

## **How can my greenhouse benefit from a lamp reflector?**

A lamp reflector is a mirror that distributes the light from the fixture over the crop, thus maximizing uniformity of light distribution and efficiency of power consumption.

## **Is the investment in the lighting system worth the return?**

For most crops it certainly is. Contact a NGMA lighting manufacturer for an estimate on the payback of a system that fits your needs.

## **How can I find out more about supplemental lighting systems?**

You can contact the NGMA or visit the website under [www.NGMA.com](http://www.NGMA.com).

Please contact the NGMA office for more information and other NGMA publications.



### **VISIT US ON THE WEB:**

**WWW.NGMA.COM**

20 W. Dry Creek Circle, Suite 110

Littleton, CO 80120

800-792-NGMA (6462)

303-798-1338 • FAX 303-798-1315

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H E L P F U L   H I N T S

# SUPPLEMENTAL LIGHTING



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## **What is supplemental lighting?**

Supplemental lighting is a system that provides adequate light for plants to grow during months when there is not enough natural lighting. It is an artificial light source used to promote growth of plants.

## **Why do I need supplemental lighting?**

Supplemental lighting is needed to lengthen the days especially during short day periods and to increase crop yields and quality.

## **What are the benefits of supplemental lighting?**

Increase yields, crop timing and quality control.

## **How much light do I need for my greenhouse?**

The amount of light needed for your greenhouse depends on the crop grown.

## **What is the most common light measurement terminology used?**

Foot Candle, Lux, W/mtr<sup>2</sup> and Micro Einstein.

1 foot candle = 10.76 Lux

1 Watt/mtr<sup>2</sup> = 37.9 foot candle

1 Micro Einstein = 7.62 foot candle

## **When do I use supplemental lighting?**

Crops are generally given 16-18 hours of light including daylight hours.

## **What types of lamps are generally used in greenhouses?**

There are three groups of lamps:

1. Incandescent which is the least efficient is often of poor quality and distribution.
2. Fluorescent, which can be used in growth room or small germination areas.
3. HID lamps, which are used for supplemental light to speed up production, increase yields and quality control.

## **What is a metal halide lamp?**

A metal halide lamp emits white light, which is very similar to daylight. These lamps have a shorter life span and lose the lumen output faster than HPS lamps. They are mainly used when no natural light is available.

## **What are high-pressure sodium lamps?**

High-pressure sodium lamps are the most economical lamps used for production. They provide more useful light per unit of electricity than any other source. They have a higher efficiency, longer life and do not lose the lumen output as fast as the metal halide lamps. Mercury halide lamps have a shorter life and lose their output level faster.

## **When in the plant life cycle is supplemental lighting beneficial?**

Using supplemental lighting is most beneficial during the early development stages and for some crops the entire life cycle.

## **When do I turn the lamps on?**

Lights are mainly used during the short days from September to April and also when the light intensity during the day is low.

## **Do I need to use a lighting system during the summer?**

You typically do not need to use the lights during the summer time since the days are long enough.

## **How do I choose the lighting that is right for my crops?**

When deciding whether to purchase a lighting system, it is important to consider greenhouse structure, crops grown, light intensity, efficiency of reflectors and most important distribution of light, especially the uniformity.