

**Title** Characterizing cold-storage-induced bud necrosis in 'Mona Lisa' lilies  
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#### **Abstract**

A postharvest problem has been identified in oriental lilies characterized by sunken, darkened or brownish areas on unopened buds, and occurs during cold storage after forcing. We investigated the causes of bud necrosis with 'Mona Lisa' lilies that are especially susceptible to cold storage. Plants were grown at 17°C during plant development and then moved to a 24°C greenhouse 1 week prior to the puffy bud stage (the most mature bud of the inflorescence showing full color, but not open), with full natural light or 85% shade. Bud necrosis developed within a couple of days in cold storage (3°C, 98% RH) and increased as the duration of cold storage increased. Green to white colored-buds ranging from 5 to 7 cm were most susceptible to the cold storage. A spray with the antioxidant, diphenylamine (DPA), or growth under shade at 24°C reduced the severity of bud necrosis. When the plants were continuously grown under 17°C, however, bud necrosis was completely inhibited, suggesting that the disorder is strongly related to growing temperature. Our results suggest that temperature control of the greenhouse prior to market (author-do you mean 'prior to harvesting'? No, 'prior to shipping'. Please leave it as it is. Thanks.) would be important in preventing bud necrosis in 'Mona Lisa' lilies.