If your plants are not furnished enough light of the correct spectrum, they often will be mere shadows of what they could have been, if they grow at all. When you can't rely on Mother Nature to handle the lighting for you, the next best thing is a High-Intensity Discharge (HID) Metal Halide light system.

It is hard to compare HID lights with fluorescent tubes or incandescent light bulbs. Although they each create light from electricity, that's where the similarity ends. Fluorescent tubes emit a gentle, low temperature light in a very low wattage. Excellent for the first two weeks of most any plant's life, fluorescent lights simply do not provide the intensity of light required for most vegetables, flowers and ornamentals. Incandescent lights ('regular' light bulbs) are even worse for horticulture because they are very expensive to operate, put off as much heat as light, and do not offer the spectrums of light required for healthy plant growth. Even when incandescent light bulbs are altered with interior coatings to change their spectrum (like the "grow light" bulbs you see in the grocery store), they still do not come close to providing the kind of light a plant needs for robust, active growth. The only thing that will really grow and prosper under an incandescent grow bulb is your electric bill!

HID lighting systems represent the safest, most economical way of providing light for your plants. They are used all the time in parking lots, warehouses, baseball diamonds, football fields and other places where reliability and economy are a prime concern. Systems used for garden lighting are constructed differently, but the features of dependability and cheap operation remain the same. Two common types of **HID** lighting have been adapted for safe use in the garden and greenhouse, **Metal Halide and High-Pressure Sodium**.

**Metal Halide** light produces an intense light of a blue-white spectrum excellent for vegetative plant growth. Geraniums, marigolds, mums, zinnias, and violets all thrive under Metal Halide light, as do most vegetables. A plant grown under a halide light will often exhibit increased leaf growth, and strong stem and branch development. Roses grow hearty under metal halides, and seem to burst with buds before flowering time. A wonderful general-purpose garden light, if your garden is to have only one light source, metal halide will be your best choice.

**High-Pressure Sodium. (HPS)** light puts off an orange: shaded light, which simulates the rich red hue of the autumn sun. Best as fruiting or flowering. lights, the HPS systems are often used In conjunction with metal halide for a complete balance of light spectrum in the garden. Flowers and vegetables finished off under HPS will show tighter, stouter blossoms with increased yields. HPS lights are commonly used in commercial greenhouses as starting lights and for supplemental light for off-season crops. Some types of plants respond particularly well to HPS lighting, such as the herbs dill and coriander.

## *Average Lumen Per Watt Output of Common Lamps*

100 Watt Light Bulb -	17.5 Lumens per watt
40 Watt Fluorescent Tube -	22 lumens per watt
1000 Watt Metal Halide -	125 lumens per watt.
1000 Watt High Pressure Sodium -	140 lumens per watt