Rooting Success of Summer Softwood Cuttings of Box Huckleberry (*Gaylussacia brachycera*)©

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INTRODUCTION

The box huckleberry (*Gaylussacia brachycera* (Michx.) Gray) is a slow-growing, dwarf evergreen woody groundcover that is native to both the mountains and coastal plains of Pennsylvania, Virginia, Kentucky, Tennessee, West Virginia, Delaware, and Maryland (USDA, NRCS, 2002), and North Carolina (Wilbur, 2004). It has glossy, dark green, fine-textured foliage. New growth may have a deep red to maroon coloration as may older foliage under conditions of high light intensity or stress. Box huckleberry suffers from no known serious disease or insect pests. The box huckleberry's global conservation status is listed as G3 (NatureServe Explorer, 2001), and the state listing for Delaware, Maryland, and Pennsylvania is S1 (critically imperiled). In Maryland, there is only one plantlet left of the known wild population. In Delaware, only three wild populations have been found. In the seven states in which it is native, there are less than 20 known populations of this species.

Gaylussacia brachycera has potentially high ornamental value as a woody, evergreen groundcover. Large-scale, commercial propagation of the box huckleberry could result in the introduction of a valuable new native landscape plant that grows well in dry shade. A limited number of plants are currently sold by a small number of specialized nurseries. Propagation and evaluation of plants from wild collections offers the opportunity to extend the range of use and ease of production of this plant. Identification of best production methodologies could increase the plant's potential as a nursery crop.

Under permit, plants of box huckleberry have been collected from 14 native habitats in six states. Most of these plants have been established in a protected site at the National Arboretum. We hope to use these plants to achieve the following objectives.

OBJECTIVES

- Examine the effect that cutting month has on the rooting and subsequent growth of box huckleberry.
- Examine differences in rooting and subsequent growth in containers between selected clones.
- Subsequently determine optimum production methods so that this species may be evaluated by commercial nurseries as a slow-growing, native, evergreen landscape plant.

METHODS

Established plants are growing at the U.S. National Arboretum under wooden lath in beds containing Fafard Nursery Mix seeded with a small amount of soil and organic matter taken from the same general area where the Maryland plants were

growing. This was done based on the hypothesis that *G. brachycera* may have a mycorrhizal association in the wild. At the time of establishment, compost was incorporated and plants were mulched with a layer of shredded leaves collected from the arboretum's woods.

Cuttings were taken from selected clones each month starting in May 2011. The newest growth was targeted for cuttings each month. Each cutting was approximately 7 cm long and included 10 to 14 leaves. The lowest 4 to 5 leaves were removed and cuttings were dipped in Hormodin 3 (8,000 ppm IBA-talc) and placed in flats containing 1 milled spaghnum : 1 coarse perlite (by volume). Flats were placed on a mist bench in a greenhouse with 50% solar shade at temperatures between 75 °F and 80 °F. After 6 weeks, cuttings were evaluated by counting and measuring roots that had formed. After 9 to 10 weeks, previously unrooted cuttings were evaluated for rooting,and rooted cuttings were transplanted to 1-L pots containing 1 screened Fafard Nursery Mix : 1 coarse sand (by volume). After 14 to 18 weeks, previously unrooted cuttings were evaluated for rooting.

PRELIMINARY RESULTS

In May – August 2011 (Fig. 1), softwood cuttings were a successful method to propagate box huckleberry. Six weeks after cuttings were taken each month, clonal rooting percentages ranged from 0% to 100% and averaged 64%. Nine weeks after cuttings were taken, an average of 74% had rooted. Eighteen weeks after cuttings were taken, 96% had rooted.

In July 2011, the wrong hormone (Hormodin 2 at 3,000 ppm IBA-talc) was mistakenly used, which makes interpretation of rooting results for that month difficult.

