

Florida Agricultural Experiment Station Report 2010

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1. Impact Nugget

University of Florida has characterized flowering responses of 30 long-day bedding plant cultivars under the night interruption lighting to reduce crop time and improve finish plant quality for spring production. Additionally, the use of limited inductive photoperiod of long-days for limiting the duration of lighting was evaluated.

2. New Facilities and Equipment

A new greenhouse computer controller system (Gemlink, HortiMaX USA, Rancho Santa Margarita, CA) was purchased and installed. Two line quantum sensors, each with 10 photodiodes (Apogee, Logan UT), were purchased and installed. Five weather stations (Watchdog Mini Station, Spectrum Technologies, Plainfield, IL) were purchased and installed.

3. Unique Plant Responses

Night interruption lighting hastened flowering and improved quality attributes of long-day spring bedding plants. Providing a limited inductive photoperiod of long days to facultative long-day plant *Ageratum* hastened its flowering compared with the plants under a short-day photoperiod. However, plants under continuous long-day photoperiod were superior in quality. Providing limited inductive photoperiod of long-days was ineffective for promoting flowering of tuberous begonia, an obligate long-day plant.

4. Accomplishment Summaries

University of Florida quantified the influence of night interruption lighting on 30 cultivars of long-day bedding plants. Providing night interruption lighting reduced the crop time and improved the crop quality.

5. Impact Statements

University of Florida conducted an on-site trial at Riverview Flower Farm, FL to evaluate the efficacy of night interruption lighting on flowering intensity and scheduling time of 30 long-day bedding plant cultivars. During this trial, two head-growers were trained to design and conduct experiments for problem-solving and we anticipate that in the future, the training will be used for conducting in-house research. As a result of our findings, the nursery owner has decided to install photoperiodic lighting to optimize production of long-day bedding plants to increase profitability.

6. Published Written Works

Refereed Journal Articles

Padhye, S.R. and A.C. Cameron. 2009. Vernalization of *Campanula* 'Birch Hybrid'. J. Amer. Soc Hort. Sci. 134:497-504.

Poster Presentations

Padhye, S.R., and J.K. Groninger. 2009. Flowering time and quality of long-day plant *Ageratum houstonianum* in response to limited inductive photoperiod. ISHS Meeting, Tsukuba, Japan, November 16-18, 2009. VIth International Symposium on Light in Horticulture: 143 (poster presentation).

Popular Articles

Padhye, S.R. and E.S. Runkle. 2009. Providing long-day photoperiods with compact fluorescent lamps. *GrowerTalks* 72(11): 58–60

Whitman, C.M. and S.R. Padhye. 2009. Production tips for top performers: *Hibiscus moscheutos*. *Greenhouse Grower* 27(2): 38–39.

Whitman, C.M. and S.R. Padhye. 2009. Production tips for top performers: *Lavandula stoechas*. *Greenhouse Grower* 27(1): 75–78.

7. Scientific and Outreach Oral Presentations

Padhye, S.R. and E.S. Runkle. 2009. Forcing perennials into flower: Beyond the basics. Perennial Production Conference, Buffalo, NY, September 21, 2009.

Padhye, S.R. and E.S. Runkle. 2009. The latest and greatest perennials: Production tips for success. OFA Short Course, Columbus, OH, July 12, 2009.

Runkle, E.S., S.R. Padhye, M.G. Blanchard and W. Oh. 2009. Energy-efficient greenhouse lighting of ornamentals. Meeting, Tsukuba, Japan, November 16-18, 2009. VIth International Symposium on Light in Horticulture: 44-45.

Runkle, E.S., W. Oh and S.R. Padhye. 2009. Use of compact fluorescent lamps to provide a long-day photoperiod to petunia and pansy. ASHS Annual Meeting, St. Louis, MO, July 28, 2009.

8. Other relevant accomplishments and activities

One undergraduate student at the University of Florida completed an internship in the research program and was trained to design and manage experiments and collect data.