

Rooting Response of Microcuttings of Hybrid Dogwood

Deborah D. McCown and Andrew J. Daun

Knight Hollow Nursery, Inc., 3333 Atom Rd., Middleton, Wisconsin 53562

Flowering dogwoods are among America's most elegant and popular small trees. While dogwoods can be grown from seed, most are propagated from cuttings. Elite selections for superior flowering and interspecific hybrids of *Cornus florida* and *C. kousa* for disease resistance require clonal propagation. Successful cutting propagation of dogwoods has required use of rooting hormones. A survey of I.P.P.S. Proceedings recommended that softwood-tip cuttings should be treated with IBA at 0.3% to 2% in talc or 2500 ppm IBA + 2500 ppm NAA as a liquid dip for high percentage rooting.

Knight Hollow Nursery has been micropropagating several cultivars of interspecific crosses of *C. florida* and *C. kousa* for 4 years. Woody Plant Medium solidified with 1.4 g litre⁻¹ phytoigel and 4 g litre⁻¹ agar and supplemented with 6 mM calcium gluconate and 1 µM zeatin is a satisfactory culture medium. Growth is rapid and subculture cycles are normally 4 to 6 weeks. Our experience with woody plant microcuttings in general is that they are easily rooted *ex vitro* with no additional treatment. Some plant types (notably apples) may require auxin treatments for satisfactory rooting but our experience indicated that even dilute auxin treatments on the base of microcuttings resulted in classical burn symptoms. *Ex vitro* rooting of dogwood microcuttings, however, was slow and percentages erratic. We decided to once again investigate the potential of using rooting hormones on microcuttings to see if we could enhance root growth on dogwoods.

Sixty tip cuttings of micropropagated *C. 'Rutdan' Celestial*TM dogwood PP#7204 were harvested from 5-week-old cultures. Cuttings were approximately 4 to 5 cm long and were randomly divided into 6 groups. All treatments were done with Dip 'N Grow, a commercial liquid preparation containing 1% IBA (10,000 ppm) and 0.5% NAA (5000 ppm). The 5-sec dip treatments were 0%, 20%, 40%, 60%, 80%, and 100% Dip 'N Grow, diluted with distilled water. Data were collected after 4-weeks rooting time. The experiment was repeated using 11 cuttings per treatment.

The combined data from the two experiments (Fig. 1) indicate close to a doubling in percent of cuttings rooted, number of roots produced, and root length at the 40%, 60%, and 80% concentrations compared with the no hormone treatment. Common lilac microcuttings root at nearly 100% with no treatment while classical softwood cuttings are treated with auxin concentrations of 1500 to 5000 ppm IBA to achieve high rooting percentages. That dogwood microcuttings require auxin treatments of 12,000 ppm (80%), the same requirement of traditional softwood cuttings, is remarkable.

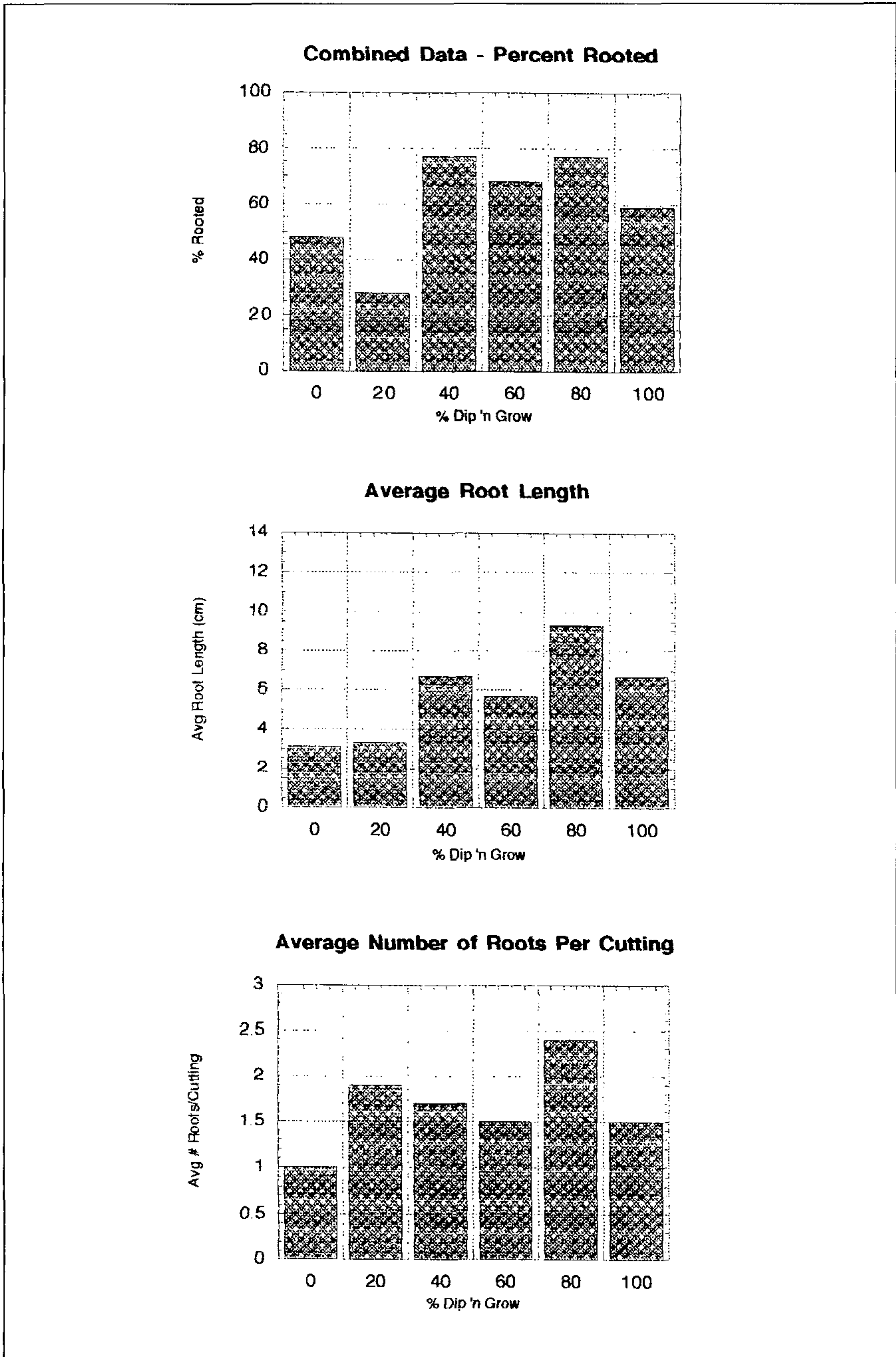


Figure 1. Rooting response of microcuttings of hybrid dogwood. Results are combined data from two experiments with 10 cuttings minimum per sample per experiment. Dip 'N Grow of 100% equals 10,000 ppm IBA and 5000 ppm NAA