

Optimal substrate moisture content determined for high-quality bedding plants

15 April 2015

The bedding plants sold in retail outlets are typically grown in greenhouse production environments where professionals can monitor irrigation, light, and temperature. When the greenhouse-grown plants reach the retail market, however, they are often subjected to a range of less-than-ideal light levels, temperatures, and irrigation schedules that can be detrimental to plant quality and vigor. Researchers are looking for ways to increase bedding plants' shelf life to offset the negative impacts of postharvest handling.

A new research study of the popular bedding plant *Angelonia angustifolia* found beneficial irrigation strategies that both increased the plant's shelf life and reduced water usage. Alison Bingham Jacobson, Terri Starman, and Leonardo Lombardini from Texas A&M University performed two separate experiments conducted in the fall and spring seasons using rooted plugs of *Angelonia angustifolia* (Angelface Blue). The study results were published in *HortScience*.

Plants were grown in greenhouse production until a marketable stage in substrates irrigated at substrate moisture content levels of 10%, 20%, 30%, and 40% using a controlled [irrigation system](#). At the end of the greenhouse production stage, [plants](#) were irrigated to container capacity and subjected to a simulated shipping environment in shipping boxes in the dark for 2 days. After shipping, plants were placed back in the greenhouse and watered minimally to simulate a retail environment. The researchers collected data at the end of each of the three stages of the experiment: greenhouse production, simulated shipping, and simulated retail.

Analyses showed that decreasing irrigation reduced the height of the plants with no effect on days to first open flower. The researchers said that smaller plants produced with reduced irrigation during production resulted in high-quality plants with similar shelf life and less water use during

marketing. "The 20% and 30% substrate moisture content (SMC) plants were the more desirable because they were visually appealing and of higher postharvest quality because of reduced height, proportional flower sections of the stems, and they never wilted," the authors added. "These characteristics would be beneficial in retail settings where the irrigation could be indiscriminate or limited, and therefore help conserve water and extend shelf life."

"Our results demonstrate that while conserving water, controlled [irrigation](#) at a lower substrate moisture content can produce high-quality plants that have equal [shelf life](#) to those that are irrigated at high levels," the scientists said.

More information: *HortScience*, hortsci.ashspublications.org/content/50/2/272.abstract

Provided by American Society for Horticultural Science

APA citation: Optimal substrate moisture content determined for high-quality bedding plants (2015, April 15) retrieved 20 May 2019 from <https://phys.org/news/2015-04-optimal-substrate-moisture-content-high-quality.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.