Although softwood cuttings were largely successful, the largest differences in rooting success for early summer cuttings were between clones. The West Virginia and Tennessee clones averaged 95% and 91% rooting, respectively, after 6 weeks for May, June, and August cuttings. The first Kentucky clone (KY1) averaged 55% rooting after 6 weeks and the second clone (KY2) averaged 71% rooting after 6 weeks. The Maryland clone averaged 8% rooting after 6 weeks. Although the vast majority of all cuttings rooted after 18 weeks, some did so in half the time of others. This may have implications for production costs associated with mist bench space.

These results are preliminary as they represent about one-quarter of the data to be taken during this experiment. When complete, this experiment will provide information about how to best propagation practices for box huckleberry.

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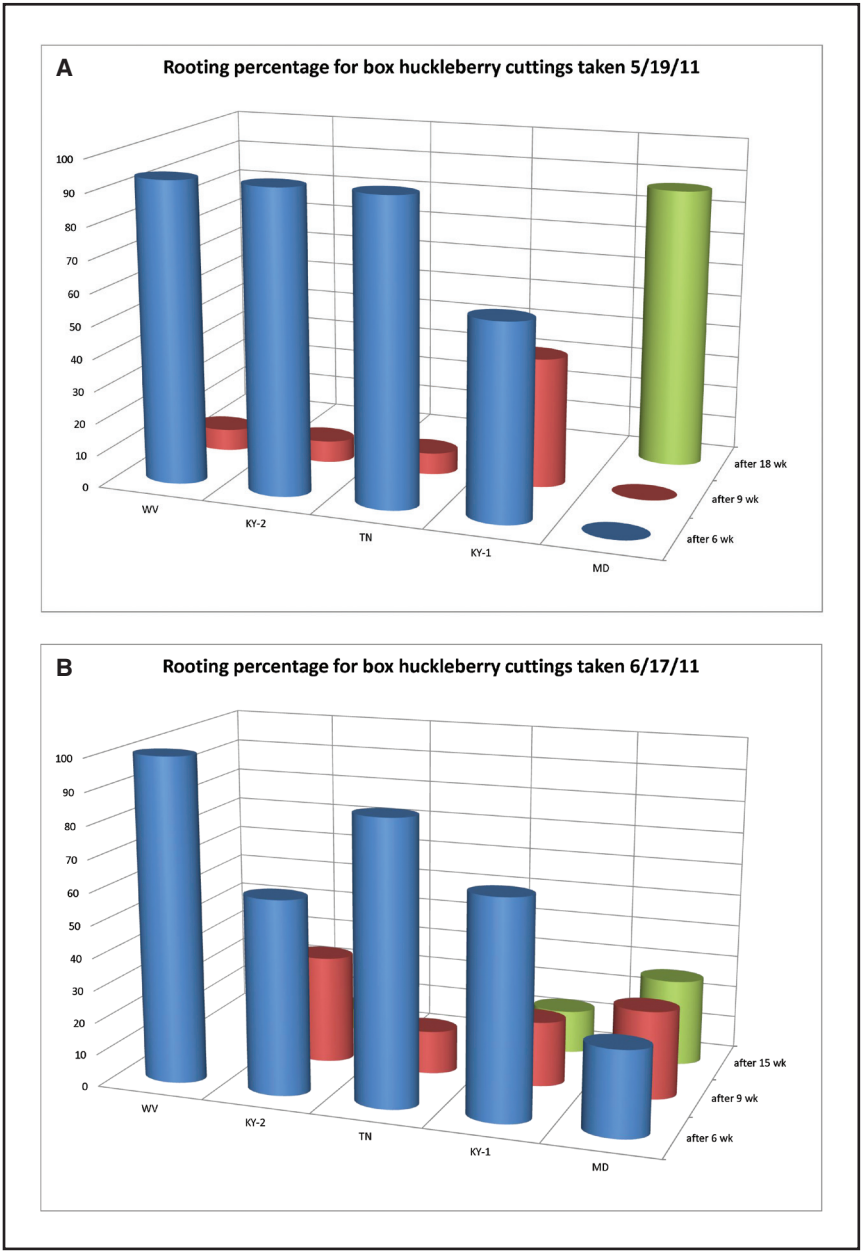

Figure 1 A and B. Rooting percentages for box huckleberry cuttings taken during four months in 2011. *The wrong rooting hormone (Hormodin 2) was mistakenly used for the 15 July 2011 cutting date; therefore results cannot be compared with other cutting dates.

