

How and When Herbaceous Cuttings are Stuck Influences Winter Survival

Richard E. Bir

North Carolina State University, 2016 Fanning Bridge Road, Fletcher, North Carolina 28732 U.S.A.

INTRODUCTION

Herbaceous perennials are frequently purchased as dormant, leafless rooted cuttings or liners for potting into larger containers for spring and summer sales. Occasionally these liners produce no new top growth yet roots appear to be healthy.

MATERIALS AND METHODS

The objective of this study was to investigate whether the time of propagation or the depth of cutting penetration into rooting medium has any effect on survival and subsequent growth of plants reported with this problem. Test plants were *Caryopteris divaricata*, *Monarda* 'Raspberry Wine', and *Phlox paniculata* 'Robert Poore'. Cuttings from container-grown stock plants at the Mountain Horticultural Crops Research Station (MHCREC), Fletcher, N.C., were stuck in mid June, mid August, and early September 1997 except for the phlox where only June and September cuttings were stuck due to a lack of sufficient propagation material in mid August.

Cuttings were treated with 1250 ppm IBA (C-Mone) quickdip and stuck into a sphagnum peat and perlite (1 : 1, v/v) rooting medium in 60-cell flats and placed under intermittent mist until rooted. Half of the cuttings were stuck so that a node was at least 0.5 inches beneath the surface of the rooting medium (+) while the others were stuck so that no buds were beneath the surface of the rooting medium (-). The number of cuttings stuck per treatment depended upon availability but no fewer than 18 cuttings per date and location (+, -) treatments were stuck in three replicates for any test plant. Once rooted, all cuttings were transplanted to quart pots in standard MHCREC potting medium (pine bark and sphagnum peat [8 : 1, v/v]) to which 7 lb dolomitic limestone and 3 lb Esmigran was added per yd³, and topdress fertilized with 0.25 tsp qt⁻¹ Wilbro (Polyon) 12N-6P-6K Nursery Special for the June cuttings or with Peters 20N-20P-20K at 100 ppm N weekly until 1 Oct. for the summer rooted cuttings. Plants were placed under overhead irrigation at the MHCREC container research facility where they were exposed to ambient temperatures until late November when they were moved to an unheated white plastic covered overwintering structure. On 2 Feb 1998 all liners were moved to a heated greenhouse to encourage vegetative growth. Percent survival was determined on 13 Mar 1998. Those showing no vegetative growth were determined not to have survived.

RESULTS AND DISCUSSION

All cuttings rooted in high (over 90%) numbers and produced mostly vigorous liners. Cuttings with limited vigor were not kept as part of this study. All cuttings were exposed to 12 subfreezing (lowest temperature 18F) nights before being moved to the overwintering structure. Leaves had been killed and most had abscised. However,

stems were not cut back until after new growth appeared in the greenhouse. Percent survival for all plants is shown in Table 1.

Table 1. Percentage survival *Monarda* 'Raspberry Wine,' *Caryopteris divaricata*, and *Phlox* 'Robert Poore' following winter as affected by date and method of propagation.

Date stuck ^Y	<i>Monarda</i> 'Raspberry Wine'		<i>Caryopteris</i> <i>divaricata</i>		<i>Phlox</i> 'Robert Poore'	
	-	+	-	+	-	+
19 Jun	100	100	31	86	50	100
13 Aug	100	100	69	100		
2 Sep	67	100	27	43	50	100

^Y "+" = Cuttings were stuck so that a node was at least 0.5 inches beneath the surface of the rooting medium; "-" = cuttings stuck so that no buds were beneath the surface of the rooting medium.

Survival of *M.* 'Raspberry Wine' was excellent. All treatments survived at 100% except the September cuttings without nodes beneath the propagating medium (-). Therefore, placement of cuttings for this cultivar only seems important for late stuck cuttings.

Caryopteris divaricata survived in commercially acceptable percentages only when cuttings were stuck 13 August or earlier and only when nodes were stuck below the surface of the rooting medium (+). Cuttings stuck in September did not survive in acceptable percentages regardless of node location.

Phlox paniculata 'Robert Poore' survived in commercially acceptable percentages only when nodes were below the surface of the rooting medium (+). Survival percentages were 100% on both propagation dates when nodes were beneath the propagating medium.