



## Home-Grown Bedding Plants

by  
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Even if you buy most of your bedding plants from a local greenhouse, sometimes it's nice to start a few plants of your own. You may want to grow a special variety that caught your eye in the botanical garden last summer. Or you may just want to see something alive and growing in your house as winter continues to drag on, seemingly forever. The problem is how to grow plants without a greenhouse.

The first solution that comes to mind is using a south-facing window that is warm and sunny now that the days are getting longer. Unfortunately, the results of growing transplants in this location usually are disappointing.

In 1993, I set up a demonstration to show why it is so difficult to grow good-quality bedding plants in a south-facing window. I recorded simultaneous light and temperature measurement in the UAF horticulture greenhouse and a south-facing window in the classroom at the GBG Visitor's Center. I measured light intensity at the bottom center of a clean, unobstructed glass window measuring 45 inches wide and 42.5 inches high.

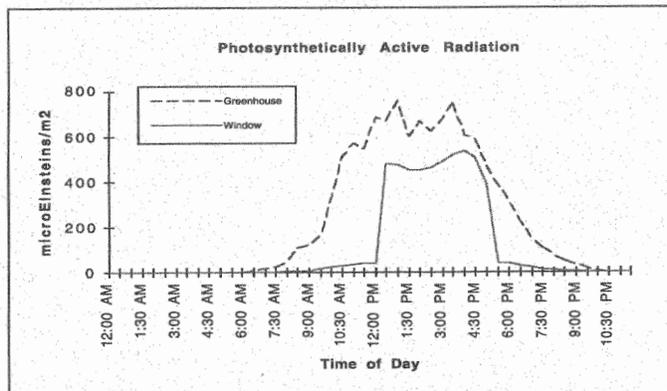


Figure 1. Hourly light levels recorded in the UAF horticulture greenhouse and a south-facing windowsill, on April 20, 1993.

The light meter recorded the quantity of light available to the plant for photosynthesis. It is measured in units called microEinsteins per square meter ( $m^2$ ) per second. The higher the level of microEinsteins, the more light is available for photosynthesis. This level is often reported as photosynthetically active radiation of PAR (Fig. 1). Temperature also was recorded hourly (Fig. 2).

The figures show that a south-facing window is too hot and does not have enough light for good plant growth. Total PAR in the window was half that in our greenhouse. The PAR levels in the greenhouse started to rise sharply at 9 a.m. and didn't decline until 7 p.m. In the window, PAR remained low until noon and declined rapidly after 5:30 p.m. due to shading.

Unfortunately, for the plants on the windowsill, sunlight also means heat. High temperatures increase plant respiration, and plants growing under heat stress tend to be spindly, tall and tender. The greenhouse temperatures did not rise dramatically during the afternoon like those in the windowsill because the greenhouse is ventilated. Excess heat is vented outdoors before it rises to harmful levels.

The ideal solution to the windowsill problem is to build a greenhouse. The Cooperative Extension Service can supply you with information on greenhouse construction or you can pick up a "how to" book at a local bookstore. Be sure your greenhouse has adequate ventilation. The vent area should be at least 30 percent of the floor area. If you decide to use fans, they should have the capacity to make

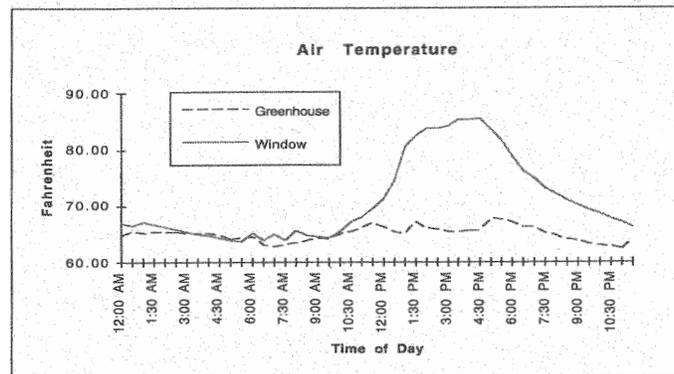


Figure 2. Hourly air temperature records for the UAF horticulture greenhouse and a south-facing windowsill on April 20, 1993.

one complete air change per minute.

If you don't have the budget or ambition to build a greenhouse, then a light table may be a good idea. Even if you have a greenhouse, you can avoid substantial greenhouse heating costs by growing your plants inside until outdoor temperatures warm up a bit.

Light tables may be purchased from garden supply catalogs for \$300-\$500 (depending on size and features), or you can build one yourself. A design and materials list for a simple light table is available from the botanical garden. Look for a table with adjustable lamp heights so bulbs can be maintained at a height two inches above the plants. Cool white fluorescent lamps provide a good, cheap source of light for plant growth. The more expensive grow lamps have a better color balance than cool white bulbs, but are not necessary for bedding plants. They are best used for your prized African violet or orchid collection to promote blooming.

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