In The Greenhouse

By Heather Hatt Graham & Dennis Decoteau

Tailoring Transplant Height With Light

TRANSPALNT growers know how important light is for proper crop production. They often grow transplants under supplemental artificial lights, if sunshine is inadequate or under shade cloth, if sunshine is too plentiful and plants need protection. If needed, the shade will also slow the growth of the plants.

But researchers are now discovering new ways to use light to regulate transplant size. Here's a look at their work and how their techniques could be used in your greenhouses in the future.

How Light Works

All light is made up of energy. Light to a scientist — and plants — is all the wavelengths of the electromagnetic spectrum including wavelengths that humans can see (visible light) and wavelengths that humans can't see (such as x-rays and infrared light). Plants perceive light through pigments which absorb light energy. These pigments allow the plant to detect the amount of light (quantity) and the wavelengths of light (quality).

Transplants' Reactions

One of the main roles of light in the life of plants is as an energy source captured through photosynthesis. Plants use this energy — plus water and carbon dioxide — to produce food (photosynthates) for growth and survival.

But beyond photosynthesis, plants also need light for chloro-

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height, leaf area, fruit weight, and fruit number when measured prior to first fruit harvest, but total fruit yield was not affected.

The Lightwave Of The Future
Our research strongly suggests that regulating transplant growth with end-of-day light modifications may be a relatively low-cost and environmentally safe method of controlling height. A word of caution, however: We have only evaluated one cultivar of two crops. Future work should determine species and cultivar differences in responses. Also, researchers need to do a thorough economic analysis of this practice before these procedures are used on a commercial scale.

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