

## **Invited keynote lecture**

# **CONTROLLED FLOWERING IN THE GENUS LILIUM - PAST ACHIEVEMENTS AND RESEARCH DIRECTION FOR THE FUTURE**

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Many new cultivars of *Lilium ×elegans* (Asiatic hybrid lily) and Oriental hybrid lilies have been introduced recent year. In the past 10 to 15 years, interspecific hybrids of *L. longiflorum* × *L. ×elegans* (LA hybrid lily), *L. longiflorum* × Oriental lilies (LO hybrid lilies), and Oriental lilies × Trumpet lilies (OT hybrid lilies) were also introduced. LA hybrid lilies, which are available in many colors and forms, are now gradually replacing the Easter lily (*L. longiflorum*) in the US as they are forced year-round. Growth and flowering of the Easter lily, as influenced by temperature and photoperiod, has been investigated. Information on the physiology of bulb development, controlled flowering, and timing for the Easter, and to certain extent for the Asiatic hybrid lily is readily available. However, information with LA hybrid, LO hybrid, and OT hybrid lilies are not readily available, which are generally forced using well programmed bulbs following bulb vernalization. Available information on bulb dormancy, maturity, and requirement for temperature and photoperiod involved in growth, forcing, and flowering obtained in the Easter lily will be reviewed. Can breeding efforts for new cultivars be achieved (a) that does not require temperature/photoperiod treatment for flowering, (b) that produce stem bulbils that can be forced to flower, (c) that produces flowers from small scales, seeds or bulbs, or (d) that can flower under a low light intensity? The feasibility of accomplishing following objectives will be discussed to produce high quality and disease-free lilies can be produced in one year from propagation in various lilies.