

Title A treatment to improve the vase life of cut tulips: Effects on tepal senescence, tepal abscission, leaf yellowing and stem elongation

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Abstract

The vase life of cut tulips (*Tulipa* spp.) is limited by a combination of leaf yellowing, tepal senescence, and tepal abscission. In many cultivars, moreover, high rates of stem elongation result in stem bending during vase life. In tests with the cvs. Apeldoorn and Frappant, stem bending could be prevented by treatment with ethylene or ethephon. However, these treatments resulted in poor flower opening. The ethephon treatment also resulted in precocious tepal abscission. The negative effect of ethephon on flower opening was overcome by a treatment with gibberellic acid (GA₃). GA₃ also somewhat delayed early leaf yellowing, but did not prevent the early tepal abscission induced by ethephon. The latter problem was overcome by a treatment with benzyladenine (BA). In addition, BA effectively delayed leaf yellowing and also delayed tepal senescence. However, BA produced browning of the lower stem end. This was prevented by the inclusion of calcium ions in the solution. The combination of chemicals (ethephon, GA₃, BA, and calcium ions) was similarly successful in a large number of other tulip cultivars tested. After adaptation of the concentrations the four chemicals were also effective if given as a pulse treatment shortly after harvest.