



Temperatures affect growth

The ability to control temperature is the foundation of our greenhouse industry. It is what enables us to grow plants when the weather outdoors is too cold. Temperature influences crop timing, crop quality, stem extension, watering frequency, insect reproduction and many other aspects related to floral crop production.

The focus on temperature has been renewed by the recent swell in energy prices. Articles and workshops have been delivered on understanding temperature and the effects of growing plants at different temperatures. However, when we discuss temperature, we generally focus on managing air temperature. We should be more concerned

about managing the temperature of the plant.

Measuring plant temperature

The temperature of the plant is what controls its rate of development. Unfortunately, measuring plant temperature is not very easy.

In research, sometimes we poke a tiny wire (thermocouple) into a shoot apex to measure the temperature where cells are dividing. This provides a reasonably good measurement of plant temperature, but the technique does not lend itself to commercial application. For example, thermocouples can fall out of the shoot tip, growers can trip over wires, and the wires need to be moved every few

days as the shoots develop.

Another way to measure plant temperature is to use an infrared thermometer. An IR thermometer measures the temperature of whatever it is pointed at.

One type of IR sensor is a portable, handheld device that measures temperature instantaneously. These instruments are inexpensive (some cost as little as \$35), and every greenhouse operation should have one.

Many handheld sensors have a laser that turns on when in use to give the user guidance of what is measured. However, IR thermometers measure a circular area, not the temperature of just where the laser is specifically pointed.

Position the sensor several feet above a crop and downwards at an angle if your goal is to measure the temperature of the plant canopy. If you want to measure the temperature of an individual plant, then you'll need to put the sensor within a few inches of the shoot tip.

An IR thermometer can also be a fixed device pointing toward a crop. When connected to a greenhouse computer, the thermometer can track average daily plant temperature

