Florida Agricultural Experiment Station Report 2008-09 for NCERA-101

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1. **Impact Nugget**
   University of Florida conducted an on-site experiment at Riverview Flower Farm demonstrating that using night interruption lighting can significantly reduce flowering time of select long-day bedding plants, allowing growers to sell flowering crops early in spring in the southern markets with a possible increase in sales by up to 15%.

2. **New Facilities and Equipment**
   University of Florida is installing a QCom environmental computer controller system in two greenhouses at Milton. This system will also have datalogging capability for temperature and light sensors.

3. **Unique Plant Responses**
   Florida growers have reported difficulties in reliably scheduling calibrachoa, petunia and lobelia for early spring sales. The variability in photoperiodic response and crop production time of 12 cultivars each of calibrachoa and petunia and 8 cultivars of lobelia was determined under 3 commercial production environments. Cultivars differed significantly in long-day photoperiod requirement for flowering and flowering time, even within a cultivar series marketed by one breeder. With an introduction of dozens of new cultivars in the floriculture trade each year; continued research investigating the flowering responses of new introductions is necessary to develop production recommendations for growers.

   The minimum duration of long-day exposure required to produce two ageratum (facultative long-day plant) cultivars of marketable quality was determined. The goal of this lighting strategy known as limited inductive photoperiod was to minimize the duration of long-day lighting to reduce the cost of electricity. The minimum duration of long-day lighting required to promote flowering was 2 and 4 weeks, based on the cultivar. However, based on the flower-coverage, plants under constant long-days were more marketable than plants receiving limited inductive photoperiod. Further experiments with additional species are necessary to determine whether providing limited inductive photoperiod is a commercially viable strategy to reduce the cost of providing long-day photoperiods to floriculture crops.

4. **Accomplishment Summaries**
   University of Florida has demonstrated that long-day bedding plants can be produced outdoors in south Florida for early spring sales by February with night-interruption lighting. This strategy will enable the growers to utilize the early spring market to sell flowering plants, increasing their annual revenue by up to 15%.

5. **Impact Statements**

By conducting an on-site experiment, University of Florida demonstrated that installation of long-day photoperiodic lighting can promote flowering of bedding plants for outdoor production in south Florida for early spring sales in February. Starting next year, at least one large grower in Tampa, FL will be using our recommendation to produce and market flowering bedding plants to increase the sales.

6. **Published Written Works**

Refereed Journal Articles

Padhye, S.R. and A.C. Cameron. 2008. *Dianthus gratianopolitanus* 'Bath's Pink' vernalizes between 0 to 10 °C. HortScience 43: 346−349.

Padhye, S.R., B.M. Cregg and A.C. Cameron. 2008. Chilling sensitivity of stored purple fountain grass propagules. Postharv. Biol. Technol. 49: 235−240.

Poster Presentations

Padhye, S.R. and E.S. Runkle. 2008. Use of compact fluorescent lamps to provide a long-day photoperiod to herbaceous perennials. Xth International Symposium on Flower Bulbs and Herbaceous Perennials, Lisse, The Netherlands, April 20−24, 2008.

Popular Articles

Padhye, S.R., A.C. Cameron and C.M. Whitman. 2008. Production tips for top performers: *Coreopsis* 'Limerock Dream' and 'Limerock Passion'. Greenhouse Grower 26(6): 34−38.

Padhye, S.R. and C.M. Whitman. 2008. Production tips for top performers: Echinacea 'Sunrise' and 'Harvest Moon'. Greenhouse Grower 26(13): 84−88.

Padhye, S.R. and C.M. Whitman. 2008. Production tips for top performers: *Gaillardia* 'Oranges and Lemons'. Greenhouse Grower 26(10): 42−46.

Padhye, S.R. and C.M. Whitman. 2008. Production tips for top performers: *Nepeta* ×*faassenii* 'Walker's Low'. Greenhouse Grower 26(8): 62−66.

Padhye, S.R. and C.M. Whitman. 2008. Production tips for top performers: *Chasmanthium latifolium*: A great ornamental grass for native, shade and naturalized gardens. Greenhouse Grower 26(4): 70−73.

Padhye, S.R. E.S. Runkle, M. Olrich and L. Reinbold. 2008. Improving branching and postharvest quality. Greenhouse Product News 8(8): 36−42.

Whitman, C.M. and S.R. Padhye. 2008. Production tips for top performers: *Campanula persicifolia*. Greenhouse Grower 26(12): 78−80.

Whitman, C.M. and S.R. Padhye. 2008. Production tips for top performers: *Aquilegia vulgaris* 'Winky Double Read and White' and 'Winky Double Dark Blue and White'. Greenhouse Grower 26(9): 44−46.

Whitman, C.M. and S.R. Padhye. 2008. Production tips for top performers: Penstemon. Greenhouse Grower 26(7): 48−52.

Whitman, C.M. and S.R. Padhye. 2008. Production tips for top performers: *Salvia sylvestris*. Greenhouse Grower 26(5): 75−76.

Whitman, C.M. and S.R. Padhye. 2008. Production tips for top performers: Geranium 'Rozanne'. Greenhouse Grower 26(3): 70−71.

7. **Scientific and Outreach Oral Presentations**

Padhye, S.R. 2008. Forcing perennials in greenhouses. MSU Extension Floriculture College of Knowledge, OFA Short Course, Columbus, OH.

Runkle, E.S. and S.R. Padhye. 2008. Comparing photoperiodic lighting strategies in controlled greenhouse environments. USDA Controlled Environment Technology and Use Committee Annual Meeting , Cocoa Beach, FL.