

Title Effect of floral bud reduction on individual flower longevity in Asiatic hybrid lilies
Authors J.J.M. van der Meulen-Muisers, J.C. van Oeveren, B.B. Meijkamp, F.H.M. Derks
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Abstract

Floral bud abortion was found to be an undesirable source of non-genetic variation in breeding trials directed on the improvement of individual flower longevity in Asiatic hybrid lilies. It increased the longevity of the remaining flowers of the inflorescence. A similar response was found after elimination of developing terminal flower buds by hand, which significantly increased the longevity of the remaining flowers in inflorescences of eight of the eleven Asiatic hybrid lilies studied. The response to bud reduction was independent of the original flower longevity, so ranking of the cultivars based on longevity values will change due to bud abortion and selection results will be disturbed. Preharvest and postharvest influences of bud removal on flower longevity were distinguished by comparing longevity values of undetached and detached flowers within four cultivars. Our data suggest that the increase in flower longevity of the remaining flowers after bud removal was mainly attributed to a decrease in sink strength within the harvested inflorescence. In two of the four cultivars tested the increase in flower longevity was partly caused during cultivation and was accompanied by an increase in methanol soluble sugar content in the flower petals at harvest. Bud opening and flower longevity were not significantly influenced by defoliation after harvest, indicating that within lily inflorescences translocation of metabolites mainly takes place between developing flower buds. Flower longevity and carbohydrate content in open flowers at harvest did not correspond between the two cultivars studied probably due to differences in developmental stage of the other flower buds of the inflorescence and, therefore, sink strength.