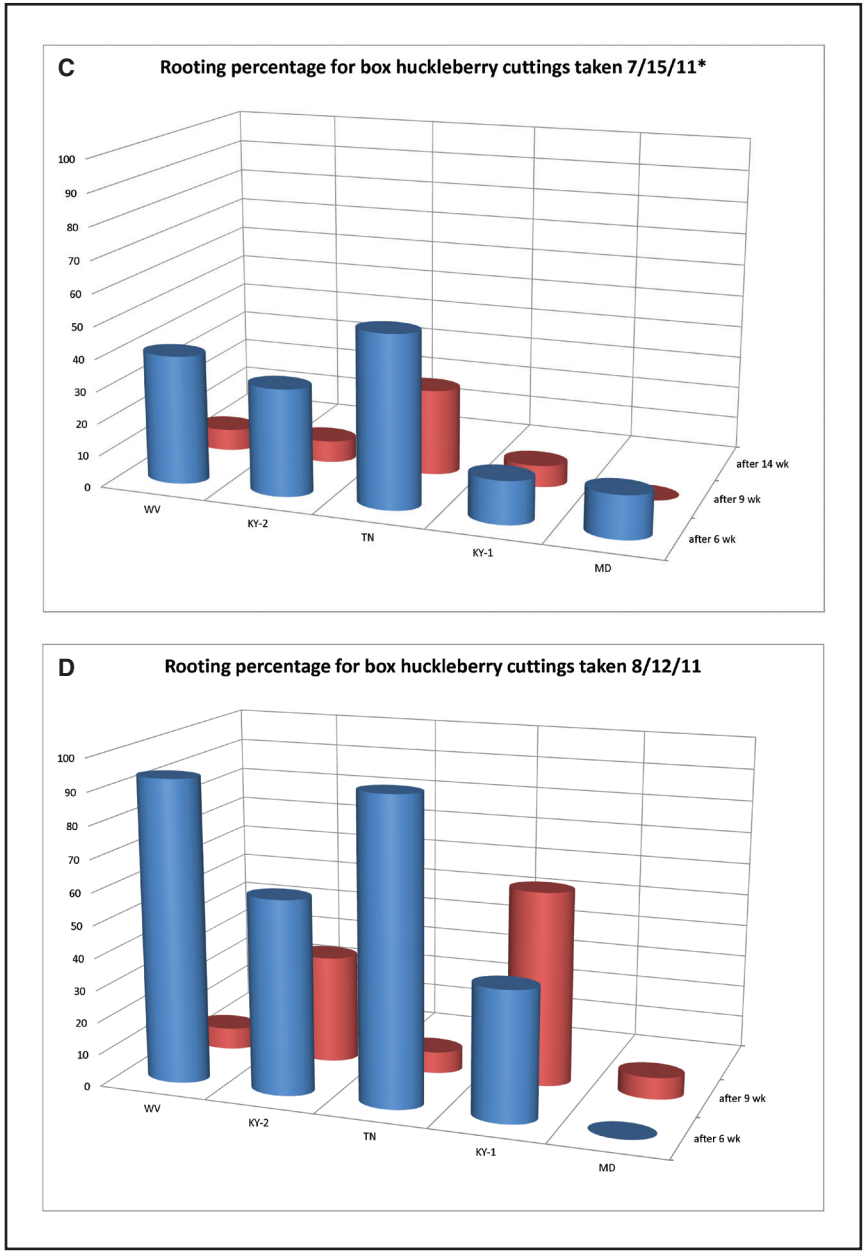

Figure 1 C and D. Rooting percentages for box huckleberry cuttings taken during four months in 2011. *The wrong rooting hormone (Hormodin 2) was mistakenly used for the 15 July 2011 cutting date; therefore results cannot be compared with other cutting dates.