

hypocotyl elongates. This unusual pattern may explain why pawpaw germination has been reported as hypogeal.

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Capillary Mats Modify Media Moisture During Mist Propagation of Chrysanthemum Cuttings

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INTRODUCTION

A central feature of the propagation of leafy cuttings is that lacking roots they readily develop water deficits. Slight water deficits, even though insufficient to cause any visual symptoms of distress, can result in considerable delay or reduction in the rooting response (Davis et al., 1988). With the use of intermittent mist, a film of water remains on the leaf surface lowering the vapor pressure deficit and reducing transpirational water loss (Synder and Hess, 1953). However, misting, either applied too frequently or too long at each interval, can result in excessive wetness leading to restricted aeration and reductions in root development (Grange and Loach, 1983b).

Capillary mats can be used to add or reduce the water content of growing media in containers (Buxton and Jia, 1991). In the present study, Vatec capillary mats added or removed water from Smithers-Oasis 1-in. Rootcubes[®] during mist propagation. The objective of the current study was to evaluate the efficacy of using capillary mats to maintain uniform moisture in the medium during mist propagation.

MATERIALS AND METHODS

Mats placed on the surface of the propagation bench extended over the edge of the bench and downward into a water reservoir located a distance of 0, 5, or 10 cm below bench level. The water table established at bench level was determined by the location of the water reservoir. Oasis blocks with *Dendranthema* 'Boaldi' and 'Salmon Charm' were placed on the mats under intermittent mist (10 sec every 5 min) between 5 AM. and 8 PM. Leaf relative water content and quantity of water in the growing medium (ml of water per gram oasis) were measured every 3 days for 15 days. After 21 days, the number of roots per cutting was evaluated.

RESULTS AND DISCUSSION

Water content in the oasis propagation cube was significantly reduced by 47.5%, 17.9%, and 2.3% for the 10-, 5-, and 0-cm mat treatments, respectively. This change in water content remained uniform over time for all treatments and both cultivars. Leaf relative water content of the cuttings was not significantly different between capillary mat treatments for both cultivars. This suggests that the water status of the cuttings varied due to the environment (light levels and temperature) and that mist frequency and duration could be changed to meet this demand; capillary mats could then be used to prevent oversaturating of the medium.

Root number per cutting was greater at the 5-cm mat treatment for both cultivars compared to the 0 cm and 10 cm treatments. This suggests that a capillary mat extending 5 cm below the bench can maintain moisture content in the propagation medium for improved rooting of the two cultivars of chrysanthemums used in the study.

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