

Title Effects of high temperature and plant growth regulators on vegetative growth and flowering of potted orchids

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Abstract

Phalaenopsis, the most popular potted orchid, is induced to flower when the day temperature is ≤ 26 °C. Four *Phalaenopsis* clones were exposed to 29 °C for 0, 4, 8, 12, or 24 h per day with the remaining hours of the day at 20 °C to determine how high day temperature duration influenced flowering. *Phalaenopsis* 'Explosion' and 'Mosella' required exposure to 29 °C for 8 h, while *Phalaenopsis* Baldan's Kaleidoscope 'Golden Treasure' and *Doritaenopsis* Newberry Parfait required exposure to 29 °C for 12 h, to delay or prevent inflorescence initiation. A second study investigated the use of repeated benzyladenine (BA) sprays to increase vegetative growth or flowering of *Paphiopedilum*, *Miltoniopsis*, and *Odontoglossum* hybrids. BA at 800 mg·L⁻¹ increased shoot number of large *Paphiopedilum* in Year 1, but higher concentrations were not effective in Year 2. In Year 2, applications of 4,000 mg·L⁻¹ BA increased the number of new vegetative shoots formed on medium-sized *Paphiopedilum* and on two clones of young *Miltoniopsis*. A third experiment determined the efficacy of applications of 15, 30, or 45 mg·L⁻¹ paclobutrazol to inhibit inflorescence elongation of three *Phalaenopsis* clones with tall inflorescences. Paclobutrazol applications inhibited inflorescence length of *Phalaenopsis* 'Andrew' by 19% to 23% compared to control plants but had no statistical effect on two other hybrids. A spray application made after flower initiation caused an undesirable clustering of the flowers whereas earlier sprays did not.